



Scarborough Offshore Facility and Trunkline (Operations) Environment Plan

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Revision 3

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TABLE OF CONTENTS

1	INTRODUCTION	23
1.1	Overview.....	23
1.2	Defining the Petroleum Activity	23
1.3	Purpose of the Environment Plan.....	23
1.4	Scope of the Environment Plan.....	24
1.5	Environment Plan Summary	24
1.6	Structure of the Environment Plan	24
1.7	Description of the Titleholder	27
1.8	Details of Titleholder, Nominated Liaison and Public Affairs Contact	27
1.8.1	Titleholder.....	27
1.8.2	Nominated Liaison	27
1.8.3	Arrangements for Notifying of Change	27
1.9	Woodside Management System	27
1.9.1	Environment and Biodiversity Policy	29
1.10	Description of Relevant Requirements.....	29
1.10.1	Offshore Petroleum and Greenhouse Gas Storage Act 2006.....	29
1.10.2	Environment Protection and Biodiversity Conservation Act 1999	30
1.10.2.1	Offshore Project Proposal	31
1.10.2.2	Recovery Plans and Threat Abatement Plans	31
1.10.2.3	Australian Marine Parks	32
2	ENVIRONMENT PLAN PROCESS	33
2.1	Overview.....	33
2.2	Environmental Risk Management Methodology	33
2.2.1	Woodside Risk Management Process.....	33
2.2.2	Establish the Context.....	34
2.2.3	Review of the Significance/Sensitivity of Receptors and Levels of Protection	34
2.2.4	Environmental Legislation and Other Requirements	34
2.2.5	Impact and Risk Identification	34
2.3	Impact and Risk Analysis and Evaluation.....	35
2.3.1	Decision Support Framework.....	35
2.3.1.1	Decision Support Framework Tools.....	37
2.3.1.2	Decision Calibration	37
2.3.2	Control Measures (Hierarchy of Controls)	37
2.3.3	Impact and Risk Classification	38
2.3.4	Risk Rating Process.....	39
2.3.4.1	Select the Consequence Level.....	39
2.3.4.2	Select the Likelihood Level.....	39
2.3.4.3	Calculate the Risk Rating	39
2.3.5	Demonstration of As Low As Reasonably Practicable.....	41

2.3.6 Demonstration of Acceptability..... 41

2.4 Environment Protection and Biodiversity Conservation Act Assessment..... 42

2.4.1 Principles of Ecological Sustainable Development..... 42

2.4.2 Matter of National Environmental Significance: Significant Impact Guidelines 1.1..... 43

2.4.3 Recovery Plan and Threat Abatement Plan Assessment..... 43

2.5 Environmental Performance Objectives/Outcomes, Standards and Measurement Criteria
..... 44

3 DESCRIPTION OF THE ACTIVITY45

3.1 Overview..... 45

3.2 Location..... 47

3.3 Operational Area..... 49

3.4 Timing..... 52

3.5 Future Expansion..... 55

3.6 Floating Production Unit Installation and Hook-up..... 55

3.6.1 Floating Production Unit Mooring Hook-up..... 56

3.6.2 Production and Export Riser Hook-up..... 56

3.7 Offshore Facility Commissioning..... 57

3.7.1 Dewatering of Production and Export Systems 57

3.7.2 Subsea System Commissioning 57

3.7.3 Floating Production Unit Commissioning..... 57

3.7.4 General Facility Maintenance..... 58

3.8 Offshore Facility Initial Start-up 58

3.8.1 Well Cleanup 59

3.9 Scarborough Operations..... 59

3.9.1 Facility Layout and Description 59

3.9.1.1 Topsides 59

3.9.1.2 Process Area..... 60

3.9.1.3 Utilities Area 61

3.9.1.4 Utility Building..... 61

3.9.1.5 Living Quarters..... 61

3.9.1.6 Floating Production Unit Hull 61

3.9.2 Wells and Reservoirs 61

3.9.3 Subsea Infrastructure Operations 62

3.9.4 Export Trunkline..... 63

3.9.5 Moorings..... 67

3.9.6 Operational Details 67

3.9.6.1 Attendance Modes 67

3.9.7 Process Description 68

3.9.7.1 Production Process 68

3.9.7.2 Inlet Facilities 68

3.9.7.3 Gas Conditioning..... 69

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3.9.7.4	Export Gas Compression	71
3.9.8	Flare Systems.....	71
3.9.8.1	High Pressure Flare System.....	71
3.9.8.2	Low Pressure Flare System	71
3.9.8.3	Flaring – Normal Operations	71
3.9.8.4	Flaring – Intermittent Process Activities and Upsets	71
3.9.9	Monoethylene Glycol Recovery and Storage System.....	73
3.9.10	Produced Water System	74
3.9.10.1	Produced Water System Description	74
3.9.10.2	Produced Water Oil-in-Water Discharge Monitoring	76
3.9.11	Drainage Systems	76
3.9.11.1	Closed Drains.....	76
3.9.11.2	Open Drains	76
3.9.12	Floating Production Unit Utility Systems.....	77
3.9.12.1	Floating Production Unit Lighting.....	77
3.9.12.2	Heating Ventilation and Air Conditioning System.....	77
3.9.12.3	Seawater System	77
3.9.12.4	Fresh, Potable, Utility and Demin Water System	78
3.9.12.5	Power Generation and Distribution.....	78
3.9.12.6	Heating Medium	79
3.9.12.7	Fuel Gas System.....	79
3.9.12.8	Diesel Fuel Supply System.....	79
3.9.12.9	Sand Management	79
3.9.12.10	Sewage and Putrescible Wastes	80
3.9.12.11	Lifting Operations	80
3.9.12.12	Instrument/Utility Air System	81
3.9.12.13	Nitrogen System.....	81
3.9.13	Bunkering	81
3.9.14	Ballast and Bilge System	81
3.9.15	Safety Features and Emergency Systems	82
3.9.16	Hydrocarbon and Chemical Inventories	82
3.9.16.1	Hydrocarbons.....	82
3.9.16.2	Chemical Usage.....	83
3.9.16.3	Operational Chemicals	83
3.9.16.4	Indicative Chemical Inventories	84
3.9.16.5	Chemical Selection, Assessment and Approval.....	84
3.9.17	Inspection, Monitoring, Maintenance, and Repair Activities.....	86

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3.9.17.1	Inspection.....	86
3.9.17.2	Monitoring	87
3.9.17.3	Maintenance.....	87
3.9.17.4	Repair	88
3.9.17.5	Removal of Equipment	88
3.9.17.6	Pigging Operations.....	89
3.9.17.7	Subsea Chemical Use.....	89
3.9.17.8	Typical Discharges During Inspection, Monitoring, Maintenance and Repair Activities	89
3.9.17.9	Marine Growth Removal.....	90
3.9.17.10	Sediment Relocation	90
3.9.17.11	Underwater Acoustic Positioning	91
3.10	Gravimetry surveys.....	91
3.11	Vessel-based Activities	92
3.11.1	Support Vessels.....	93
3.11.2	Accommodation Support Vessel	94
3.11.3	Anchor Handling Tug/Tow Vessels	95
3.11.4	Light Construction Vessel	95
3.11.5	Uncrewed Surface Vessel.....	95
3.12	Helicopter Operations	96
3.13	Contingent Activities	96
3.13.1	Trunkline Repair and Flooding, Cleaning, Gauging and Testing	96
3.13.2	Wet Storing Equipment.....	97
4	DESCRIPTION OF THE EXISTING ENVIRONMENT	98
4.1	Overview.....	98
4.2	Regional Context	102
4.3	Matters of National Environmental Significance (Environment Protection and Biodiversity Conservation Act)	103
4.4	Physical Environment	103
4.4.1	Offshore Operational Area	103
4.4.2	Trunkline Operational Area	105
4.5	Habitats and Biological Communities.....	107
4.5.1	Offshore Operational Area	107
4.5.2	Trunkline Operational Area	108
4.6	Protected Species.....	110
4.6.1	Fish, Sharks and Rays.....	111
4.6.2	Marine Reptiles.....	114
4.6.3	Marine Mammals	122
4.6.3.1	Pygmy Blue Whales	126
4.6.4	Seabirds and Migratory Shorebirds.....	128
4.6.5	Seasonal Sensitivities for Protected Species	134
4.7	Key Ecological Features	135

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4.8	Protected Places.....	138
4.9	Cultural Features and Heritage Values	141
4.9.1	Background	141
4.9.2	First Nations Peoples.....	141
4.9.3	Coastally Adjacent First Nations Groups.....	142
4.9.3.1	Marine Parks	144
4.9.4	Sea Country Values	146
4.9.4.1	Desktop Assessment of Sea Country Values	147
4.9.4.2	Studies of Cultural Features and Heritage Values	156
4.9.4.3	Consultation Feedback to Inform Existing Environment.....	165
4.9.4.4	Further Context: Archaeological Heritage.....	188
4.9.4.5	Further Context: Intangible Cultural Heritage.....	188
4.9.4.6	Further Context: Marine Ecosystems and Species	190
4.9.5	Murujuga Cultural Landscape	191
4.9.6	Summary of Existing Research on Onshore Industrial Emissions	196
4.9.6.1	Research, Monitoring and Publications	197
4.9.7	Historic Sites of Significance.....	202
4.9.8	Underwater Heritage.....	202
4.9.9	World, National and Commonwealth Heritage Listed Places.....	204
4.10	Socio-economic Environment	205
4.10.1	Commercial Fisheries	205
4.10.2	Traditional Fisheries.....	215
4.10.3	Tourism and Recreation.....	215
4.10.4	Commercial Shipping.....	215
4.10.5	Oil and Gas.....	216
4.10.6	Submarine Communications Infrastructure	217
4.10.7	Defence	218
5	CONSULTATION	220
5.1	Summary	220
5.2	Consultation – General Context	221
5.3	Identification of Relevant Persons for Consultation	226
5.3.1	Regulations 25(1)(a), (b) and (c).....	226
5.3.2	Identification of Relevant Persons under Regulations 25(1)(a), (b) and (c)	226
5.3.3	Regulation 25(1)(d).....	227
5.3.4	Identification of Relevant Persons under Regulation 25(1)(d)	227
5.3.5	Regulation 25(1)(e).....	234
5.3.6	Identification of Relevant Persons under Regulation 25(1)(e)	234
5.3.7	Persons or Organisations Woodside Chooses to Contact.....	234
5.3.8	Assessment of Relevant Persons for the Proposed Activity	234
5.4	Consultation Material and Timing.....	234
5.4.1	Sufficient Information	235

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5.4.2 Reasonable Period for Consultation..... 238

5.4.3 Discharge of Regulation 25..... 239

5.5 Context of Consultation Approach with First Nations..... 240

5.5.1 Approach to Methodology – Woodside’s Interpretation of *Tipakalippa Appeal*..... 240

5.5.2 Consultation Method..... 241

5.5.2.1 Identification of Relevant Persons 243

5.5.2.2 Opportunity to Self-identify and Identifying Other Individuals..... 244

5.5.2.3 Sufficient Information..... 245

5.5.2.4 Reasonable Period for Consultation 246

5.5.2.5 Discharge of Regulation 25 246

5.6 Providing Feedback and Assessment of Merit of Objections or Claims..... 246

5.7 Ongoing Consultation 247

6 ENVIRONMENTAL RISK ASSESSMENT, PERFORMANCE OUTCOMES, STANDARDS AND MEASUREMENT CRITERIA..... 248

6.1 Overview..... 248

6.2 Impact and Risk Analysis and Evaluation..... 248

6.2.1 Concurrent Operations and Cumulative Impacts..... 253

6.3 Environmental Performance Outcomes, Standards and Measurement Criteria..... 253

6.4 Presentation 265

6.5 Potential Environment Risks Not Included Within the Scope of this Environment Plan.. 267

6.5.1 Shallow/Near-shore Activities 267

6.5.2 Loss of Containment of Existing or Third-party Subsea Infrastructure 267

6.6 Indirect Impacts 268

6.7 Planned Activities (Routine and Non-routine)..... 269

6.7.1 Physical Presence: Interactions with Other Marine Users 269

6.7.2 Physical Presence: Seabed Disturbance 278

6.7.3 Routine Light Emissions: Floating Production Unit and Vessels..... 287

6.7.4 Routine Acoustic Emissions: Floating Production Unit Hook-up and Commissioning.... 299

6.7.5 Routine Acoustic Emissions: Routine Operations 320

6.7.6 Routine and Non-routine Greenhouse Gas Emissions 335

6.7.7 Routine Atmospheric Emissions: Offshore, and Indirect Emissions from Gas Processing Onshore..... 387

6.7.8 Physical Presence: Interactions between diurnal migratory/foraging seabirds and shorebirds and the FPU..... 410

6.7.9 Routine and Non-routine Discharges: Vessels..... 416

6.7.10 Routine and Non-routine Discharges: Floating Production Unit Operations (Wastewater Streams)..... 423

6.7.11 Routine and Non-routine Discharges: Floating Production Unit Operations (Comingled Produced Water/Seawater Return Stream)..... 431

6.7.12 Routine and Non-Routine Discharges: Subsea Operations, Activities and Contingent Trunkline Dewatering..... 456

6.7.13 Routine and Non-routine Discharges: Floating Production Unit and Subsea Commissioning and Initial Start-up..... 472

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6.8 Unplanned Activities (Accidents, Incidents, Emergency Situations) 480

6.8.1 Quantitative Spill Risk Assessment Methodology and Floating Production Unit Significant Environment Event Overview 480

6.8.1.1 Quantitative Hydrocarbon Spill Modelling 480

6.8.1.2 Environment that May Be Affected and Hydrocarbon Contact Thresholds..... 482

6.8.1.3 Surface Hydrocarbon Threshold Concentrations 483

6.8.1.4 Accumulated Hydrocarbon Threshold Concentrations 483

6.8.1.5 Dissolved Aromatic Hydrocarbon Threshold Concentrations 484

6.8.1.6 Entrained Hydrocarbon Threshold Concentrations 484

6.8.1.7 Scientific Monitoring 484

6.8.1.8 Classification and Analysis of Significant Environment (Process Safety) Events 484

6.8.1.9 Safety and Environment Critical Elements and Technical Performance Standards... 486

6.8.2 Unplanned Diesel Release: Vessel Collision..... 488

6.8.3 Unplanned Diesel Release: Loss of FPU/ASV Structural Integrity/Stability 512

6.8.4 Unplanned Gas Release: Loss of Well Containment..... 526

6.8.5 Unplanned Gas Release: Subsea Equipment and Trunkline Loss of Containment 534

6.8.6 Unplanned Diesel Release: FPU Topsides Loss of Containment including Bunkering/Refuelling..... 542

6.8.7 Unplanned Discharge: Chemical Release During Transfer, Storage and Use 557

6.8.8 Unplanned Discharge: Loss of Solid Hazardous and Non-hazardous Wastes 564

6.8.9 Physical Presence (Unplanned): Seabed Disturbance 571

6.8.10 Physical Presence (Unplanned): Interactions with Fauna 577

6.8.11 Physical Presence (Unplanned): Introduction and Establishment of Invasive Marine Species..... 585

6.9 Environment Protection and Biodiversity Conservation Act Assessment..... 595

6.9.1 Matters of National Environmental Significance Significant Impact Guidelines..... 595

6.9.2 Principles of Ecologically Sustainable Development 595

6.9.3 Recovery Plan and Threat Abatement Plan Assessment 595

6.10 Cultural Features and Heritage Values Assessment 610

7 IMPLEMENTATION STRATEGY 629

7.1 Overview..... 629

7.2 Systems, Practice and Procedures 629

7.2.1 Woodside Management System Operate Processes 629

7.2.1.1 Operate Plant..... 629

7.2.1.2 Integrated Safe System of Work..... 629

7.2.1.3 Maintain Assets..... 630

7.2.2 Process Safety Management 630

7.2.2.1 Woodside Safety Culture Framework 631

7.2.3 Risk Management..... 632

7.2.3.1 Management of Risks – Contracting and Procurement (Operations) 632

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7.2.3.2 Management of Risks – Subsea Activities (Operations) 633

7.2.3.3 Management of Risks – Major Projects 633

7.2.3.4 Management of Risks – Well Integrity 634

7.2.3.5 Management of Risks – Marine Services 634

7.2.3.6 Management of Human Factor Related Risks 634

7.2.4 Emissions and Energy Management..... 634

7.2.4.1 GHG Emissions and Energy Management Procedure 635

7.2.4.2 Production Optimisation and Opportunity Management..... 636

7.2.4.3 Greenhouse Gas, Energy and Flare Target Setting - Operations 637

7.2.4.4 Fuel and Flare Target Setting - Initial Start-Up 638

7.2.4.5 Methane Management 639

7.2.5 Offshore Marine Discharge Adaptive Management Plan 640

7.2.5.1 Overview 640

7.2.5.2 Routine Monitoring and Management..... 641

7.2.5.3 Further Investigations 642

7.2.5.4 ALARP/Acceptability Study 643

7.2.5.5 Review and revision 644

7.2.6 Woodside Invasive Marine Species Risk Assessment Process..... 644

7.2.6.1 Objective and Scope 644

7.2.6.2 Risk Assessment Process 645

7.2.6.3 Scarborough FPU Invasive Marine Species Management Plan..... 647

7.2.7 Change Management 647

7.2.7.1 Technical Change Management..... 648

7.2.7.2 Environment Plan Management of Change and Revision..... 649

7.2.7.3 Oil Pollution Emergency Plan Management of Change 649

7.2.8 Management of Safety and Environment Critical Element Technical Performance Standards and Management System Performance Standards (Operations) 650

7.2.8.1 Management System Performance Standards 650

7.2.8.2 Safety and Environment Critical Element Technical Performance Standards 650

7.3 Woodside Decommissioning Framework 652

7.3.1 Decommissioning in Operations..... 652

7.3.2 Facility Decommissioning Planning..... 653

7.3.2.1 Scarborough Decommissioning Planning 653

7.3.2.2 Subsea Infrastructure Decommissioning 653

7.3.2.3 Scarborough Trunkline Decommissioning 656

7.3.2.4 Floating Production Unit Decommissioning 656

7.4 Frontline Offshore Seabird Management Plan 657

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7.5 Woodside Corporate GHG Emission Targets..... 657

7.5.1 Scope 1 GHG Emission Targets 657

7.5.2 Scope 3 GHG Emission Targets 658

7.6 Organisation Structure 659

7.6.1 Roles and Responsibilities 660

7.7 Heritage Management Committee Implementation 667

7.8 Unexpected Finds Procedure..... 668

7.9 Training and Competency – Project and Vessel Activities..... 669

7.9.1 Inductions and Training..... 669

7.9.2 Activities Program Specific Environmental Awareness..... 670

7.9.3 Inductions for Offshore Facility Workers and Visitors 670

7.9.4 Operations Competency Framework Training..... 670

7.9.5 Permit to Work System Training..... 671

7.9.6 Emergency and Hydrocarbon Spill Response Training 671

7.9.7 Subsea Inspection, Monitoring, Maintenance and Repair Activity Environmental Awareness
..... 671

7.9.8 Marine Fauna Observation Training..... 672

7.9.9 Establishment of seabird handling capabilities 673

7.9.10 Management of Training Requirements 673

7.10 Monitoring, Auditing, Management of Non-conformance and Review 674

7.10.1 Monitoring..... 674

7.10.1.1 Source-based Impacts and Risks 674

7.10.1.2 Management of Newly Identified Impacts and Risks..... 675

7.10.1.3 Management of Knowledge 676

7.10.2 Auditing..... 676

7.10.2.1 Floating Production Unit Hook-up and Commissioning Activities 676

7.10.2.2 Operations Assurance 677

7.10.2.3 Inspection and Audits – Operations..... 677

7.10.2.4 Annual Offshore Inspection/Desktop Review..... 678

7.10.2.5 Marine Assurance 678

7.10.2.6 Risk Assessment..... 679

7.10.3 Management of Non-conformance..... 679

7.10.4 Review..... 680

7.10.4.1 Management Review..... 680

7.10.4.2 Learning and Knowledge Sharing..... 680

7.10.4.3 Review of Impacts, Risks and Controls Across the Life of the Environment Plan 680

7.10.4.4 Program of Ongoing Engagement with Traditional Custodians..... 680

7.10.5 Ongoing Consultation 681

7.11 Record Keeping 683

7.12 Reporting 683

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7.12.1	Routine Reporting (Internal).....	683
7.12.1.1	Daily Progress Reports and Meetings	683
7.12.1.2	Regular Health, Safety and Environment Meetings	684
7.12.1.3	Performance Reporting	684
7.12.2	Routine Reporting (External).....	684
7.12.2.1	Start and End Notifications of the Petroleum Activities Program.....	684
7.12.2.2	Environmental Performance Review and Reporting	684
7.12.2.3	End of the Environment Plan.....	685
7.12.3	Incident Reporting (Internal).....	685
7.12.4	Incident Reporting (External) – Reportable and Recordable	685
7.12.4.1	Reportable Incidents	685
7.12.4.2	Recordable Incidents.....	686
7.12.4.3	Other External Incident Reporting Requirements	686
7.13	Emergency Preparedness and Response.....	688
7.13.1	Overview.....	688
7.13.2	Emergency Response Training.....	689
7.13.3	Emergency Response Preparation	690
7.13.3.1	Initial Response to Facility Incident	690
7.13.4	Oil and Other Hazardous Materials Spill	691
7.13.5	Emergency and Spills Response	691
7.13.6	Emergency and Spill Response Drills and Exercises	692
7.13.7	Hydrocarbon Spill Response Testing of Arrangements	695
7.13.7.1	Testing of Arrangements Schedule	695
7.13.8	Cyclone and Dangerous Weather Preparation.....	696
8	REFERENCES	697
9	GLOSSARY AND ABBREVIATIONS	720
9.1	Glossary	720
9.2	Abbreviations.....	722
	Appendix A: Woodside Policies	731
	Appendix B: Relevant Requirements	732
	Appendix C: Environment Protection and Biodiversity Conservation Act Protected Matters Search.....	736
	Appendix D: Aboriginal Cultural Heritage Inquiry System Searches.....	737
	Appendix E: National Offshore Petroleum Safety and Environmental Management Authority Reporting Forms.....	738
	Appendix F: Consultation.....	739
	Appendix G: Program of Ongoing Engagement with Traditional Custodians.....	740
	Appendix H: Oil Spill Preparedness and Response Mitigation Assessment	741

Appendix I: Oil Pollution First Strike Plan 742
 Appendix J: Concordance with Scarborough Offshore Project Proposal 743
 Appendix K: Murujuga Rock Art Strategy and Murujuga Rock Art Monitoring Program . 749
 Appendix L: Woodside Master Existing Environment 752

LIST OF FIGURES

Figure 1-1: The four major elements of the Woodside Management System framework 28
 Figure 1-2: The Woodside Management System business process hierarchy 29
 Figure 2-1: Risk related decision-making framework (Oil and Gas UK, 2014) 36
 Figure 2-2: Environmental risk and impact analysis 38
 Figure 2-3: Woodside Risk Matrix – risk level..... 40
 Figure 3-1: Scarborough floating production unit render / artists impression. 45
 Figure 3-2: Location of the Petroleum Activities Program..... 50
 Figure 3-3: Combined Offshore Operational Area 51
 Figure 3-4: FPU Hookup, Commissioning, Start-up and Operations – Planned durations and sequence 54
 Figure 3-5: Floating production unit pre-mooring installation preparations 55
 Figure 3-6: Floating production unit mooring lines layout 56
 Figure 3-7: Facility topsides overview 60
 Figure 3-8: Indicative Scarborough field infrastructure layout..... 62
 Figure 3-9: Scarborough Export Trunkline infrastructure overall layout 66
 Figure 3-10: Production system process flow diagram 70
 Figure 3-11: Block diagram of combined monoethylene glycol recovery unit and produced water treatment systems..... 74
 Figure 3-12: Process flow diagram of the produced water treatment plant 75
 Figure 3-13: Produced water treatment unit 75
 Figure 3-14: Open drains system 76
 Figure 3-15: Offshore Chemical Notification Scheme ranking 86
 Figure 3-16: Gravimetry activity diagram (not to scale) 92
 Figure 4-1 Worst-case credible spill scenario modelling..... 100
 Figure 4-2: Environment that may be affected by the Petroleum Activities Program..... 101
 Figure 4-3: Location of the Petroleum Activities Area and relevant marine bioregions 102
 Figure 4-4: Bathymetry of the Offshore Operational Area..... 105
 Figure 4-5: Bathymetry of the Export Trunkline Operational Area 107
 Figure 4-6: Whale shark biologically important areas overlapping the Petroleum Activities Area and satellite tracks (Meekan and Radford, 2010) 113
 Figure 4-7: Marine turtle biologically important areas overlapping the Petroleum Activities Area. 119

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Figure 4-8: Habitat critical to the survival of marine turtles overlapping the Petroleum Activities Area 121

Figure 4-9: Humpback whale biologically important areas overlapping the Petroleum Activities Area and satellite tracks of tagged whales (Double et al., 2010, 2012)..... 124

Figure 4-10: Pygmy blue whale biologically important areas and distribution range (as per the National Conservation Values Atlas and Blue Whale Conservation Management Plan, respectively) with reference to the Petroleum Activities Area and the 20 tracks of satellite tagged pygmy blue whales recorded in the NWMR, of the 22 tracks presented in Thums et al. (2022)..... 125

Figure 4-11: Important foraging and areas of occurrence for pygmy blue whales as presented in the Blue Whale Conservation Plan (Commonwealth of Australia, 2015a); note: known to occur area in the Blue Whale Conservation Management Plan is the same as the distribution range presented in the National Conservation Values Atlas 127

Figure 4-12: Seabird biologically important areas overlapping the Petroleum Activities Area 133

Figure 4-13: Key ecological features overlapping the Petroleum Activities Area 137

Figure 4-14: Protected areas overlapping the environment that may be affected 140

Figure 4-15: Petroleum Activities Area and environment that may be affected in relation to native title claims, determinations and Indigenous Land Use Agreements 143

Figure 4-16: Scarborough development extent considered in the 2019 ethnographic survey (Mott, 2019) 162

Figure 4-17: Scarborough Development Location considered in the 2020 ethnographic survey (McDonald and Phillips, 2021) 164

Figure 4-18: Petroleum Activities Area and environment that may be affected in relation to State and Commonwealth shipwrecks 203

Figure 4-19: Commercial Commonwealth fisheries overlapping the Petroleum Activities Area and environment that may be affected with a potential for interaction with the Petroleum Activities Program..... 211

Figure 4-20: Commercial State fisheries overlapping the Petroleum Activities Area and environment that may be affected with a potential for interaction with the Petroleum Activities Program (Pilbara Trap, Pilbara Trawl and Mackerel Managed Fisheries) 212

Figure 4-21: Commercial State Fisheries overlapping the Petroleum Activities Area and environment that may be affected with a potential for Interaction with the Petroleum Activities Program (Pilbara Line, Onslow Prawn and Pilbara Crab Fisheries) 213

Figure 4-22: Commercial State fisheries overlapping the Petroleum Activities Area and environment that may be affected with a potential for interaction with the Petroleum Activities Program (Western Australia Sea Cucumber, Marine Aquarium Managed and Specimen Shell Fisheries)..... 214

Figure 4-23: Vessel density map for the Petroleum Activities Area, derived from Australian Maritime Safety Authority satellite tracking system data 216

Figure 4-24: Oil and gas titles and infrastructure relative to the Petroleum Activities Area 217

Figure 4-25: Defence Restricted and Prohibited areas relative to the Petroleum Activities Area . 219

Figure 5-1: Overview of Woodside’s methodology to identify relevant persons 221

Figure 5-2: Overview of Woodside’s consultation approach 224

Figure 6-1: Fuel gas greenhouse gas emissions by source during normal operations..... 338

Figure 6-2: Direct greenhouse gas emissions by source during normal operations 341

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Figure 6-3: Direct greenhouse gas emissions by source during hook-up and commissioning 341

Figure 6-4: Direct greenhouse gas emissions by source during the period of this Environmental Plan 344

Figure 6-5: Indirect greenhouse gas emissions by source over the life of this Environment Plan 345

Figure 6-6: Forecast global gas use in climate pathways that limit warming to 1.5°C and 2°C, with expected supply 354

Figure 6-7: Expected dilution contours for a seabed discharge of 29,000 m³ in Commonwealth waters adjacent to the State waters boundary 461

Figure 6-8: Mass balance plot representing, as proportion (middle panel) and volume (bottom panel), the weathering of marine diesel spilled onto the water surface as a one-off release (50 m³ over one hour) and subject to a constant 5 kn (2.6 m/s) wind at 27 °C water temperature and 25 °C air temperature 491

Figure 6-9: Proportional mass balance plot representing weathering of a surface spill of marine diesel as a one-off release (50 m³ over 1 hour) and subject to variable wind at 27 °C water temperature and 25 °C air temperature (RPS, 2024) 492

Figure 7-1: Process safety management focus area 631

Figure 7-2: Woodside ‘Our Safety Culture’ framework 632

Figure 7-3: Opportunity Management Workflow 637

Figure 7-4: Fuel and flare target management during initial start-up..... 639

Figure 7-5: Routine monitoring and adaptive management framework for produced water 642

Figure 7-6: Change management hierarchy 648

Figure 7-7: Woodside’s process for decommissioning planning 653

Figure 7-8: Indicative three-yearly testing of arrangements schedule..... 695

LIST OF TABLES

Table 1-1: Summary of contents of the Environment Plan..... 24

Table 1-2: Environment Plan process phases, applicable regulations and relevant section 25

Table 1-3: Relevant requirements of the Offshore Petroleum and Greenhouse Gas Storage Act.. 30

Table 2-1: Woodside Risk Matrix (environment and social and cultural) consequence descriptions 38

Table 2-2: Woodside Risk Matrix likelihood levels 39

Table 2-3: Summary of Woodside’s criteria for demonstrating ‘as low as reasonably practicable’ . 41

Table 2-4: Summary of Woodside’s criteria for Acceptability for Scarborough Environment Plan.. 42

Table 3-1: Petroleum Activities Program overview 46

Table 3-2: Scarborough infrastructure approximate locations and Petroleum Titles 48

Table 3-3: Timing of Petroleum Activities Program..... 52

Table 3-4: Export Trunkline Design and Operating Parameters 64

Table 3-5: Estimated hydrocarbon inventories of process and non-process equipment 83

Table 3-6: Indicative bulk inventories of chemicals..... 84

Table 3-7: Typical subsea infrastructure inspections/surveys and frequencies..... 87

Table 3-8: Typical maintenance activities and frequencies..... 87

Table 3-9: Typical discharge volumes during inspection, monitoring, maintenance and repair and subsea activities 90

Table 3-10: Marine growth removal methods 90

Table 3-11: Summary of vessels 93

Table 3-12: Indicative facility support vessel specifications (Siem Thiima) 94

Table 3-13: Indicative accommodation support vessel specifications 94

Table 3-14: Indicative anchor handling tug/tow vessel parameters 95

Table 3-15: Indicative light construction vessel parameters 95

Table 3-16: Indicative uncrewed surface vessel parameters 96

Table 4-1: Hydrocarbon spill thresholds used to define environment that may be affected for surface and in-water hydrocarbons..... 99

Table 4-2: Summary of matters of national environmental significance identified by the Environment Protection and Biodiversity Conservation Act Protected Matters Search Tool as potentially occurring within the Petroleum Activities Area 103

Table 4-3: Summary of matters of national environmental significance identified by the Environment Protection and Biodiversity Conservation Act Protected Matters Search Tool as potentially occurring within the environment that may be affected 103

Table 4-4: Summary of seabed features, sediments, epifauna and infauna along the trunkline route 106

Table 4-5: Habitats and communities within the environment that may be affected..... 109

Table 4-6: Threatened and Migratory fish, shark and ray species predicted to occur within the Petroleum Activities Area and environment that may be affected..... 111

Table 4-7: Fish, shark and ray biologically important areas within the environment that may be affected..... 112

Table 4-8: Threatened and Migratory marine reptile species predicted to occur within the Petroleum Activities Area and environment that may be affected..... 114

Table 4-9: Marine turtle biologically important areas within the environment that may be affected 115

Table 4-10: Marine turtle 'habitat critical' within the environment that may be affected..... 120

Table 4-11: Threatened and Migratory marine mammal species predicted to occur within the Petroleum Activities Area and environment that may be affected..... 122

Table 4-12: Marine mammal biologically important areas within the environment that may be affected 123

Table 4-13: Threatened and Migratory seabird and shorebird species predicted to occur within the Petroleum Activities Area and environment that may be affected..... 128

Table 4-14: Seabird biologically important areas within the environment that may be affected.... 132

Table 4-15: Key seasonal sensitivities for protected migratory species 135

Table 4-16: Key ecological features within the Petroleum Activities Area or environment that may be affected..... 136

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Table 4-17: Established protected places and other sensitive areas overlapping the environment that may be affected 138

Table 4-18: Summary of Native Title Claim or Determination and Indigenous Land Use Agreements that overlap or are coastally adjacent to the Environment that May be Affected..... 143

Table 4-19: Summary of Commonwealth and State Marine Park Management Plan overlap with the environment that may be affected 145

Table 4-20: Cultural features and heritage values identified in publicly available literature 148

Table 4-21: Values identified in the Scarborough Cultural Heritage Management Plan (Woodside, 2023a) 154

Table 4-22: Feedback received via consultation to inform Existing Environment Description 166

Table 4-23: Summary of cultural features and heritage values..... 182

Table 4-24: Murujuga National Park Management Plan objectives and applicability to Woodside194

Table 4-25: Recorded shipwrecks within EMBA..... 203

Table 4-26: World Heritage Properties and National/Commonwealth Heritage Listed Places within the environment that may be affected 205

Table 4-27: Commonwealth and State commercial fisheries overlapping the Petroleum Activities Area and environment that may be affected, and the potential for interaction during the Petroleum Activities Program 206

Table 4-28: Other oil and gas facilities located within 50 km of the Petroleum Activities Area 217

Table 4-29: Communications Infrastructure located within 50 km of the Petroleum Activities Area 218

Table 5-1: Categories of relevant persons 228

Table 5-2: Methodology for identifying relevant persons within the environment that may be affected undertaken under regulation 25(1)(d) – by category..... 229

Table 5-3: Typical forms of communication 236

Table 6-1: Environmental risk analysis and summary 249

Table 6-2: Comparison of Environment Plan Environmental Performance Outcomes to the relevant Offshore Project Proposal Environmental Performance Outcomes 255

Table 6-3: Potential Petroleum Activities Program within key ecological features and disturbance 281

Table 6-4: Modelled energy source level spectra (in deci-decade frequency-band) for sound sources associated with proposed Scarborough vessels during floating production unit hook-up and commissioning 300

Table 6-5: Concurrent activities contributing to cumulative underwater vessel noise..... 301

Table 6-6: Summary of modelled scenarios for floating production unit hook-up and commissioning 302

Table 6-7: Thresholds for permanent and temporary threshold shift and behavioural response onset for low-frequency and high-frequency cetaceans for impulsive and continuous noise 303

Table 6-8: Maximum predicted horizontal distances (Rmax) to permanent and temporary threshold shift and behavioural response thresholds in cetaceans 304

Table 6-9: Maximum predicted horizontal distances (Rmax) to updated permanent and temporary threshold shift and behavioural response thresholds in cetaceans for Scenarios 4 and 7: 305

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Table 6-10: Thresholds for permanent and temporary threshold shift and behavioural response onset in marine turtles for impulsive and continuous noise 306

Table 6-11: Maximum predicted horizontal distances (Rmax) to permanent and temporary threshold shifts in marine turtles 307

Table 6-12: Impact thresholds to fish, sharks and rays for continuous noise 308

Table 6-13: Modelled broadband sound source levels for PAP during routine operations. 321

Table 6-14: Concurrent activities contributing to cumulative underwater vessel noise..... 322

Table 6-15: Maximum predicted horizontal distances (Rmax) to permanent and temporary threshold shift and behavioural response thresholds in cetaceans 325

Table 6-16: Maximum predicted horizontal distances (Rmax) to permanent and temporary threshold shifts in marine turtles 327

Table 6-17: Direct and indirect greenhouse gas emissions from the Scarborough facility floating production unit and supply chain..... 336

Table 6-18: Estimated direct annual GHG emissions from fuel combustion during commissioning and start-up, and under steady state operations (excluding support vessels)..... 336

Table 6-19: Estimated emissions from flaring at the facility 339

Table 6-20: Fugitive emissions..... 340

Table 6-21: Emissions factors for Scarborough gas customer use and transport emissions 343

Table 6-22: Indirect and direct greenhouse gas emissions associated with Scarborough production 345

Table 6-23: Emissions reduction measures incorporated into FPU and Scarborough Project design. 346

Table 6-24: Comparative emissions intensity of different energy sources in Western Australia, 2022 2023 financial year..... 357

Table 6-25: Comparison of expected lifecycle GHG emissions associated with the project to global carbon budgets, assuming they are additive 358

Table 6-26 Legislation and other requirements relevant to greenhouse gas emissions..... 376

Table 6-27: Estimated direct annual atmospheric emissions from fuel combustion and flaring during commissions and start-up, and under steady state operations (excluding support vessels) 388

Table 6-28 Estimated atmospheric emissions from flaring at the facility..... 389

Table 6-29: Comparison of modelled NOx emission assumptions with recent reported information 391

Table 6-30: Seabird species most likely to interact with the FPU. 411

Table 6-31:PW discharge volumes and water depths at other Woodside offshore facilities..... 432

Table 6-32 Trigger values and frequency of monitoring 435

Table 6-33 Development Basis of Design Reservoir Metal Characteristic Concentrations. 437

Table 6-34: Whole effluent toxicity testing data (highest recorded value) 438

Table 6-35:Summary of the combined discharge characteristics..... 438

Table 6-36: Summary of near-field modelling results 439

Table 6-37: Estimated contingent Trunkline discharges 457

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Table 6-38: Ecotoxicological test results for Hydrosure 0-3670R 459

Table 6-39: Species protection concentrations for Hydrosure 0-3670R..... 459

Table 6-40: Average and maximum distances to achieve the threshold concentration at the 99% and 95% species protection 460

Table 6-41: Average and maximum distances to achieve the threshold concentration at the 99% and 95% species protection 460

Table 6-42: Credible hydrocarbon spill scenarios..... 481

Table 6-43: Spill locations for marine diesel instantaneous release 482

Table 6-44: Summary of environmental impact thresholds applied to the quantitative hydrocarbon spill risk modelling results 483

Table 6-45: The Bonn Agreement oil appearance code 483

Table 6-46: Barrier hierarchy and type of effect 486

Table 6-47: Characteristics of the marine diesel 490

Table 6-48: Key receptor locations and sensitivities potentially contacted above impact thresholds by the vessel collision scenario with summary hydrocarbon spill contact for a 250 m³ instantaneous marine diesel spill at two release locations in the Trunkline Project 501

Table 6-49: Credibility, consequence and likelihood of introducing invasive marine species 588

Table 6-50: Identification of applicability of recovery plan and threat abatement plan objectives and action areas 596

Table 6-51: Assessment against relevant actions of the Marine Turtle Recovery Plan..... 601

Table 6-52: Blue Whale Conservation Management Plan 603

Table 6-53: Southern Right Whale Recovery Plan 605

Table 6-54: Assessment against relevant actions of the Grey Nurse Shark Recovery Plan 607

Table 6-55: Assessment against relevant actions of the Sawfish and River Shark Recovery Plan 608

Table 6-56: Assessment against relevant Marine Debris Threat Abatement Plan 609

Table 7-1: Scarborough Facility Energy Management Plan..... 635

Table 7-2: Key factors considered as a part of the risk assessment process for vessels..... 645

Table 7-3: Key factors considered as a part of the risk assessment process for immersible equipment 646

Table 7-4: Safety and Environment Critical Element Management Procedure summary 650

Table 7-5: Design features and maintenance plans to enable removal of infrastructure at decommissioning 654

Table 7-6: Roles and responsibilities..... 661

Table 7-7: Summary of emissions and discharges monitoring for the Petroleum Activities Program 675

Table 7-8: Ongoing consultation engagements 682

Table 7-9: Routine external reporting requirements 685

Table 7-10: External incident reporting requirements 687

Table 7-11: Oil pollution and preparedness and response overview 688

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Table 7-12: Minimum levels of competency for key Incident Management Team positions 689
Table 7-13: Testing of response capability 693

1 INTRODUCTION

1.1 Overview

The Scarborough gas resource, located in Commonwealth waters approximately 375 km west-northwest of the Burrup Peninsula, forms part of the Greater Scarborough gas fields, comprising the Scarborough, Thebe and Jupiter gas fields. Woodside Energy Scarborough Pty Ltd (Woodside), as a Titleholder under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth) (referred to as the Environment Regulations), proposes to perform petroleum activities within Permit Areas WA-61-L and WA-62-L, specifically:

- hook-up of the Scarborough Floating Production Unit (FPU) (moorings and subsea system)
- startup and commissioning activities of the FPU and associated subsea wells, flowlines and infrastructure
- routine production and associated activities for up to 13 subsea wells (up to eight wells in Phase 1 and five wells in Phase 2)
- export of dry gas to the Pluto onshore gas plant, through the gas export trunkline (ETL)
- inspection, monitoring, maintenance and repair (IMMR) activities for the FPU, subsea infrastructure, and ETL
- gravimetry surveys.

These activities will hereafter be referred to as the Petroleum Activities Program (PAP) and form the scope of this Environment Plan (EP). A more detailed description of the activities is provided in Section 3.

This EP has been prepared by Woodside as part of the requirements under the Environment Regulations, as administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

The Petroleum Activities Program as defined in this EP is a part of the Scarborough Offshore Project Proposal (OPP) accepted by NOPSEMA on 30 March 2020.

1.2 Defining the Petroleum Activity

The Petroleum Activities Program to be undertaken within Permit Area WA-61-L and WA-62-L comprises petroleum activities, as defined in Regulation 5 of the Environment Regulations.

The Petroleum Activities Program includes pipeline operation, IMMR activities and all such other things in the area specified in the pipeline licence (WA-32-PL) as are necessary for, or incidental, to the operation of a pipeline as defined under section 211(1)(d)(i) of the OPGGS Act, which are petroleum activities as defined in Regulation 5 of the Environment Regulations.

1.3 Purpose of the Environment Plan

In accordance with the objectives of the Environment Regulations, the purpose of this EP is to demonstrate that:

- the environmental impacts and risks (planned (routine and non-routine) and unplanned) of the Petroleum Activities Program are identified;
- appropriate control measures are implemented to reduce environmental impacts and risks of the Petroleum Activities Program to 'as low as reasonably practicable' (ALARP) and an acceptable level; and
- the Petroleum Activities Program is carried out in a manner consistent with the principles of ecologically sustainable development (as set out in section 3A of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)).

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This EP describes the process and resulting outputs of the risk assessment, whereby impacts and risks are managed accordingly.

The EP defines activity-specific:

- Environmental Performance Outcomes (EPOs)
- Environmental Performance Standards (EPSs)
- Measurement Criteria (MCs).

These form the basis for monitoring, auditing and management of the Petroleum Activities Program to be undertaken by Woodside and its contractors. The implementation strategy (derived from the decision support framework tools) specified within this EP provides Woodside and NOPSEMA with the required level of assurance that the environmental impacts and risks of the Petroleum Activities Program are reduced to ALARP and an acceptable level.

1.4 Scope of the Environment Plan

The scope of this EP covers the activities that define the Petroleum Activities Program, as described in Section 3.

A Combined Offshore Operational Area and a Trunkline Operational Area have been defined (Section 3.3). These areas define the spatial boundary of the Petroleum Activities Program, hereafter referred to as the Petroleum Activity Area (PAA).

This EP addresses environmental impacts and risks from planned activities within the PAA and any potential unplanned events that originate from the Petroleum Activities Program within the PAA.

Transit to and from the PAA by vessels, as well as port activities associated with these vessels, are not within the scope of this EP. Vessels supporting the petroleum activities operating outside the PAA (e.g. transiting to and from port) are subject to all applicable maritime regulations and other requirements and are not managed by this EP.

1.5 Environment Plan Summary

An EP summary will be prepared based on the material provided in this EP, addressing the items listed in Table 1-1 as required by Regulation 35(6) of the Environment Regulations.

Table 1-1: Summary of contents of the Environment Plan

EP summary material requirement	Relevant section of EP containing EP summary material
The location of the activity	Section 3.2
A description of the receiving environment	Section 4
A description of the activity	Section 3
Details of the environmental impacts and risks	Section 6
The control measures for the activity	Section 6
The arrangements for ongoing monitoring of the titleholder’s environmental performance	Section 6
Response arrangements in the oil pollution emergency plan	Section 7.13
Consultation already undertaken and plans for ongoing consultation	Section 5
Details of the titleholders nominated liaison person for the activity	Section 1.8

1.6 Structure of the Environment Plan

This EP has been structured to reflect the process and requirements of the Environment Regulations as outlined in Table 1-2.

Table 1-2: Environment Plan process phases, applicable regulations and relevant section

Criteria for acceptance	Content requirements/relevant regulations	Elements	Section of EP
Regulation 34(a): Is appropriate for the nature and scale of the activity	Regulation 21: Environmental assessment Regulation 22: Implementation strategy for the environment plan Regulation 24: Other information in the environment plan	The principle of 'nature and scale' is applicable throughout the EP	Section 2 Section 3 Section 4 Section 5 Section 6 Section 7
Regulation 34(b): Demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable	Regulations 21(1)–21(7): 21(1) Description of the activity 21(2) and (3) Description of the environment 21(4) Requirements 21(5) and (6) Evaluation of environmental impacts and risks 21(7) Environmental Performance Outcomes and standards Regulations 24(a)–24(c): A statement of the titleholder's corporate environmental policy A report on all consultations between the titleholder and any relevant person	Set the context (activity and existing environment) Define 'acceptable' (the requirements, the corporate policy, relevant persons) Detail the impacts and risks Evaluate the nature and scale Detail the control measures – ALARP and acceptable	Section 1 Section 2 Section 3 Section 4 Section 5 Section 6 Section 7
Regulation 34(c): Demonstrates that the environmental impacts and risks of the activity will be of an acceptable level			
Regulation 34(d): Provides for appropriate Environmental Performance Outcomes, environmental performance standards and measurement criteria	Regulation 21(7): Environmental Performance Outcomes and standards	Environmental Performance Outcomes (EPOs) Environmental performance standards (EPSs) Measurement criteria (MCs)	Section 6
Regulation 34(e): Includes an appropriate implementation strategy and monitoring, recording and reporting arrangements	Regulation 22: Implementation strategy for the environment plan	Implementation strategy, including: Environmental Management System (EMS) Performance monitoring Oil Pollution Emergency Plan (OPEP – per Table 7-11) and scientific monitoring Ongoing consultation	Section 7 Appendix H: Oil Spill Preparedness and Response Mitigation Assessment

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Criteria for acceptance	Content requirements/relevant regulations	Elements	Section of EP
<p>Regulation 34(f): Does not involve the activity or part of the activity, other than arrangements for environmental monitoring or for responding to an emergency, being undertaken in any part of a declared World Heritage property within the meaning of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</p>	<p>Regulations 21(1)–21(3): 21(1) Description of the activity 21(2) Description of the environment 21(3) Without limiting Regulation 21(2)(b), relevant values and sensitivities may include any of the following: (a) the world heritage values of a declared World Heritage property within the meaning of the EPBC Act; (b) the national heritage values of a National Heritage place within the meaning of that Act; (c) the ecological character of a declared Ramsar wetland within the meaning of that Act; (d) the presence of a listed threatened species or listed threatened ecological community within the meaning of that Act; (e) the presence of a listed migratory species within the meaning of that Act; (f) any values and sensitivities that exist in, or in relation to, part or all of: (i) a Commonwealth marine area within the meaning of that Act; or (ii) Commonwealth land within the meaning of that Act.</p>	<p>No activity, or part of the activity, undertaken in any part of a declared World Heritage property</p>	<p>Section 2.5 Section 4 Section 6</p>
<p>Regulation 34(g): (i) the titleholder has carried out the consultations required by Regulation 25 (ii) the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate</p>	<p>Regulation 25: Consultation with relevant authorities, persons and organisations, etc. Regulation 24(b): A report on all consultations between the titleholder and any relevant person</p>	<p>Consultation undertaken in the preparation of this EP.</p>	<p>Section 5</p>
<p>Regulation 34(h): Complies with the Act and the regulations</p>	<p>Regulation 21(4)(a): Describe the requirements, including legislative requirements, that apply to activity and are relevant to the environmental management of the activity Regulation 23: Details of the Titleholder and liaison person Regulation 24(a): A statement of the titleholder's corporate environmental policy Regulation 24(c): Details of all reportable incidents in relation to the proposed activity</p>	<p>All contents of the EP must comply with the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i> and the Environment Regulations</p>	<p>Section 1 Section 3 Section 6 Appendix B</p>

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1.7 Description of the Titleholder

Woodside is a Titleholder for this activity on behalf of a joint venture comprising Woodside Energy Scarborough Pty Ltd, Woodside Energy (Australia) Pty Ltd and LJ Scarborough Pty Ltd.

Woodside is the largest Australian natural gas producer with more than 35 years of safe and reliable operating experience in Western Australia.

Woodside recognises that strong environmental performance is essential to success and continued growth. Woodside has an established methodology to identify impacts and risks and assess potential consequences of activities. Strong partnerships, sound research and transparency are the key elements of Woodside's approach to the environment.

1.8 Details of Titleholder, Nominated Liaison and Public Affairs Contact

In accordance with Regulation 23 of the Environment Regulations, details of the relevant titleholder, its nominated liaison and arrangements for the notification of changes are described below.

1.8.1 Titleholder

Woodside Energy Scarborough Pty Ltd

11 Mount Street

Perth, Western Australia

T: 08 9348 4000

ACN: 650 177 227

1.8.2 Nominated Liaison

Andrew Winter

Corporate Affairs Manager

11 Mount Street

Perth, Western Australia

T: 08 9348 4000

E: feedback@woodside.com.au

1.8.3 Arrangements for Notifying of Change

Should the titleholder, the titleholder's nominated liaison or the contact details for either change, then NOPSEMA is to be notified of the change in writing within two weeks or as soon as practicable.

1.9 Woodside Management System

The Woodside Management System (WMS) provides a structured framework of documentation to set common expectations governing how all employees and contractors at Woodside will work. Many of the standards presented in Section 6 are drawn from the WMS documentation, which comprises of four elements: Our Values and Policies, Expectations, Processes and Procedures and Guidelines, outlined below (and illustrated in Figure 1-1):

- **Values and Policies:** Set the enterprise-wide direction for Woodside by governing our behaviours, actions and business decisions and ensuring we meet our legal and other external obligations.

- **Expectations:** Set essential activities or deliverables required to achieve the objectives of the Key Business Activities and provide the basis for development of processes and procedures.
- **Processes and Procedures:** Processes identify the set of interrelated or interacting activities which transforms inputs into outputs, to systematically achieve a purpose or specific objective. Procedures specify what steps, by whom and when are required to carry out an activity or a process.
- **Guidelines:** Provide recommended practice and advice on how to perform the steps defined in Procedures, together with supporting information and associated tools. Guidelines provide advice on:
 - how activities or tasks may be performed;
 - information that may be taken into consideration; or
 - how to use tools and systems.

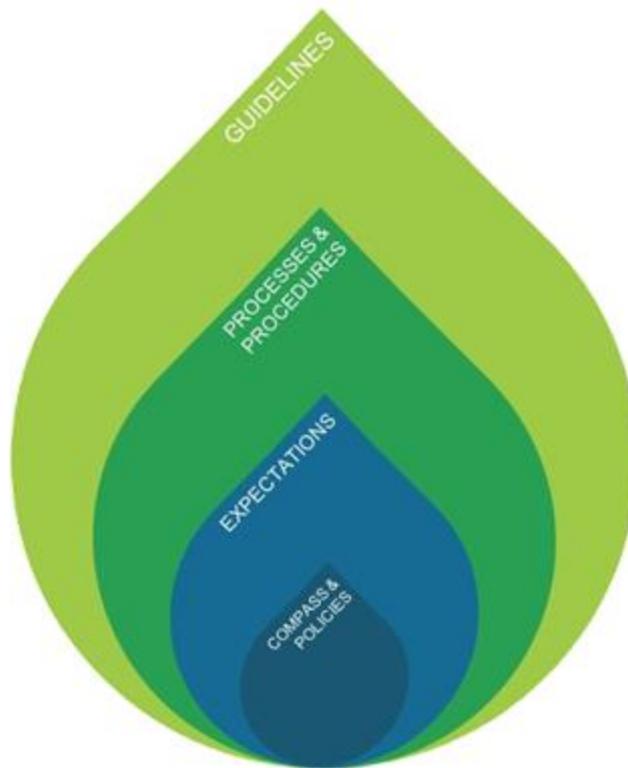


Figure 1-1: The four major elements of the Woodside Management System framework

The WMS is organised within a business process hierarchy based upon key business activities to ensure the system remains independent of organisation structure, is globally applicable and is scalable wherever required. These business activities are grouped into management, support and value stream activities, as shown in Figure 1-1. The value stream activities capture, generate and deliver value throughout the exploration and production (E and P) lifecycle. The management activities influence all areas of the business, while support activities may influence one or more value stream activities.

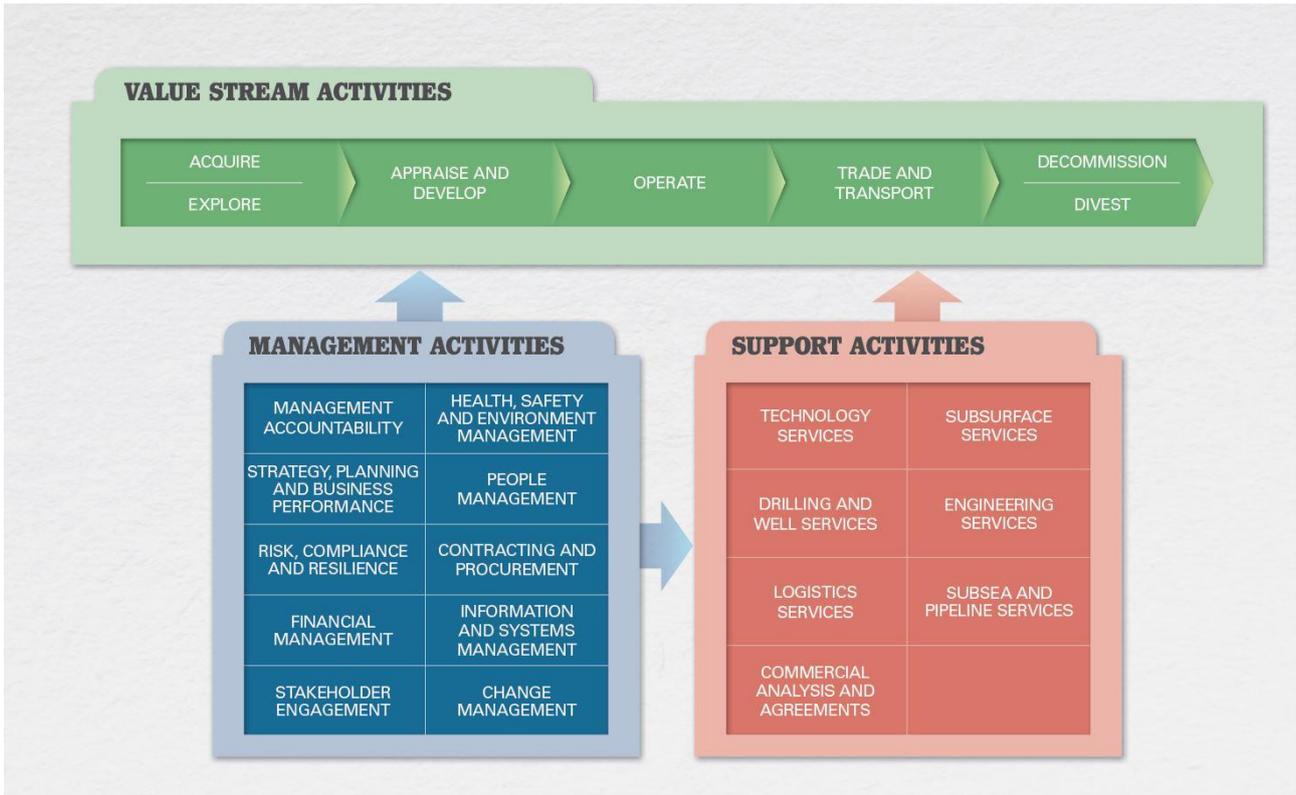


Figure 1-2: The Woodside Management System business process hierarchy

1.9.1 Environment and Biodiversity Policy

In accordance with Regulation 24(a) of the Environment Regulations, Woodside’s Environment and Biodiversity Policy is provided in Appendix A: Woodside Policies. Please note that the Environment and Biodiversity Policy is reviewed regularly and is updated as required. The Environment and Biodiversity Policy is made available on our website, along with the other Board policies: <https://www.woodside.com/who-we-are/corporate-governance-and-policies>

1.10 Description of Relevant Requirements

In accordance with Regulation 21(4) of the Environment Regulations, a description of requirements, including legislative requirements, that apply to the activity and relevant to the management of risks and impacts of the Petroleum Activities Program are detailed in Appendix B: Relevant Requirements.

1.10.1 Offshore Petroleum and Greenhouse Gas Storage Act 2006

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGGS Act) provides the regulatory framework for offshore petroleum exploration and production and greenhouse gas activities in Commonwealth waters (beyond three nautical miles (nm) of the mainland (and islands) to the outer extent of the Australian Exclusive Economic Zone at 200 nm).

Relevant requirements in section 572 of the OPGGS Act are detailed in Table 1-3.

Table 1-3: Relevant requirements of the Offshore Petroleum and Greenhouse Gas Storage Act

Section Number	Relevant Requirement	Relevant section of the EP
Section 572 – Maintenance and removal of property etc. by titleholder		
(2)	<p>Maintenance of property etc. A titleholder must maintain in good condition and repair all structures that are, and all equipment and other property that is:</p> <ul style="list-style-type: none"> (a) in the title area; and (b) used in connection with the operations authorised by the permit, lease, licence or authority. 	Section 7.3
(3)	<p>Removal of property etc. A titleholder must remove from the title area all structures that are, and all equipment and other property that is, neither used nor to be used in connection with the operations:</p> <ul style="list-style-type: none"> (a) in which the titleholder is or will be engaged; and (b) that are authorised by the permit, lease, licence or authority. 	Section 7.3

The regulatory framework establishes NOPSEMA as the regulator. Under the OPGGS Act, the Environment Regulations apply to petroleum activities in Commonwealth waters and are administered by NOPSEMA. The object of the Environment Regulations is to ensure that petroleum activities are carried out in a manner:

- consistent with the principles of ecologically sustainable development (as set out in the EPBC Act)
- by which the environmental impacts and risks of the activity will be reduced to ALARP
- by which the environmental impacts and risks of the activity will be of an acceptable level.

1.10.2 Environment Protection and Biodiversity Conservation Act 1999

On 28 February 2014, NOPSEMA’s environmental management authorisation process was endorsed by the then Minister for the Environment as a Program that meets the requirements of Part 10 of the EPBC Act. This ministerial endorsement streamlined environmental approvals for offshore petroleum activities and made NOPSEMA the sole regulator for environmental management of petroleum activities in Commonwealth waters.

The Streamlining Offshore Petroleum Approvals Program (Program) under the EPBC Act requires proponents of an offshore project after 28 February 2014 to submit an Offshore Project Proposal to NOPSEMA for assessment. An accepted Offshore Project Proposal (OPP) must be in place prior to submission and assessment of Environment Plans for the individual component activities. The definition of environment incorporated in the Program encompasses all aspects of the environment including, but not limited to, EPBC Act Part 3 protected matters. As a result, all Program functions relating to protection of the environment apply for EPBC Act Part 3 matters.

One of the objectives of the EPBC Act is to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places in Australia. These are defined under Part 3 of the EPBC Act as Matters of National Environmental Significance (MNES). The EPBC Act establishes a regime which aims to ensure actions taken on (or impacting upon) Commonwealth land or waters are consistent with the principles of ecological sustainable development.

1.10.2.1 Offshore Project Proposal

Woodside submitted the Scarborough OPP to NOPSEMA for assessment in February 2019 and NOPSEMA accepted the OPP in March 2020. The OPP provided the detail and evaluation of potential impacts and risks from the key components of the Scarborough development. These key components include:

- wells – drilling of the Scarborough and North Scarborough gas fields, with potential for future fields (including Thebe and Jupiter gas fields) to be tied back to the facility
- trunkline installation – installation of a gas trunkline to extend for a total of 430 km using trenching and backfill (for nearshore only)
- surface infrastructure – installation and operation of an FPU in approximately 900 m of water over the Scarborough reservoir
- subsea infrastructure – installation and operation of infield infrastructure, including wellheads, manifolds, flowlines and umbilicals, export trunkline and communications lines
- commissioning – commissioning of the overall production system (to be conducted from the FPU once on location)
- operations – hydrocarbon extraction and processing to take place at the FPU, to meet the export trunkline specifications; gas will be exported via the trunkline
- decommissioning – the facilities are to be decommissioned in accordance with good oilfield practice and relevant legislation at the time.

In accordance with Regulations 26 and 17 of the Environment Regulations, a titleholder must have submitted and have an accepted EP in place before commencing an activity. A staged approach has been undertaken with several EPs developed and submitted to NOPSEMA, to cover components of the Scarborough development approved under the Scarborough OPP.

Each EP has a defined Petroleum Activities Program and will detail and evaluate the risks and impacts, demonstrating they have been reduced to ALARP and an acceptable level for that Petroleum Activity Program. The Scarborough OPP sets out the environmental performance outcomes (EPOs) for the project and the level of performance to be achieved, to ensure that environmental impacts and risks will be of an acceptable level and the project is consistent with the principles of ecologically sustainable development. These EPOs will be adopted into each EP, where relevant to the scope of the EP.

In accordance with Regulation 56 of the Environment Regulations, references to the Scarborough OPP have been made throughout this EP. The accepted OPP is available on the NOPSEMA website: Scarborough Offshore Project Proposal » NOPSEMA.

1.10.2.2 Recovery Plans and Threat Abatement Plans

Under section 139(1)(b) of the EPBC Act, the Minister for the Environment must not act inconsistently with a recovery plan for a listed threatened species or ecological community or a threat abatement plan for a species or community protected under the EPBC Act. Similarly, under section 268 of the EPBC Act:

“A Commonwealth agency must not take any action that contravenes a recovery plan or a threat abatement plan.”

In respect to offshore petroleum activities in Commonwealth waters, these requirements are implemented by NOPSEMA via the commitments included in the Program. Commitments relating to listed threatened species and ecological communities under the EPBC Act are included in the Program Report (Commonwealth of Australia (CoA), 2014a).

1.10.2.3 Australian Marine Parks

Under the EPBC Act, Australian Marine Parks (AMPs), formally known as Commonwealth Marine Reserves, are recognised for conserving marine habitats and the species that live and rely on these habitats. The Director of National Parks (DNP) is responsible for managing AMPs (supported by Parks Australia) and is required to publish management plans for them. Other parts of the Australian Government must not perform functions or exercise powers in relation to these parks that are inconsistent with management plans (section 362 of the EPBC Act). Relevant AMPs are identified in Section 4.8 and described in Section 11.5 of the Master Existing Environment (Appendix L: Woodside Master Existing Environment). The North-west Marine Parks Network Management Plan (DNP, 2018a) describe the requirements for managing the marine parks that are relevant to this EP.

Specific zones within the AMPs have been allocated conservation objectives as stated below (International Union for Conservation of Nature (IUCN) Protected Area Category) based on the Australian IUCN reserve management principles outlined in Schedule 8 of the *EPBC Regulations 2000* (Cth):

- **Special Purpose Zone (IUCN category VI)**—managed to allow specific activities though special purpose management arrangements while conserving ecosystems, habitats and native species. The zone allows or prohibits specific activities.
- **Sanctuary Zone (IUCN category Ia)**—managed to conserve ecosystems, habitats and native species in as natural and undisturbed a state as possible. The zone allows only authorized scientific research and monitoring.
- **National Park Zone (IUCN category II)**—managed to protect and conserve ecosystems, habitats and native species in as natural a state as possible. The zone only allows nonextractive activities unless authorised for research and monitoring.
- **Recreational Use Zone (IUCN category IV)**—managed to allow recreational use, while conserving ecosystems, habitats and native species in as natural a state as possible. The zone allows for recreational fishing, but not commercial fishing.
- **Habitat Protection Zone (IUCN category IV)**—managed to allow activities that do not harm or cause destruction to seafloor habitats, while conserving ecosystems, habitats and native species in as natural a state as possible.
- **Multiple Use Zone (IUCN category VI)**—managed to allow ecologically sustainable use while conserving ecosystems, habitats and native species. The zone allows for a range of sustainable uses, including commercial fishing and mining where they are consistent with park values.

2 ENVIRONMENT PLAN PROCESS

2.1 Overview

This section outlines the process Woodside follows to prepare the EP once an activity has been defined as a petroleum activity. The process describes the environmental risk assessment methodology that is used to identify, analyse and evaluate risks to meet ALARP and acceptability requirements and to develop EPOs and EPSs. This section also describes Woodside's risk management methodologies applicable to implementation strategies applied during the activity.

Regulation 21(5) of the Environment Regulations requires the detailing of environmental impacts and risks, and evaluation appropriate to the nature and scale of each impact and risk associated with the Petroleum Activities Program and potential emergency conditions. The objective of the risk assessment process, described in this section, is to identify the impacts and risks of an activity, so that they can be assessed, and appropriate control measures applied to eliminate, control or mitigate the impacts and risks to ALARP and determine if the impact or risk is of an acceptable level.

Environmental impacts and risks assessed include those directly and indirectly associated with the Petroleum Activities Program and includes potential emergency and accidental events.

- **Planned activities** (routine and non-routine) have the potential for inherent environmental impacts.
- An **environmental risk** is an unplanned event with the potential for impact (termed risk 'consequence').

In this EP, the potential results of planned activities are termed 'impacts', whereas 'risks' are associated with unplanned events with the potential for impact (should the risk be realised); with such potential impacts termed 'consequences'.

2.2 Environmental Risk Management Methodology

2.2.1 Woodside Risk Management Process

The environmental risk management methodology used in this EP is based on Woodside's Risk Management Procedure. This procedure aligns to industry standards, such as International Organization for Standardization (ISO) 31000. Woodside's WMS risk management procedures, guidelines and tools provide guidance of specific techniques for managing risk, tailored for particular areas of risk within certain business processes. Procedures applied for environmental risk management include:

- Health, Safety and Environment Management Procedure
- Impact Assessment Procedure
- Process Safety Management (PSM) Procedure.

An assessment of the impacts and risks associated with the Petroleum Activities Program has been undertaken in accordance with Woodside's Environment Impact Assessment Guideline and Risk Management Procedure. This guideline and procedure set out the broad principles and high-level steps for assessing environmental impacts across the lifecycle of Woodside's activities and managing these during project execution.

The key steps of the Woodside impact and risk management process are comprised of the:

- environmental impact and risk assessment
- communication and consultation that informs the assessment and ongoing environmental performance of the activity
- steps required during implementation of the activity including to monitor, review and report.

2.2.2 Establish the Context

Context is established by considering the proposed activities associated with a Petroleum Activities Program, and the environment in which the activities are planned to take place.

Describing the activity involves the evaluation of whether the activity meets the definition of a “petroleum activity” as defined in the Environment Regulations. The activity is then described in relation to the location, what is to be undertaken and how. This allows for the identification of environmental “aspects” for each activity.

2.2.3 Review of the Significance/Sensitivity of Receptors and Levels of Protection

Sensitivity of receptors relevant to the Scarborough Project and this Petroleum Activities Program was determined during development of the Scarborough OPP. As set out within the OPP, the sensitivity of all project receptors was determined to be either low, medium or high based on qualitative expert judgement.

During development of this EP, OPP receptor sensitivity determinations were reviewed in the context of any changing legislation or changed knowledge regarding the sensitivity of each receptor. No relevant factors were identified that would change receptor sensitivity from that determined in the OPP. Receptor sensitivity determinations from the OPP are used in the risk impact assessment summaries for each environmental risk assessment (refer to Section 6).

2.2.4 Environmental Legislation and Other Requirements

In preparing this EP, Woodside has confirmed the proposed controls and impact and risk levels are consistent with national and international standards, law and policies (including applicable plans for management and conservation advices and significant impact guidelines for MNES).

This has included developing the project in accordance with applicable legislation as identified in **Section 1.10**, and confirming the requirements of the species recovery plans and conservation advices have been considered to identify requirements that may be applicable to the risk assessment.

2.2.5 Impact and Risk Identification

Terminology used for this impact and risk assessment has been taken from the impact and risk management process, which is aligned with ISO 13001:2018 and the requirements of Part 4 (regulations 17 to 46) of the Environment Regulations.

Impacts and risks of the Scarborough Project were identified in the scoping phase of the Scarborough Project (and presented within the OPP). During this phase, the relationships between the environmental aspects identified for the proposed activities and the associated potential impacts and risks for each receptor are established. This EP considers relevant impacts and risks associated with the hook-up of the FPU, startup and commissioning activities of the FPU and associated subsea well and subsea infrastructure, ongoing operations of the FPU and ETL, IMMR activities, and gravimetry surveys.

Using the Scarborough OPP as a guide, impacts and risks associated with the Petroleum Activities Program for this EP were identified during the EP scoping phase by undertaking an Environmental Risk and Impact Identification (ENVID) workshop. Impacts, risks and potential consequences were identified based on planned and potential interaction with the activity (based on the description in Section 3), the existing environment (Section 4) and the outcomes of Woodside’s stakeholder engagement process (Section 5). The ENVID workshop was undertaken by a multidisciplinary team comprising personnel with breadth of knowledge, training and experience to reasonably assure that the hazards that may arise in connection with the Petroleum Activity Program in this EP were identified.

Impacts and risks were identified during the ENVID for both planned (routine and non-routine) activities and unplanned (accidents/incidents/emergency conditions) events. During this process, risks identified as not applicable (not credible) were removed from the assessment.

A further specific ENVID workshop was conducted in September 2024 to evaluate impacts, risks and potential consequences associated with using an Uncrewed Surface Vessel (USV) for gravimetry and IMMR activities (Section 3.11.5). The workshop was attended by personnel who had appropriate breadth of knowledge and experience, including Gravimetry Survey Project Manager, Marine Assurance Manager, Environment Plan Facilitator, Scarborough Project Environment Advisers and Global Wells and Seismic Environment Advisers. The workshop served to identify that any potential hazards associated with the use of a USV.

Outside of the ENVID process, other potential risks may be identified through consultation. When this is the case, some of these risks may be included as a Risk Assessment in Section 6, even though no direct impact pathway exists as a result of the Petroleum Activities Program. These risks, which are included to demonstrate impact potential in the context of the PAP (such as accelerated weathering of rock art as a result of onshore emissions from processing of Scarborough gas; Section 6.7.7) cannot be assigned a consequence magnitude or impact significance level as per the process outlined in Section 2.3.4 because current literature does not identify a credible impact as a result of the PAP.

2.3 Impact and Risk Analysis and Evaluation

After identifying impacts and risks, analysis and evaluation is undertaken to determine the extent of the impacts and risks, whether they are acceptable or not, and to identify the impact and risk treatment (or controls) to be implemented.

Impact and risk evaluation are undertaken by assessing the magnitude (i.e. no lasting effect, slight, minor, moderate, major or catastrophic) of the credible environmental impacts from each aspect based on extent, duration, frequency and scale, and then either:

- assigning an impact significance level to each credible environmental impact based on the receptor sensitivity and the magnitude of the impact, OR
- assigning an environmental risk level to each environmental risk based on the receptor sensitivity, magnitude of the consequence, and the likelihood of occurrence.

2.3.1 Decision Support Framework

To support the risk assessment process Woodside's HSE risk management procedures include the use of a decision support framework based on principles set out in the Guidance on Risk Related Decision Making (Oil and Gas UK, 2014). This concept has been applied during the ENVID or equivalent preceding processes during historical design decisions to determine the level of supporting evidence that may be required to draw sound conclusions regarding risk level and whether the risk is ALARP and of an acceptable level. This is to confirm:

- activities do not pose an unacceptable environmental risk
- appropriate focus is placed on activities where the risk is anticipated to be acceptable and demonstrated to be ALARP
- appropriate effort is applied to the management of risks based on the uncertainty of the risk, the complexity and risk rating (i.e. potential higher order environmental impacts are subject to further evaluation assessment).

The framework provides appropriate tools, commensurate to the level of uncertainty or novelty associated with the risk (referred to as Decision Type A, B or C). The decision type is selected based on an informed discussion around the uncertainty of the risk, then documented in ENVID output.

This framework enables Woodside to appropriately understand a risk, determine if the risk is acceptable and can be demonstrated to be ALARP.

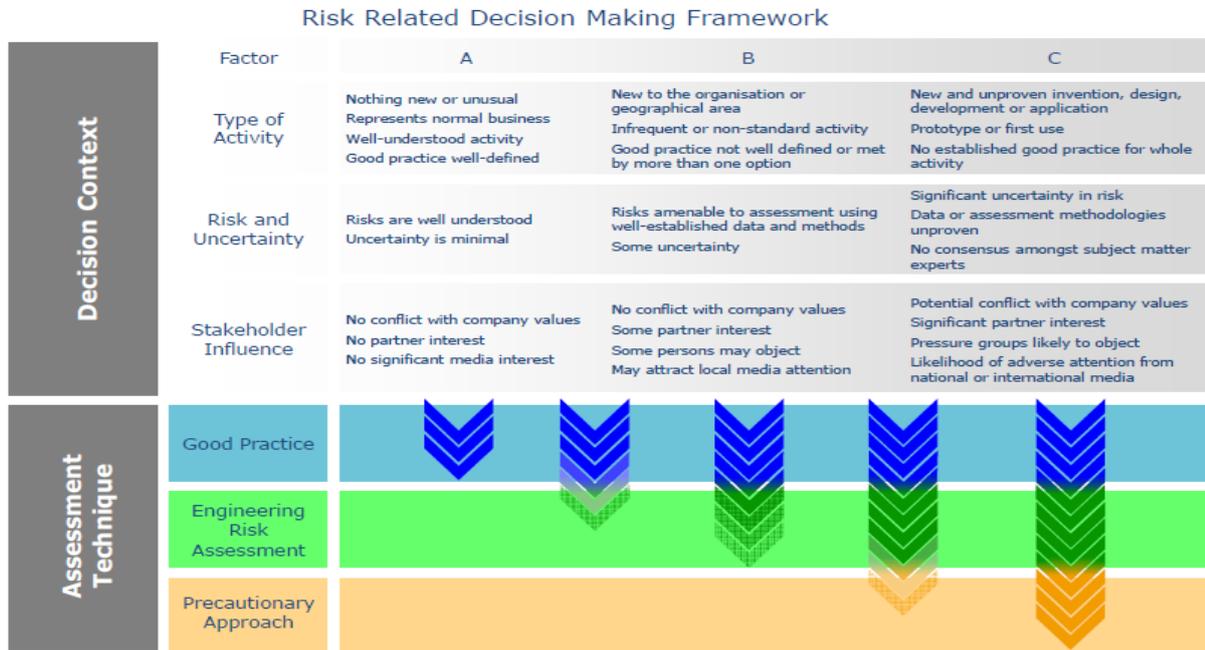


Figure 2-1: Risk related decision-making framework (Oil and Gas UK, 2014)

Decision Type A

Risks classified as a Decision Type A are well understood and established practice, they generally consider recognised good industry practice which is often embodied in legislation, codes and standards and use professional judgement.

Decision Type B

Risks classified as Decision Type B typically involve greater uncertainty and complexity (and can include potential higher order impacts/risks). These risks may deviate from established practice or have some lifecycle implications, and therefore require further engineering risk assessment to support the decision and ensure the risk is ALARP. Engineering risk assessment tools may include:

- risk-based tools such as cost based analysis or modelling
- consequence modelling
- reliability analysis
- company values.

Decision Type C

Risks classified as a Decision Type C typically have significant risks related to environmental performance. Such risks typically involve greater complexity and uncertainty; therefore, requiring adoption of the precautionary approach. The risks may result in significant environmental impact; significant project risk/exposure or may elicit negative stakeholder concerns. For these risks, in addition to Decision Type A and B tools, company and societal values need to be considered by undertaking broader internal and external consultation as part of the risk assessment process.

2.3.1.1 Decision Support Framework Tools

These framework tools are applied, as appropriate, to help identify control measures based on the Decision Type described above:

- **Legislation, Codes and Standards (LCS)** – identifies the requirements of legislation, codes and standards that are to be complied with for the activity.
- **Good Industry Practice (GP)** – identifies further engineering control standards and guidelines that may be applied by Woodside above that required to meet the LCS.
- **Professional Judgement (PJ)** – uses relevant personnel with the knowledge and experience to identify alternative controls. Woodside applies the hierarchy of control as part of the risk assessment to identify any alternative measures to control the risk.
- **Risk-based Analysis (RBA)** – assesses the results of probabilistic analyses such as modelling, quantitative risk assessment and/or cost–benefit analysis to support the selection of control measures identified during the risk assessment process.
- **Company Values (CV)** – identifies values identified in Woodside’s code of conduct, policies and the Woodside Compass. Views, concerns and perceptions are to be considered from internal Woodside stakeholders directly affected by the planned impact or potential risk.
- **Societal Values (SV)** – identifies the views, concerns and perceptions of relevant persons and addresses relevant stakeholder views, concerns and perceptions.

2.3.1.2 Decision Calibration

To determine that the alternatives selected, and control measures applied are suitable, these tools may be used for calibration (i.e. checking) where required:

- **LCS/Verification of Predictions** – Verification of compliance with applicable LCS and/or good industry practice.
- **Peer Review** – Independent peer review of PJs, supported by RBA, where appropriate.
- **Benchmarking** – Where appropriate, benchmarking against a similar facility or activity type or situation that has been deemed to represent acceptable risk.
- **Internal Consultation** – Consultation undertaken within Woodside to inform the decision and verify company values are met.
- **External Consultation** – Consultation undertaken to inform the decision and verify societal values are considered.

Where appropriate, additional calibration tools may be selected specific to the Decision Type and the activity.

2.3.2 Control Measures (Hierarchy of Controls)

Risk reduction measures are prioritised and categorised in accordance with the hierarchy of controls, where risk reduction measures at the top of the hierarchy take precedence over risk reduction measures further down:

- **Elimination** of the risk by removing the hazard.
- **Substitution** of a hazard with a less hazardous one.
- **Engineering Controls** include design measures to prevent or reduce the frequency of the risk event, or detect or control the risk event (limiting the magnitude, intensity and duration) such as:
 - Prevention: design measures that reduce the likelihood of a hazardous event occurring.
 - Detection: design measures that facilitate early detection of a hazardous event.

- Control: design measures that limit the extent/escalation potential of a hazardous event.
- Mitigation: design measures that protect the environment if a hazardous event occurs.
- Response Equipment: design measures or safeguards that enable clean up/response after a hazardous event occurs.
- **Procedures and Administration** includes management systems and work instructions used to prevent or mitigate environmental exposure to hazards.
- **Emergency Response and Contingency Planning** includes methods to enable recovery from the impact of an event (e.g. protection barriers deployed near the sensitive receptor).

2.3.3 Impact and Risk Classification

Environmental impacts and risks are assessed to determine the potential impact significance/consequence. The impact significance/consequence considers the magnitude of the impact or risk and the sensitivity of the potentially impacted receptor (Figure 2-2).

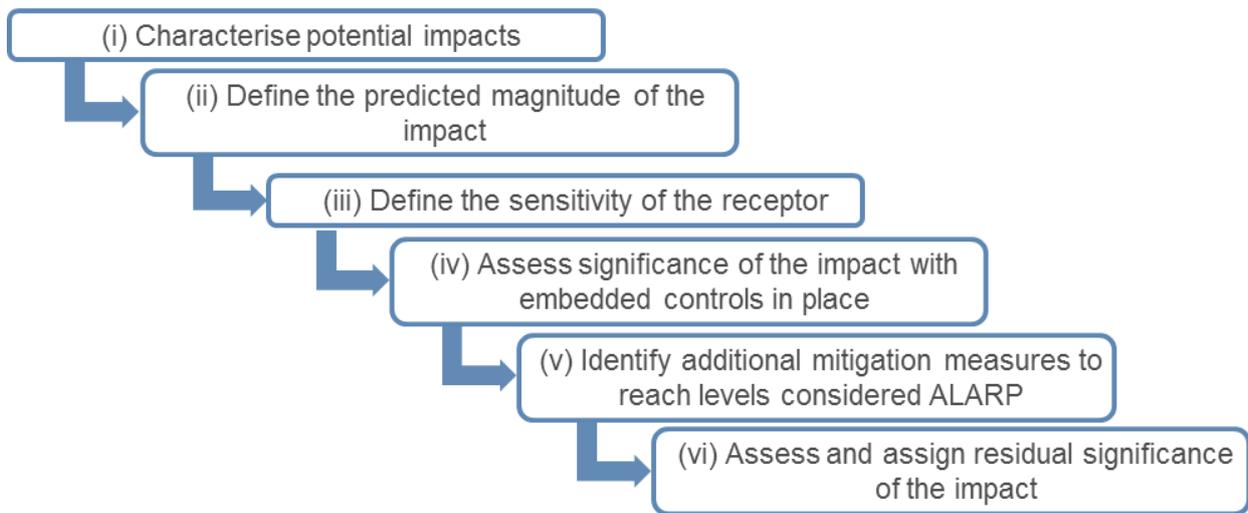


Figure 2-2: Environmental risk and impact analysis

Impacts are classified in accordance with the consequence (Table 2-1) outlined in Woodside’s Risk Management Procedure and Risk Matrix (Figure 2-3). Risks are assessed qualitatively and/or quantitatively in terms of both likelihood and consequence in accordance with this matrix.

The impact and risk information, including classification and evaluation information as shown in the example (Table 2-1), are tabulated for each planned activity and unplanned event.

Table 2-1: Woodside Risk Matrix (environment and social and cultural) consequence descriptions

Environment	Social and Cultural	Consequence Level
Catastrophic, long-term impact (>50 years) on highly valued ecosystem, species, habitat or physical or biological attribute.	Catastrophic, long-term impact (>20 years) to a community, social infrastructure or highly valued area/item of international cultural significance.	A
Major, long-term impact (10–50 years) on highly valued ecosystem, species, habitat or physical or biological attribute.	Major, long-term impact (5–20 years) to a community, social infrastructure or highly valued area/item of national cultural significance.	B
Moderate, medium-term impact (2–10 years) on ecosystem, species, habitat or physical or biological attribute.	Moderate, medium-term impact (2–5 years) to a community, social infrastructure or highly valued area/item of national cultural significance.	C

Environment	Social and Cultural	Consequence Level
Minor, short-term impact (1–2 years) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	Minor, short-term impact (1–2 years) to a community or highly valued area/item of cultural significance.	D
Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	Slight, short-term impact (<1 year) to a community or area/item of cultural significance.	E
No lasting effect (<1 month). Localised impact not significant to environmental receptor.	No lasting effect (<1 month). Localised impact not significant to area/item of cultural significance.	F

2.3.4 Risk Rating Process

The risk rating process assigns a level of risk to each risk event, measured in terms of consequence and likelihood. The assigned risk rating is determined with controls in place, therefore; the risk rating is determined after identifying the Decision Type and appropriate control measures.

The risk rating process considers the potential environmental consequences and, where applicable, the social and cultural consequences of the risk. The risk ratings are assigned using the Woodside Risk Matrix (refer to Figure 2-3).

The risk rating process is done using the steps described in the subsections below.

2.3.4.1 Select the Consequence Level

Determine the worst-case credible consequence (Table 2-1) associated with the selected event, assuming all controls (preventive and mitigative) are absent or have failed. If more than one potential consequence applies, select the highest severity consequence level.

2.3.4.2 Select the Likelihood Level

Determine the description that best fits the chance of the selected consequence occurring, assuming reasonable effectiveness of the prevention and mitigation controls (Table 2-2).

Table 2-2: Woodside Risk Matrix likelihood levels

Likelihood Description						
Frequency	1 in 100,000–1,000,000 years	1 in 10,000–100,000 years	1 in 1,000–10,000 years	1 in 100–1,000 years	1 in 10–100 years	>1 in 10 years
Experience	Remote: Unheard of in the industry	Highly Unlikely: Has occurred once or twice in the industry	Unlikely: Has occurred many times in the industry but not at Woodside	Possible: Has occurred once or twice in Woodside or may possibly occur	Likely: Has occurred frequently at Woodside or is likely to occur	Highly Likely: Has occurred frequently at the location or is expected to occur
Likelihood Level	0	1	2	3	4	5

2.3.4.3 Calculate the Risk Rating

The risk rating is derived from the consequence and likelihood levels above, in accordance with the Woodside Risk Matrix shown in Figure 2-3. A likelihood and risk rating are only applied to environmental risks, not environmental impacts from planned activities.

This risk rating is used as an input into the risk evaluation process and ultimately for prioritising further risk reduction measures. Once each risk is treated to ALARP, the risk rating articulates the ALARP baseline risk as an output of the ENVID studies.

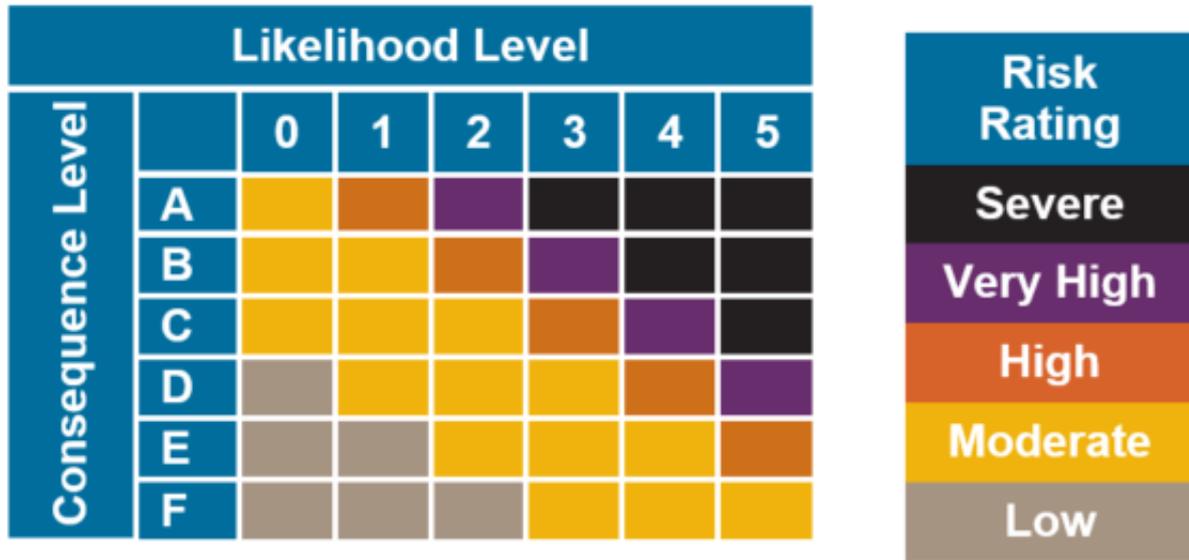


Figure 2-3: Woodside Risk Matrix – risk level

To support ongoing risk management (as a key component of Woodside’s Process Safety Management Framework) – refer to the implementation strategy in Section 7. Woodside uses the concept of ‘current risk’ and applies a Current Risk Rating to indicate the current or ‘live’ level of risk, considering controls that are currently in place and effective on a day-to-day basis. The Current Risk Rating is effective in articulating potential divergence from baseline risk, such as if certain controls fail or could potentially be compromised. Current Risk Ratings aid in communicating and making visible the risk events and ensure the continual management of risk to ALARP by identifying risk reduction measures and assessing acceptability.

2.3.5 Demonstration of As Low As Reasonably Practicable

Descriptions have been provided below (Table 2-3) to articulate how Woodside demonstrates different risks, impacts and Decision Types identified within the EP are ALARP.

Table 2-3: Summary of Woodside’s criteria for demonstrating ‘as low as reasonably practicable’

Risk	Impact	Decision Type
Low and Moderate	Negligible, Slight, or Minor (F, E or D)	A
Woodside demonstrates these Risks, Impacts and Decision Types are reduced to ALARP if: <ul style="list-style-type: none"> controls identified meet legislative requirements, industry codes and standards, applicable Woodside requirements and industry guidelines further effort towards impact/risk reduction (beyond employing opportunistic measures) is not reasonably practicable without sacrifices grossly disproportionate to the benefit gained. 		
High, Very High or Severe	Moderate and above (C, B or A)	B and C
Woodside demonstrates these higher order Risks, Impacts and Decision Types are reduced to ALARP (where it can be demonstrated using good industry practice and risk-based analysis) that: <ul style="list-style-type: none"> legislative requirements, applicable Woodside requirements and industry codes and standards are met societal concerns are accounted for the alternative control measures are grossly disproportionate to the benefit gained. 		

2.3.6 Demonstration of Acceptability

Acceptability of the Scarborough Project, including the Petroleum Activities Program described in this EP, was demonstrated in the Scarborough OPP as required by Regulation 13 of the Environment Regulations. The EPOs set out in the Scarborough OPP demonstrate that the environmental impacts and risks of the project will be managed to an acceptable level.

The impacts and risks of Scarborough were determined to be acceptable in the Scarborough OPP through considering the evaluation criteria of (Scarborough OPP; Section 6.4.4):

- principles of ecologically sustainable development (ESD) as defined under the EPBC Act, whereby:
 - decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations (section 3A(a) of the EPBC Act)
 - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (section 3A(b) of the EPBC Act)
 - the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (section 3A(c) of the EPBC Act)
 - the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making (section 3A(d) of the EPBC Act)
 - improved valuation, pricing and incentive mechanisms should be promoted (section 3A(e) of the EPBC Act)
 - internal context – the proposed impacts and risk levels are consistent with Woodside policies, procedures and standards

- external context – stakeholder expectations and feedback have been considered and activities do not have a significant impact on MNES including those with an Indigenous connection with, or traditional use in nearshore areas as defined in Section 4.9
- other requirements – the proposed controls and impact and risk levels are consistent with national and international standards, laws, policies and Woodside Standards (including applicable plans for management and conservation advices, and significant impact guidelines for MNES).

In this EP Woodside has demonstrated that the level of acceptability determined in the Scarborough OPP has been met through the criteria of:

- adoption of relevant Scarborough OPP EPOs and controls or equivalent
- adoption of EP specific controls where required
- Impact Significance Level/Risk Consequence levels for receptors are equal to or less than the significant impact level defined in the Scarborough OPP (Section 6.5; Table 6-3) and are therefore consistent with the EPOs and managed to an acceptable level of impact or risk
- consideration of internal/external context and other requirements specific to this EP Petroleum Activities Program (including issues raised during EP Consultation).

A summary of the process as adopted is shown in Table 2-4.

Table 2-4: Summary of Woodside’s criteria for Acceptability for Scarborough Environment Plan

Risk	Impact	Decision Type
<i>Low and Moderate</i>	<i>Negligible, Slight, or Minor (F, E or D)</i>	<i>A</i>
Woodside demonstrates these Risks, Impacts and Decision Types are 'Broadly Acceptable' if they meet the EP criteria listed above in Section 2.3.5 . Further effort towards risk reduction (beyond employing opportunistic measures) is not reasonably practicable without sacrifices disproportionate to the benefit gained.		
<i>High, Very High or Severe</i>	<i>Moderate and above (C, B or A)</i>	<i>B and C</i>
Woodside demonstrates these higher order Risks, Impacts and Decision Types are 'Acceptable if ALARP' if they meet the EP criteria listed above in Section 2.3.5 . In addition, these higher order risks, impacts and decision types are 'Acceptable if ALARP' if it can be demonstrated that the predicted levels of impact and/or residual risk, are managed to ALARP (as described in Section 6).		
For potential C or above consequence/impact levels where significant uncertainty exists in analysis of the risk or impact (such as, for predicted or potential high risk of significant environmental impacts, significant project risk/exposure, novel activities, lack of consensus on standards, and significant stakeholder concerns (e.g. Decision Type C), defined acceptable levels and assessment of acceptability may be required to be conducted separately for key receptors. This may not be applicable for some risks, given the consequence of an unplanned risk event occurring may not be acceptable and, therefore acceptability is demonstrated in the context of the likelihood of an event occurring and subsequent impacts.		

2.4 Environment Protection and Biodiversity Conservation Act Assessment

To support the demonstration of acceptability, a separate assessment is undertaken across the following three legislative requirements incorporated into the EPBC Act.

2.4.1 Principles of Ecological Sustainable Development

As part of the demonstration of acceptability, an assessment is undertaken to demonstrate that the EP is not inconsistent with relevant principles of ESD (refer Section 2.3.6).

2.4.2 Matter of National Environmental Significance: Significant Impact Guidelines 1.1

A separate assessment is undertaken to determine if the potential impacts/risks of the activity trigger any relevant criteria listed in the MNES: Significant Impact Guidelines 1.1.

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of a population
- reduce the area of occupancy of the species
- fragment an existing population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of a population
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat
- introduce disease that may cause the species to decline, or interfere with the recovery of the species.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of an important population of a species
- reduce the area of occupancy of an important population
- fragment an existing important population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of an important population
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat
- introduce disease that may cause the species to decline, or
- interfere substantially with the recovery of the species.

2.4.3 Recovery Plan and Threat Abatement Plan Assessment

To support the demonstration of acceptability, a separate assessment is undertaken to demonstrate that the EP is not inconsistent with any relevant recovery plans or threat abatement plans (refer Section 1.10.2.2). The steps in this process are:

- identify relevant listed threatened species and ecological communities (Section 4)
- identify relevant recovery plans and threat abatement plans (Section 6.9.3)
- list all objectives and (where relevant) the action areas of these plans, and assess whether these objectives/action areas apply to government, the Titleholder, and the Petroleum Activities Program (Section 6.9.3)
- for those objectives/action areas applicable to the Petroleum Activities Program, identify the relevant actions of each plan, and evaluate whether impacts and risks resulting from the activity are clearly not inconsistent with that action (Section 6.9.3).

2.5 Environmental Performance Objectives/Outcomes, Standards and Measurement Criteria

The Environment Regulations define EPOs to mean: “a measurable level of performance required for the management of environmental aspects of an activity to ensure that environmental impacts and risks will be of an acceptable level”. As such, the process of defining an appropriate EPO, has relied on the required levels of performance set either in:

- legislation (such as the OPGGS Act)
- regulator guidance notes such as the Matters of National Environmental Significance– Significant Impact Guidelines (DoE, 2013), or
- specific agreements or expectations with other relevant persons (e.g. fishers or other marine users).

EPOs for the Scarborough Project have been set within the Scarborough OPP and assessed as meeting the requirements of the Environment Regulations to be appropriate, consistent with the principles of ecologically sustainable development and to demonstrate that the environmental impacts and risks of the project will be managed to an acceptable level. Impact based EPOs, where qualitative terms (e.g. prevent, limit) are used in EPOs, are supported by detailed impact assessments in Section 6 such that they can be interpreted as meaning ‘impact and risk greater than that predicted in this EP’.

EPs for petroleum activities submitted after the OPP process are required to contain EPOs that are appropriate by being consistent with those set out in the OPP. The EPOs presented in a subsequent EP are not required to be identical to those set out in the OPP. However, they should achieve the same environmental outcome (or better) as that described in the OPP. Activity specific EPs will also be required to contain measurement criteria and performance monitoring, auditing and reporting processes relating to the EPOs.

Table 6-2 shows a comparison between EPOs in the Scarborough OPP and this EP.

3 DESCRIPTION OF THE ACTIVITY

3.1 Overview

This section has been prepared in accordance with Regulation 21(1) of the Environment Regulations and describes the activities to be undertaken as part of the Petroleum Activities Program under this EP. This section includes the location of the Petroleum Activities Program, general details of installation and hook-up of the Scarborough FPU to the mooring system (Figure 3-1), the connection of the FPU to preinstalled subsea infrastructure/gas export trunkline, and its subsequent commissioning and start-up. The section also includes general details of the facility's layout, operational details of the Petroleum Activities Program and additional information relevant to considering environmental risks and impacts.

The FPU will be hooked up to the mooring system, connected to subsea infrastructure and commissioned. Once commissioned, the FPU will produce gas from a series of reservoirs and associated subsea infrastructure. The semi-submersible FPU is designed to be locally or remotely operated. The FPU topside processing facilities include gas separation, dehydration, and compression to the export trunkline for processing onshore. Mono-Ethylene Glycol (MEG) is stored and regenerated on the platform and injected both subsea and topsides for hydrate management. The Scarborough gas field is characterised by very low quantities of associated liquid hydrocarbons resulting in the FPU having a simple processing and treatment design due to there being no requirement to separately store, export or re-inject liquid hydrocarbons.



Figure 3-1: Scarborough floating production unit render / artists impression.

An overview of the Petroleum Activities Program is provided in Table 3-1.

Table 3-1: Petroleum Activities Program overview

Item	Description
Production Licence Areas	WA-61-L, WA-62-L
Pipeline Licence	WA-32-PL
Location	Carnarvon Basin, North-West Australia
Water depth (below MSL)	FPU location: ~950 m
	Offshore Operational Area: ~900 m to 1000 m
	Trunkline Operational Area: ~31 m (export trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the export trunkline route)
Planned Field Life	Approximately 30 years with potential to be extended
Key components of FPU	<ul style="list-style-type: none"> • Moored FPU with gas processing equipment and utilities. • 20 x suction piles and anchor chains
Key components of subsea infrastructure	<ul style="list-style-type: none"> • Up to 13 wells including wellheads; (8 wells in Phase 1 and 5 wells in Phase 2). • Xmas tree per well • 3 x production risers • 3 x gas export risers • 6 x riser holdback mud mats • 3 x flowlines • 7 x flowline sleepers • 1 x riser base manifold (RBM) and foundation • 13 x mud mats as support to ILTs and FLETS • 7 x in-line structures (in-line T) • 6 x flowline end terminations (FLETS) • 7 x umbilical termination assemblies • 7 x umbilical termination heads • 2 x subsea distribution units • 1 x subsea distribution assembly • 7 x umbilicals • 9 x flexible jumpers (includes 1 spare) • Multiple flying leads • 1 x trunkline spool • Export trunkline (~433km in length) • Pipeline End Termination (PLET) • Up to 265 x concrete pads for gravimetry
Key vessel types	<ul style="list-style-type: none"> • Tow and anchor handling tugs (AHT) • Light construction vessel (LCV) • Support vessels (including supply vessels) (OSV) • Accommodation support vessel (ASV) • Uncrewed Surface Vessel (USV)

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Item	Description
<p>Key activities</p>	<p>Offshore facility hookup and commissioning</p> <ul style="list-style-type: none"> • Installation and hook-up of the FPU to the pre-laid 20-point suction-piled mooring system • Production and export riser pull-in, hook-up and connection to subsea infrastructure • Umbilical riser pull-in • Dewatering of production flowlines/risers and export risers/manifold/PLET • Commissioning of the overall subsea production system, including Xmas trees, umbilicals and communication lines • Commissioning the FPU for the introduction of reservoir hydrocarbons • Bunkering Diesel and MEG • Gas export trunkline pressurisation and nitrogen (N₂) removal • Removal of temporary equipment <p>Offshore facility initial start-up</p> <ul style="list-style-type: none"> • Well clean up • Starting-up the subsea production system and FPU to allow the reservoir fluids and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria <p>Offshore facility operations</p> <ul style="list-style-type: none"> • Routine production operations involve conveying reservoir fluids, including gas and produced water from the reservoir, along with MEG injection at the wells, through the subsea infrastructure to the FPU. • Gas export via the gas export trunkline • Routine IMMR activities for the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline. • Well clean-up and commissioning. • Non-routine and unplanned activities and incidents associated with the above <p>Other activities</p> <ul style="list-style-type: none"> • Gravimetry surveys for the purposes of reservoir monitoring • Non-routine and contingent activities associated with the above.

3.2 Location

The Petroleum Activities Program consists of the Scarborough FPU, wells and subsea infrastructure located in Permit Areas WA-61-L and WA-62-L in Commonwealth waters, about 375 km west-north-west of Dampier (Figure 3-2). The Petroleum Activities Program also includes the gas export trunkline (WA-32-PL), which traverses through Commonwealth and State waters through to the Pluto LNG Plant (PLP). Only the portion of the gas export trunkline within Commonwealth waters is within the scope of this EP. The closest landfall to the FPU is the North-West Cape, about 216 km south-south-east at its nearest point. The coordinates and permit areas of the Petroleum Activities Program are presented in Table 3-2.

Table 3-2: Scarborough infrastructure approximate locations and Petroleum Titles

Structure	Water depth (approx. MSL)	Coordinates (GDA 94)		Petroleum Titles
		Latitude	Longitude	
Facility				
Scarborough FPU	953	19° 55' 33.73" S	113° 14' 29.75" E	WA-61-L
Subsea Infrastructure (Proposed Location to be installed under WA-61-L and WA-62-L Subsea Infrastructure Installation EP)				
Export Riser Base Manifold (RBM)	941	19° 54' 41.06" S	113° 14' 03.99" E	WA-61-L
Flowline A (start)	907	19° 55' 08.55" S	113° 13' 47.80" E	WA-61-L
Flowline A (end)	946	19° 46' 16.45" S	113° 11' 39.00" E	WA-61-L
Flowline B (start)	918	19° 55' 12.11" S	113° 13' 45.17" E	WA-61-L
Flowline B (end)	948	19° 52' 30.84" S	113° 06' 39.90" E	WA-61-L
Flowline C (start)	913	19° 55' 14.51" S	113° 13' 43.94" E	WA-61-L
Flowline C (end)	948	19° 53' 47.55" S	113° 06' 54.73" E	WA-61-L
Northern end of mooring array	943	19° 54' 40.48" S	113° 14' 31.38" E	WA-61-L
Southern end of mooring array	961	19° 56' 26.98" S	113° 14' 28.11" E	WA-61-L
Eastern end of mooring array	956	19° 55' 34.48" S	113° 15' 26.04" E	WA-61-L
Western end of mooring array	949	19° 55' 32.77" S	113° 13' 33.29" E	WA-61-L
Gravimetry – NW outer concrete pad	969	19° 40' 02.52" S	113° 05' 16.64" E	WA-62-L
Gravimetry – NE outer concrete pad	928	19° 40' 04.72" S	113° 24' 59.71" E	WA-62-L
Gravimetry – SW outer concrete pad	966	19° 59' 04.70" S	113° 05' 33.98" E	WA-61-L
Gravimetry – SE outer concrete pad	955	19° 59' 07.01" S	113° 18' 57.48" E	WA-61-L
Gas Export Trunkline (Kilometre Point (KP)) (Proposed location to be installed under Scarborough Seabed Intervention and Trunkline Installation EP)				
32 KP (Export trunkline at State Waters Boundary)	39.3	20° 21' 1.89" S	116° 42' 9.71" E	WA-32-PL
50 KP	44	20° 17' 24.50" S	116° 32' 54.82" E	
100 KP	56	20° 10' 27.04" S	116° 05' 14.93" E	
150 KP	74	20° 04' 18.63" S	115° 37' 32.63" E	
200 KP	193	19° 55' 59.41" S	115° 13' 46.73" E	
250 KP	1352	19° 45' 57.60" S	114° 48' 51.33" E	
300 KP	1337	19° 46' 14.24" S	114° 22' 27.63" E	
350 KP	1114	20° 00' 20.03" S	113° 58' 36.64" E	
400 KP	1028	19° 54' 8.13" S	113° 31' 10.20" E	
433 KP (Export RBM spool tie-in flange))	941	19° 54' 39.86" S	113° 14' 2.83" E	
Wells (Proposed location to be installed under Scarborough Drilling and Completions EP)				
Phase 1				
SCA01*	910	19° 53' 30.50" S	113° 08' 43.57" E	WA-61-L
SCA02 *	912	19° 53' 48.47" S	113° 06' 55.26" E	WA-61-L

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Structure	Water depth (approx. MSL)	Coordinates (GDA 94)		Petroleum Titles
		Latitude	Longitude	
SCA03 *	912	19° 53' 18.55" S	113° 10' 03.30" E	WA-61-L
SCA04 *	918	19° 52' 30.36" S	113° 06' 41.41" E	WA-61-L
SCA05 *	918	19° 52' 38.72" S	113° 13' 24.44" E	WA-61-L
SCA06 *	902	19° 49' 27.76" S	113° 13' 08.30" E	WA-61-L
SCA07 *	907	19° 45' 52.90" S	113° 14' 27.45" E	WA-61-L
SCA08 *	909	19° 53' 27.25" S	113° 08' 43.64" E	WA-61-L
Phase 2 (To be installed under a future EP)				
SCA09 **	913	19° 53' 50.14"S	113° 06' 56.04"E	WA-61-L
SCA10**	931	19° 54' 34.02"S	113° 12' 40.46"E	WA-61-L
SCA11***	910	19° 53' 8.02"S	113° 08' 46.17"E	WA-61-L
SCA12**	904	19° 49' 31.58"S	113° 13' 9.24"E	WA-61-L
SCA13**	913	19° 46' 16.57"S	113° 11' 39.74"E	WA-61-L

* Phase 1 proposed well locations may vary up to 3 km in radius subject to further engineering design. To be installed under Scarborough Drilling and Completions EP.

** Proposed well locations are subject to further engineering design. To be installed under a future EP.

*** SCA11 is a Phase 1 contingency (Option 1 Longitude/Latitude shown). Contingency to be installed under Scarborough Drilling and Completions EP for Phase 1. Installation during Phase 2 is subject to a future EP.

3.3 Operational Area

The PAA defines the spatial boundary of the Petroleum Activities Program as described, risk assessed and managed by this EP, including vessel related petroleum activities within the PAA (Figure 3-2). The PAA is comprised of one overarching Combined Offshore Operational Area (hereafter referred to as the Offshore Operational Area) and one Trunkline Operational Area.

The Offshore Operational Area is made up of the following two Operational Areas specific to the key activities of the Petroleum Activities Program described in Section 3.1 and are shown in Figure 3-3:

- Operational Area 1 applies during FPU hook-up, commissioning, start-up, and routine operations activities: a radius of 2000 m around the location of the FPU and a 1500 m radius from the centre point or from the centreline of subsea infrastructure¹.
- Operational Area 2 applies during gravimetry survey activities only: a radius of 1000 m around Permit Areas WA-61-L and WA-62-L². This allows for the movement and positioning of vessels undertaking gravimetry surveys around the outermost concrete pads of the permit area(s).

The Trunkline Operational Area is 500m either side of the Trunkline centreline, extending ~410 km from the export RBM spool tie-in flange across Commonwealth Waters to the boundary with WA State Waters. This applies throughout the Petroleum Activities Program.

¹ The 1500 m radius excludes gravimetry concrete pads which are covered in Operational Area 2.

² Gravimetry activities (operations related to the recovery of petroleum) will be undertaken within the bounds of title areas WA-61-L and WA-62-L. Extension of the operational area 1000m beyond the title boundary allows for vessel maneuverability on sea surface only and has been discussed with adjacent title holders through consultation (Ref Appendix F, Table 2)

Vessel-related activities within the Trunkline Operational Area and the Offshore Operational Area are managed under this EP. Vessels supporting the Petroleum Activities Program when outside of these Operational Areas (e.g., transiting to and from port) are outside the scope of this EP and must adhere to applicable maritime regulations and other requirements which are not managed under this EP.

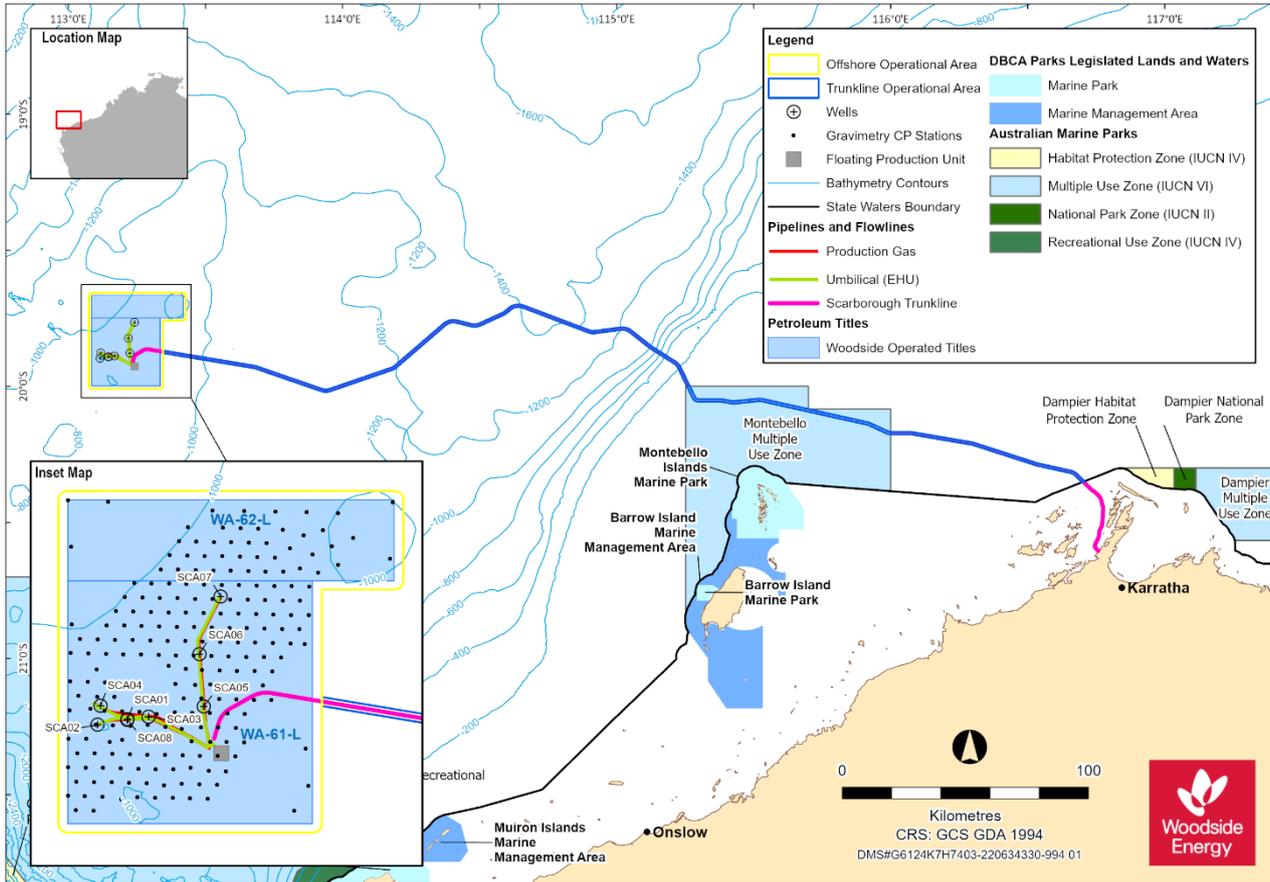


Figure 3-2: Location of the Petroleum Activities Program

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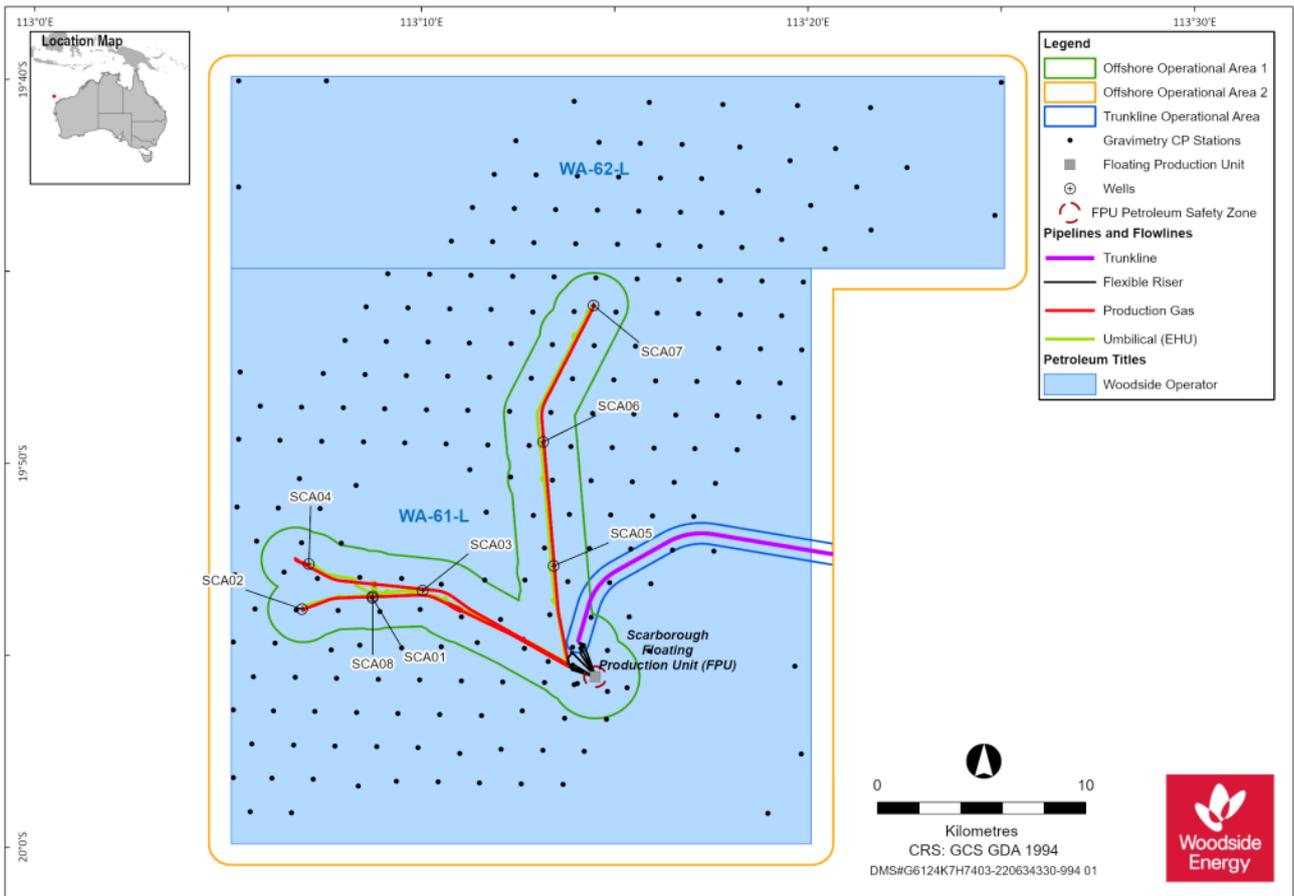


Figure 3-3: Combined Offshore Operational Area

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3.4 Timing

The Petroleum Activities Program includes number of temporary activities (FPU installation and hook-up, commissioning and start-up), followed by ongoing operations and IMMR. The earliest commencement date for hook up and offshore commissioning is currently estimated to be 2H 2025. Further details and a breakdown of activities are provided in (Table 3-3).

The EP has risk assessed the PAP throughout the year (all seasons) to provide operational flexibility for schedule changes and vessel availability.

Table 3-3: Timing of Petroleum Activities Program

Activity	Vessel Type	Earliest estimated start and duration	Relevant EP Section
FPU Hook-Up and Commissioning			
Pre-laid mooring chain retrieval and hook-up to FPU	Anchor handling tugs (AHTs)	Earliest commencement: 2H 2025 Duration: ~30 days – 45 days	3.6.1
Subsea Production and Export Riser Hook-up	Light construction vessel (LCV)	Commencement: Following completion of mooring hook-up Duration: ~14 days – 30 days	3.6.2
Subsea system dewatering and commissioning	LCV	Commencement: Following completion of Subsea Production and Export Riser Hook-up Duration: ~2 months – 3 months	3.7.1
FPU commissioning	Support Vessel Accommodation Support Vessel (ASV)	Commencement: Upon arrival to the Scarborough field and post hook-up ³ Duration: ~3 – 6 months	3.7.3
FPU Initial Start-up			
Initial start-up including well clean up	Support Vessel LCV	Commencement: At Ready for Start-Up (RFSU) Duration: ~3 – 6 months	3.8
FPU Operations			
FPU operations including maintenance and ongoing support vessel operations	Support Vessel	Following facility final acceptance, and ongoing for the life of the EP. Final Acceptance occurs once for the entire facility (See Section 3.8 for further detail). This is the point at which GHG emissions commissioning and startup controls are planned to be replaced by operations phase controls.	3.9

³ Commissioning of some FPU systems may commence prior to the FPU arrival in the Scarborough field and may remain ongoing concurrently with subsea hook-up, dewatering and commissioning.

		<p>Produced water system controls are planned to switch to Operations phase controls once “steady-state” is achieved (which may or may not be at the same time as Facility Final Acceptance).</p> <p>Because “steady-state” is expected to take around 6 months post RFSU, on Figure 3-4 below this is shown to occur at the same time as Facility Final Acceptance.</p>	
IMMR including contingent flowline and trunkline pigging	Support Vessel LCV Uncrewed Surface Vessel (USV)	<p>May occur any time post-infrastructure installation for the life of this EP.</p> <p>Variable duration: Table 3-8</p>	3.9.17
Gravimetry surveys	Support Vessel LCV USV	<p>~55 days per survey</p> <p>First survey to be completed ~18 month post ready for start-up</p> <p>Subsequent survey every 2-3 years.</p>	3.10

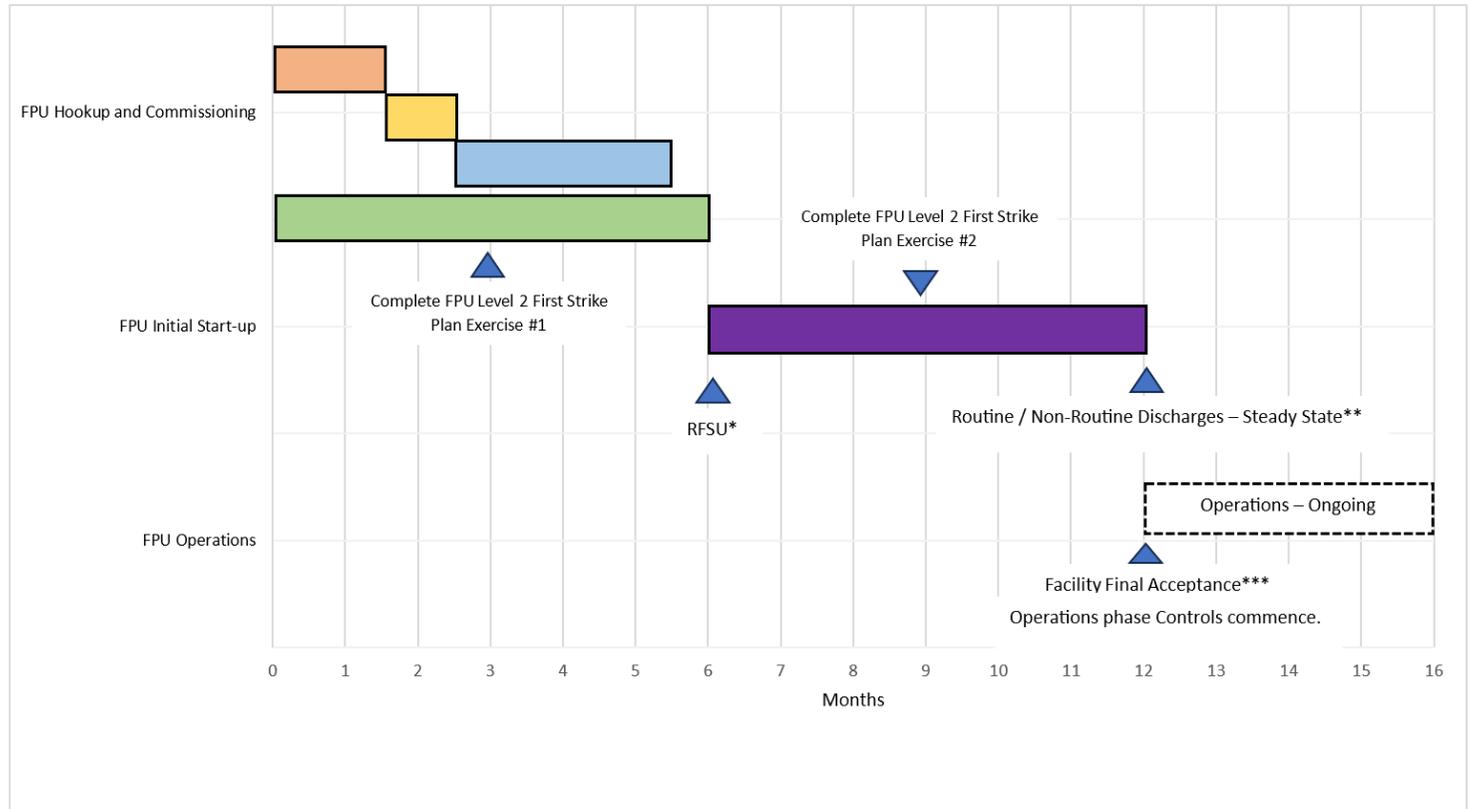
Operation of the FPU will be continuous (24 hours per day, 365 days per year).

Supporting activities, such as both FPU and subsea routine inspection, monitoring, maintenance, and repair (IMMR) (Section 3.9.17), take place as required.

Simultaneous operations (SIMOPS) may occur between activities within the PAA, with timing of some subsea hook-up, commissioning and survey activities overlapping. Timing, duration and vessel selection for all activities is subject to change due to project schedule requirements, vessel availability, unforeseen circumstances, and weather.

The Petroleum Activities Program currently has a planned field life from startup of operations of approximately 30 years, subject to reservoir performance and life extension studies.

This EP is intended to remain in force in accordance with Regulation 36 of the Environment Regulations.



- Pre-laid mooring chain retrieval and hook-up to FPU (30 – 45 days)
- Subsea Production and Export Riser Hook-up (14 – 30 days)
- Subsea system dewatering and commissioning (2 – 3 months)
- FPU Commissioning (3 - 6 months)
- Initial start-up including well clean-up (3 - 6 months)

* RFSU – Ready for Start-Up Well cleanup and introduction of hydrocarbons to the topsides

** Routine / Non-Routine Discharges – Steady State – Operations Controls for discharges such as Produced Water become applicable once steady state is achieved i.e. routine discharge commences, contaminant concentrations and discharge volumes remain steady (Approx. 6 months after startup)

*** Facility Final Acceptance – Successful completion of all performance testing ensuring systems meet design intent, functionality, and operability requirements.

Figure 3-4: FPU Hookup, Commissioning, Start-up and Operations – Planned durations and sequence

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3.5 Future Expansion

The FPU is designed to be able to accommodate future potential tie-back opportunities including from Thebe and Jupiter gas fields and potentially other resources owned either by Woodside or other Titleholders. Additionally, the export trunkline has provision for future tie-in opportunities. Any future development opportunities (such as additional Phase 2 wells) would be undertaken in accordance with the Scarborough Offshore Project Proposal (the primary approval for the Scarborough Project). The scope of the approved OPP includes 30 wells in total across Scarborough (Phase 1 and 2), Thebe and Jupiter, which includes 10 contingency wells.

Provision for tie-in to the FPU, such as spare riser slots and preinstalled tees in the export trunkline is part of the current design of the Scarborough infrastructure. The infrastructure to support the potential Thebe and Jupiter field development is likely to comprise development wells and subsea infrastructure such as manifolds, possibly subsea compression, and flowlines.

Future Scarborough Phase 2 wells or development of the Thebe and Jupiter fields will require development of Environment Plans specific to these Petroleum Activities Programs. The Acceptable levels of impact from the OPP and relevant EPO's (or develop EPO's commensurate with those from the OPP) will be cascaded into future Scarborough Development EP's. The EP MOC process (Section 7.2.6) will be used to determine if resubmission of this *Scarborough Offshore Facility and Trunkline (Operations)* Environment Plan is required to enable any future developments.

3.6 Floating Production Unit Installation and Hook-up

On arrival in the Offshore Operational Area the FPU will be held in position by tow tugs (with towlines) as shown in Figure 3-5 using dynamic positioning (DP). Once pre-installation inspections and tests have been satisfactorily completed and the marine warranty surveyor (MWS) has issued their certificate of approval, mooring hook-up operations are planned to commence.

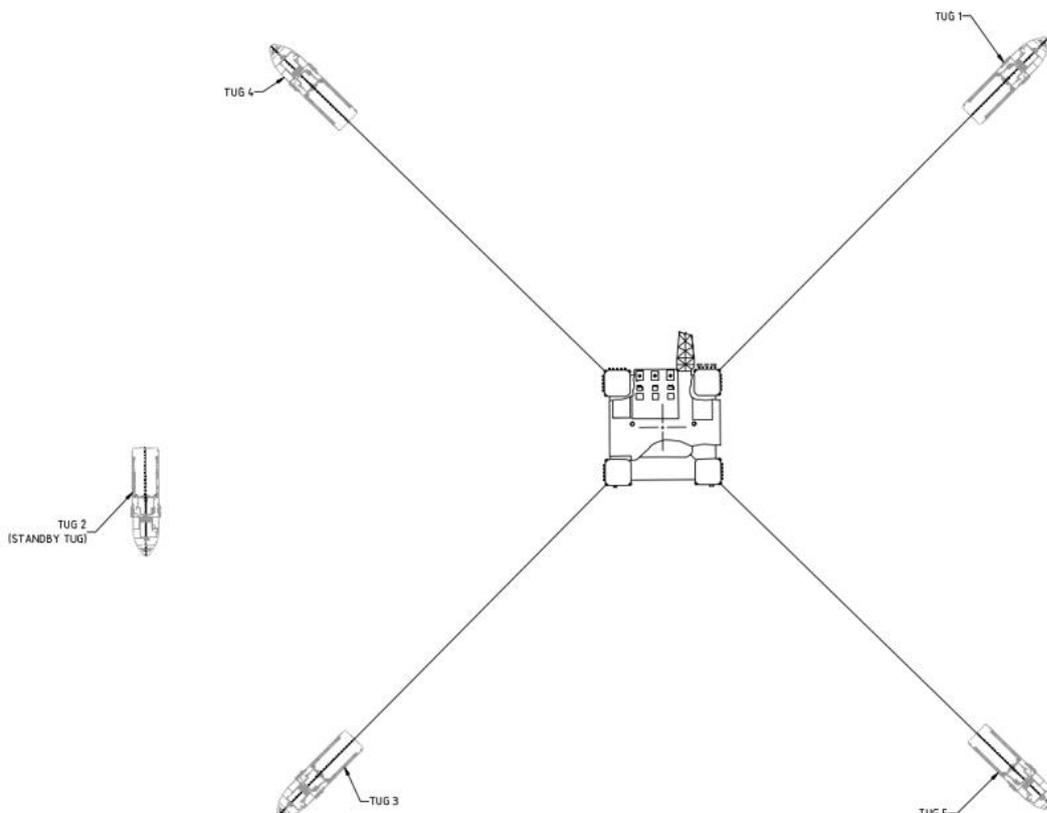


Figure 3-5: Floating production unit pre-mooring installation preparations

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3.6.1 Floating Production Unit Mooring Hook-up

The FPU will be hooked up to a pre-installed mooring system, comprising 20 suction piles and mooring lines. The FPU is positioned into the prevailing weather direction and brought towards mooring centre. While four tow tugs maintain the position of the FPU, two mooring hook-up anchor handling tugs (AHT) will each begin recovery from the seabed to the deck of each pre-installed mooring line. The pre-laid mooring lines will be recovered from the seabed and connected to chain stoppers on each column of the FPU. The mooring system incorporates a monitoring system, to measure and log horizontal excursions. Once complete, clump weights and installation chain are recovered.

The installation of the suction piles and mooring chains and their wet storage on the seabed is planned to be undertaken under the *WA-61-L and WA-62-L Subsea Infrastructure Installation Environment Plan*.

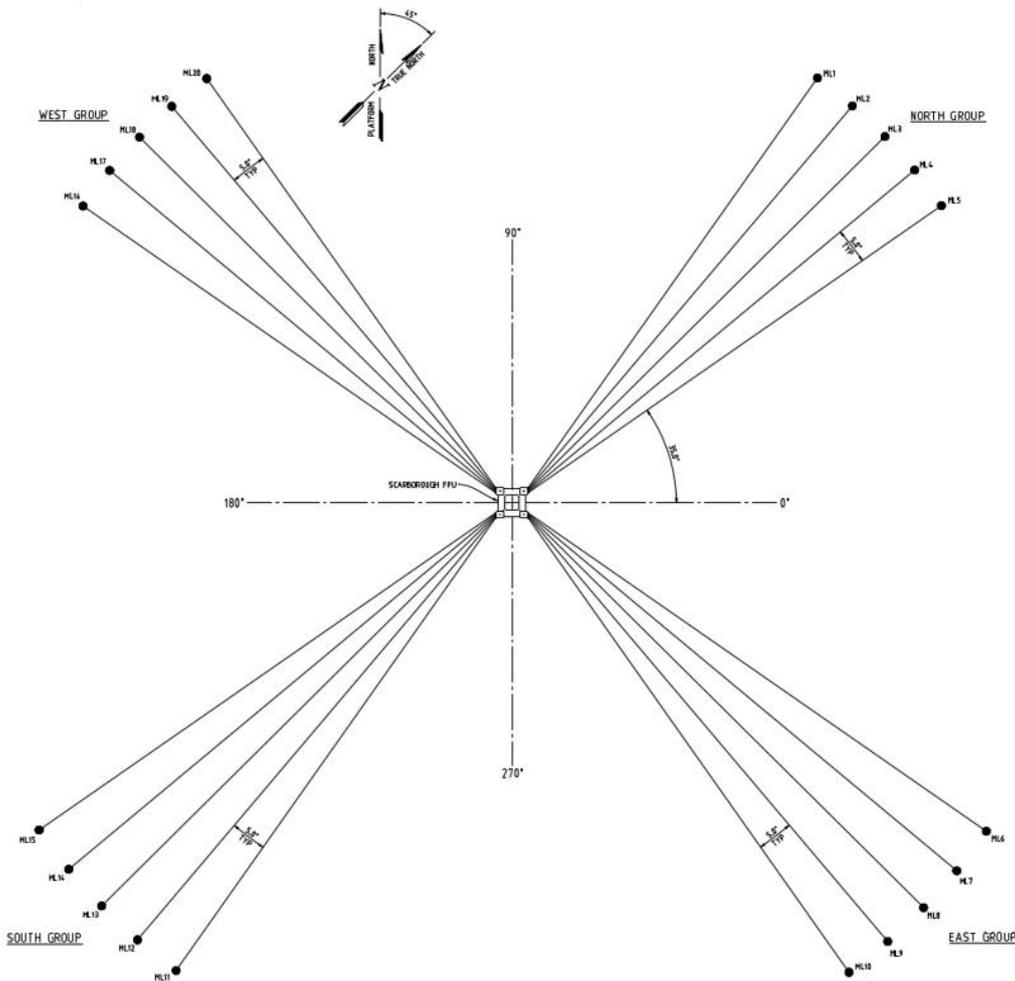


Figure 3-6: Floating production unit mooring lines layout

3.6.2 Production and Export Riser Hook-up

Following the connection of all mooring lines to the FPU, the subsea infrastructure previously installed and wet stored will be pulled-in and hooked-up to the FPU. This includes three production risers, three export risers and one dynamic umbilical to be pulled-in and hung-off the FPU hull. Following pull-in, activities that will be performed are:

- annulus vacuum test to confirm that no water ingress occurred during installation

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- (contingency only) a structural integrity test performed if damage is suspected or if any of the lay parameters exceed maximum allowable limits
- risers connected to FPU topsides
- leak testing of the topside tie-in spool and riser connection using nitrogen/helium.

Contingent activities that may be required during this process include repair of leakages from topsides/subsea connections, additional flushing of risers and flowlines if damage or contamination is found to have occurred (resulting in additional discharges) and wet storage on the seabed of equipment found to be defective.

3.7 Offshore Facility Commissioning

Once hooked-up to the FPU, the subsea production and export systems will be dewatered and commissioned. This will be conducted in parallel with FPU topsides commissioning, readying the connected facility for start-up (i.e. hydrocarbon introduction).

3.7.1 Dewatering of Production and Export Systems

Following topsides hook-up, dewatering of the production and export systems will be performed from FPU end of the risers using a Nitrogen dewatering spread and pig launcher receivers (PLRs). A series of pigs will be pushed through the production and export risers/flowlines to remove the treated seawater, leaving the systems filled with nitrogen. Dewatering will result in multiple discharges subsea, of filtered and treated seawater and freshwater (with additives including corrosion inhibitor, biocide, oxygen scavenger and dye), MEG and glycol-based gel pigs.

The subsea PLRs will be recovered upon completion of flowline dewatering operations and replaced with high pressure caps. Once installed, the piping between the cap and the isolation valve will be flushed with MEG mixture to displace any seawater ingress. Leak testing will then be performed to check the cap connection.

3.7.2 Subsea System Commissioning

Commissioning of the subsea system will involve testing of subsea controls communications from the FPU to the subsea control modules to confirm system readiness for hydrocarbon introduction. The exercising of valves will result in control fluid discharge.

3.7.3 Floating Production Unit Commissioning

The FPU commissioning process involves activities to confirm the integrity of the interconnected facility, so it is ready for start-up (RFSU) with the introduction of hydrocarbons. There will be no flaring prior to RFSU milestone. Where practicable, commissioning activities will be completed prior to the FPU arriving in the PAA. However, foreseeable activities that may occur after arrival in the PAA include:

- commissioning and start-up of some utilities systems
- installation and reinstatement testing of systems and equipment to operate the FPU that may have been removed or disturbed during the sail-down
- removal of temporary equipment/waste
- function testing (leak testing) of the hydrocarbon processing system
- final calibrations and testing of piping, alignment, hoses, safety systems, emergency shutdown valves, pumps, monitoring systems, heating, venting and air conditioning (HVAC) equipment and telecommunications connections
- safety system testing (e.g. emergency shutdown)
- commissioning of remaining systems that were not commissioned prior to arrival in the PAA.

3.7.4 General Facility Maintenance

During this period, power will be supplied to necessary equipment via diesel generators. Power generation for the facility will remain on diesel until start-up of the fuel gas system is complete and a steady fuel gas supply is available. Nitrogen from various topsides packages will be sent to the flare. Emissions from this activity are considered in Section 6.7.6.

Treated water may be discharged during commissioning activities. Fluids suitable for discharge will be over boarded or routed through the produced water treatment system, while fluids not suitable for discharge (e.g. waste oil) will be captured in a tank and transported onshore.

3.8 Offshore Facility Initial Start-up

Once the FPU is RFSU and before a steady state of production can be achieved, an initial start-up period is required to allow clean-up of the wells and to introduce hydrocarbons to the topsides equipment and pressurise the export trunkline. Start-up is as follows:

- The subsea production choke will be opened slowly to allow the flow of well fluids into the subsea production system, which will displace the nitrogen from the flowline to the FPU. Initially the nitrogen and then reservoir gas will be flared; drilling fluids will be removed and well performance and integrity will be proven (see Section 3.8.1). Flaring will continue until various start-up objectives are met (e.g. steady fuel gas available, trunkline has met minimum pressure requirements, export compressor(s) commissioned).
- As stable gas is established, the first processing train and the fuel gas system will be commissioned.
- The export trunkline can be pressurised, either using FPU export gas or from onshore.
 - If using FPU export gas, gas meeting export specification is directed to the trunkline via the fuel gas system.
 - If using onshore gas, the trunkline will be brought to pressure using gas from onshore, with trunkline nitrogen removed via the FPU high pressure flare.
- Once steady gas on the FPU is established and the trunkline is pressurised, the first export gas compressor start-up can be completed, and gas export can commence. At this point, flaring will be largely reduced, as gas will be directed to the trunkline instead of partially to the flare. It is expected to take 30-60 days from RFSU to reach this point.
- As the start-up sequence progresses, the remaining wells and flowlines can be cleaned up with the subsequent commissioning of the other processing trains and export compressors.

Equipment performance trials will be completed once production rates or equipment is available.

The end of the “initial start-up” phase and the beginning of “operations” phase is marked by successful completion of performance testing, and “Final Acceptance” of the facility. Performance testing confirms that the systems meet their design intent, functionality and operability requirements (i.e. the systems are operating as designed and intended). Performance testing requirements must be met in order to achieve final acceptance, and this milestone occurs for the entire facility at the same time. This means that major systems will be operational, including gas conditioning trains providing on-spec gas for export, the MEG recovery unit, the produced water system, and the flare. Troubleshooting for performance testing issues may continue beyond facility Final Acceptance. If required, (for example if equipment is not operating as intended by design), the EP Change Management Process (Section 7.2.6) will be followed to manage ongoing issues and potential environmental impacts. Initial start-up phase controls for Routine and Non-Routine Greenhouse Gas Emissions will be replaced by operational phase controls at this point. Non-Routine Discharges controls, which will switch to Operations controls once ‘steady state’ is achieved. This occurs once routine discharge commences, and contaminant concentrations and discharge volumes are seen to remain steady. Post start-up, a period of time is required to optimise the PW treatment system and

to confirm how it operates and reacts to changes in the process (pressures, chemical concentrations, flow rates). It is expected that this will take approximately 6 months post facility initial start-up.

Flaring during the initial start-up period will occur while equipment and wells are brought online and emergency shutdown, blowdown and performance testing occurs. Flare pilots will remain on propane until the fuel gas system is commissioned and a stable fuel gas supply has been established. Likewise, topsides systems will be run off diesel until a stable fuel gas supply has been established. Emissions associated with these activities are considered in Section 6.7.6. Emissions estimates include contingency for additional flaring if unexpected issues arise during start-up (e.g. export system commissioning delays).

For discharges during the start-up of the facility, there may be short term peaks in contaminant values as equipment is brought online for the first time, but this is not expected based on the system design. Discharge of sewage and grey water from the FPU may be elevated with an increase in Persons On Board (POB) during this period. Unplanned sources of fluid that are unable to be treated and discharged (e.g. waste oil), will be captured in tanks and transported onshore.

3.8.1 Well Cleanup

Scarborough wells will initially be cleaned up to a temporary well clean-up (WCU) package on the FPU which will be lined up to an individual flowline/train at a time. The WCU package will filter solids carried in the liquid stream. The liquid will be routed to the HP Flare Knock-out Drum, where the liquids will be degassed, and they will be sent to the closed drain drum for further degassing. Due to contamination from drilling and completion chemicals, all the liquid (dirty MEG) will be held in a rich MEG tank, and depending on cleanliness a decision will then be made on whether to process the MEG onboard or send onshore and dispose at an appropriate onshore waste facility. Criteria for reclamation will be based on whether the MEG is contaminated enough to impact the MEG Recovery Unit (MRU). If the MEG is recovered onboard the usual MEG recovery process will be applied and subsequent PW discharges may contain additional chemicals from the drilling and completions process. Additional MEG bunkering may be required to replenish the lean MEG inventory after well clean up. Gas produced during this activity will be flared until the systems required to export gas to the trunkline have been commissioned.

In the scenario, which is considered unlikely, where a well produces formation water during clean up, the formation water, MEG and well clean up liquids will be sent to a dedicated tank (base case for all well clean up liquids). If a well is identified to be producing formation water, it is expected that it will be immediately shut in. In the unlikely event that a water-producing well was kept online for an extended period, the formation water would either be segregated with the other well clean up liquids (for disposal onshore) or alternatively, be sent to a rich MEG tank for processing and discharge as per the usual process. The formation water would only be discharged if it was on spec. The alternative is to re-direct it inboard to the rich MEG tanks if off-spec.

3.9 Scarborough Operations

3.9.1 Facility Layout and Description

This section provides an overview of the Scarborough FPU and associated infrastructure, as relevant to consideration of the environmental risks and impacts of the Petroleum Activities Program.

3.9.1.1 Topsides

The FPU topsides consists of three main decks (lower, middle and upper) and four additional mezzanine and valve decks (Lower Mezzanine Deck, Middle Mezzanine Deck, Lower Valve Deck and Upper Valve Deck). The plan view area is 7,878 m², extending 101 m long and 78 m wide.

The layout of the topsides is configured such that:

- the hydrocarbon processing equipment and flare system are located to the north
- utilities, main laydown, and utilities building) sit between the process areas and the Living Quarters (LQ)
- the process area is segregated from the utilities by a fire and blast rated partition that extends from the Lower Deck to above the Middle Deck
- two pedestal cranes, located on east and west sides of the Middle Deck
- the Flare Boom is located towards the NE corner of the Lower and Middle Decks
- the Platform Crane South crane is located on the west side of the LQ.

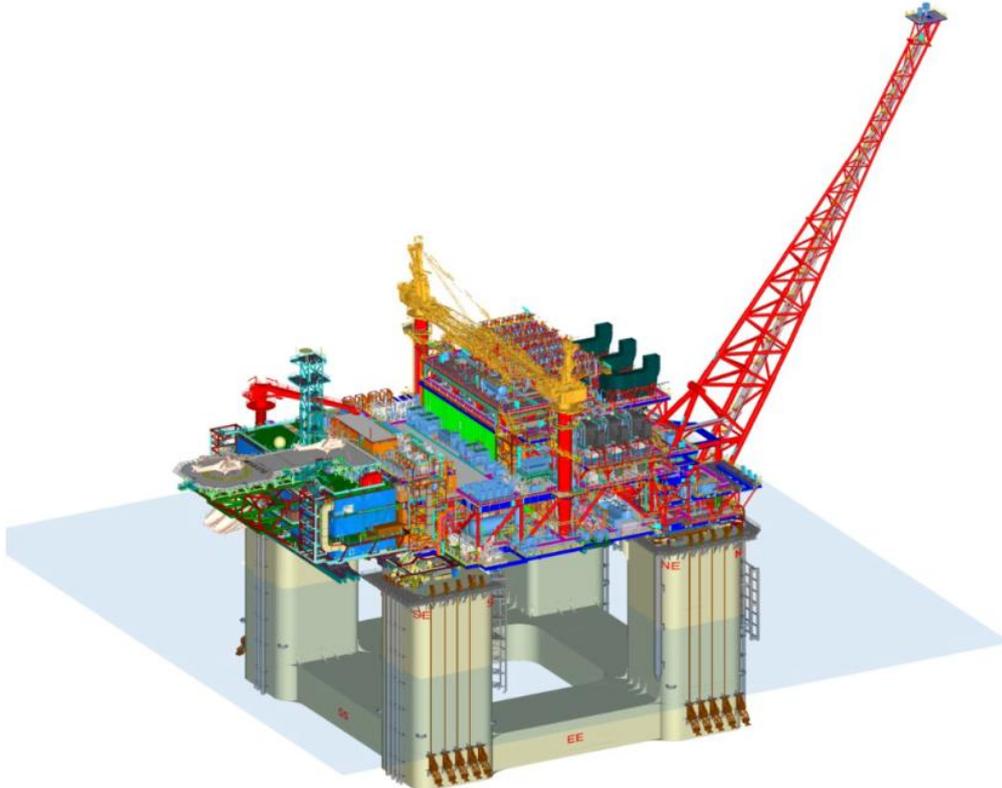


Figure 3-7: Facility topsides overview

3.9.1.2 Process Area

The process areas support the following systems and equipment:

- The Lower Deck process connects to the subsea production and export risers and contains the Inlet Separators, MRU, MEG injection, chemical injection and Flare Knock Out (KO) Drums.
- Temporary pig receiver facilities are located at equivalent elevation as Lower Deck Mezzanine level on the NW corner.
- The Middle Deck contains the Export Gas Compressors (EGCs) and Discharge Coolers, Gas-Gas Heat Exchangers, MRU, Fuel Gas Heaters and Main Power Generators (MPGs).
- The Upper Deck contains the EGC turbine intakes and exhausts, gas blowdown/relief valves and expansion vessels for the cooling systems.
- The Lower and Upper Valve Decks contain the Pressure Safety Valves (PSVs) and expansion vessel for the heating system.

- The Flare Boom is located towards the NE corner of the Lower and Middle Decks.
- Two pedestal cranes are located on east and west sides of the Middle Deck. Diesel storage is within the crane pedestals.

3.9.1.3 Utilities Area

The Lower Deck contains the enclosures for the Firewater Pump (FWP) Generators, Emergency Diesel Generator (EDG) and Black Start Generator (BSG), seawater system, ultraviolet sterilisers for the freshwater system, Fire Water Ringmain and deluge valve skids, instrument air system and FRC.

The Middle Deck provides the main laydown area, Nitrogen Generation, Hypochlorite Generation, Reverse Osmosis (RO) Water Maker, Produced Water Treatment (PWT), Open and Closed Drain Waste Drum, and the chemical storage area.

3.9.1.4 Utility Building

The Utility Building (UB), containing the laboratory and workshop, is located to the south of the Utilities/laydown areas. It is integral to the Lower and Middle Deck structures and extends above the Middle Deck. The largest proportion of the UB is occupied by electrical switchgear and marshalling cabinets.

A Battery Energy Storage System (BESS) and the instrument air receivers and driers are located on the roof of the UB.

3.9.1.5 Living Quarters

The LQ is located to the south of the UB and contains the Local Control Room (LCR), galley/mess, cabins, medical facility and direct access to the lifeboats (located to the south) and the Helideck (located on the roof of the LQ). The roof of the LQ also supports the Heating, Ventilation and Airconditioning (HVAC) equipment, aviation fuel skid, telecommunications radio tower and radar.

3.9.1.6 Floating Production Unit Hull

The FPU's hull structure consists of four columns connected to a ring pontoon containing ballast tanks. Each of the four hull columns is subdivided into a number of compartments (tanks), comprising of:

- void tanks
- access shafts
- freshwater storage tanks and Utility water tank (seawater (SW) column)
- MEG storage tanks (NE and NW columns).

3.9.2 Wells and Reservoirs

The Scarborough wells will be managed in accordance with the Scarborough Well Operations Management Plan – Operate Phase (WOMP). The WOMP describes control measures in place to ensure the risks to the well integrity are reduced to ALARP, including during periods of non-operation, before permanent decommissioning.

During Scarborough Drilling and Completions activities, (under the accepted EP *Scarborough Drilling and Completions Environment Plan*) wells with wellheads that are re-spudded and wellheads unable to be removed will be managed through Woodside's Change Management Processes (Section 7.2.7) under this EP. The Scarborough Drilling and Completions EP includes requirements for wellhead removal attempts and sets out where it may be acceptable to leave a wellhead in-situ post re-spud.

Decommissioning of the wellheads will progress once the wells have been accepted as permanently abandoned wells (AW). However, planning AW wellhead decommissioning is premised upon the plan for removal, with consideration of the principles of ALARP and acceptability. Once the wells have been accepted as permanently abandoned and the decommissioning activity is defined, an EP will be submitted for the wellhead decommissioning activity. Decommissioning planning is further described in Section 7.3).

3.9.3 Subsea Infrastructure Operations

Phase 1 of the Scarborough development consists of eight (plus one contingent) subsea wells tied back to the FPU via three subsea production 16" rigid flowlines.

The subsea infrastructure above the mudline comprises a xmas tree connected to a wellhead at each well location (Table 3-2). Each subsea xmas tree is approximately 5 x 5 x 5 m (Length x Width x Height) and is connected to the flowlines via flexible jumpers. The production flowlines each terminate at a Flowline End Termination (FLET) with subsea isolation valve (SSIV) approximately 1.6 km away from the FPU. The production fluids from each flowline are transported to the FPU by three dedicated 14" flexible production risers with provision for two additional production risers to be installed in the future. The flexible production risers are hung off the top of I-tubes, which are supported by a cantilevered platform at the NW column of the FPU's hull. At the hang-offs, the flexible risers are connected to the rigid riser spools. The other ends of the spools are connected to the Riser Emergency Shutdown Valves (RESRVs) which are located on the NW corner of the Lower Deck of the FPU.

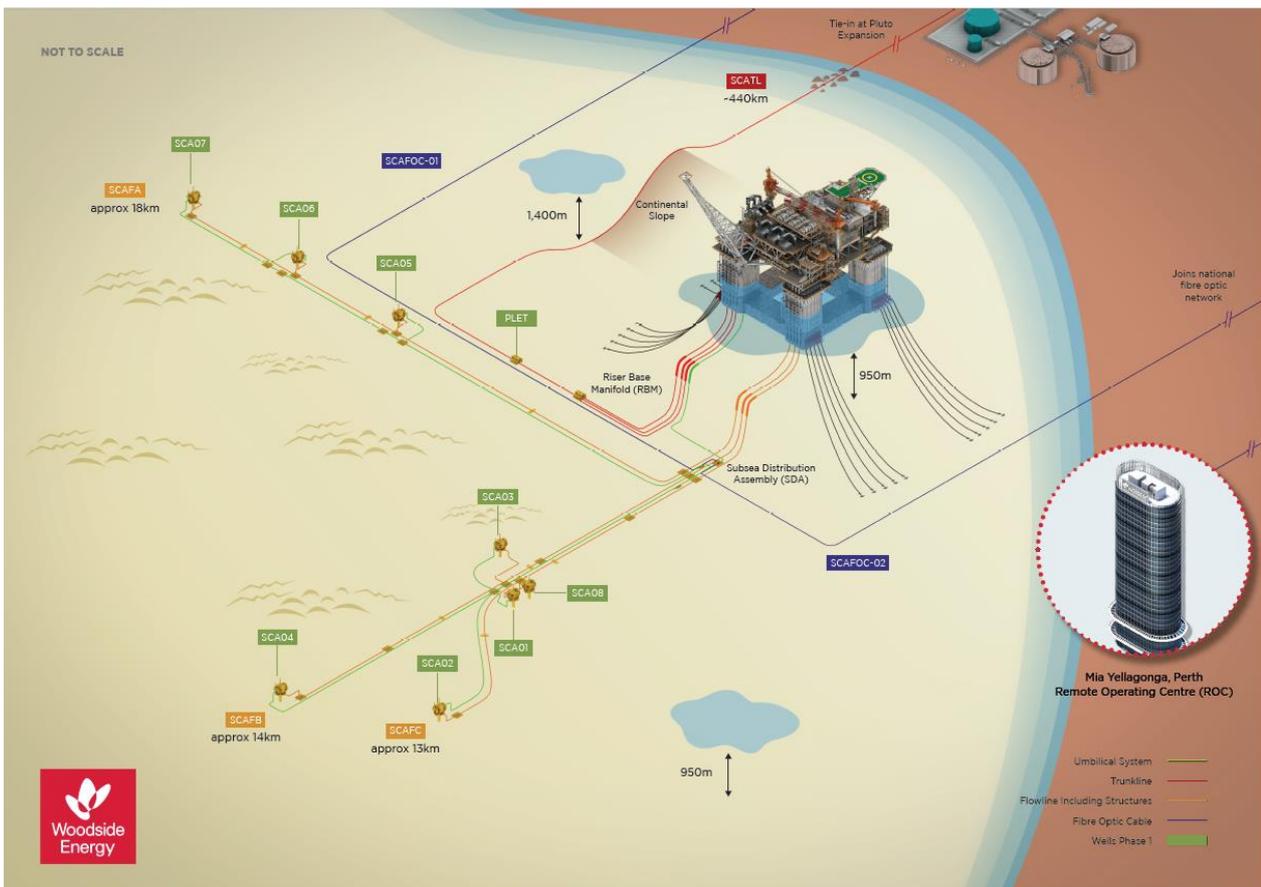


Figure 3-8: Indicative Scarborough field infrastructure layout

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The three flexible export gas risers which are connected to the North-East column of the FPU, feed dry gas into the Riser Base Manifold (RBM) with non-return valves into a single 32-inch spool and through to the export trunkline (ETL) (Section 3.9.4). The FPU subsea infrastructure consists of:

- Wells/Xmas trees/wellheads
- flowlines
- risers
- flexible jumpers
- umbilicals
- flying leads
- flowline end terminations (FLETs)
- umbilical termination heads and assemblies
- subsea distribution units and assemblies
- export trunkline
- trunkline spool
- pipeline end termination (PLET)
- riser base manifold (RBM) and foundation
- support structures (sleepers, mud mats, in-line structures).

The FPU subsea infrastructure is controlled from the FPU through the:

- umbilical and subsea electro/hydraulic distribution system which provide hydraulic services, electrical power and control services, and chemical injection services as required
- valves which control subsea operations and processes
- chokes which control pressure and flow rates from the production wells
- subsea control modules (SCM), which are sealed, and pressure compensated electrohydraulic units (typically found on the XT), which link the surface and subsea controls.
- subsea valves may be overridden manually/mechanically via a remotely operated vehicle (ROV).

3.9.4 Export Trunkline

The licenced section (WA-32-PL) of the ETL starts at the RBM outboard flange and includes the 32-inch spool, the PLET and the ETL between the PLET and the State Waters boundary. The ETL can be isolated from the FPU export system by the Riser Emergency Shutdown Valves (RESRVs) located on each export riser, and non-return valves are provided in the RBM for each export riser. The trunkline route traverses a deepwater escarpment to the vicinity of the Pluto riser platform and follows the existing Pluto Export Trunkline (WA-17-PL) route to shore. Outside of this EP scope; the trunkline continues through state waters to the onshore Pluto Gas Plant. The Trunkline infrastructure consists of:

- Trunkline:
 - 36-inch Subsea pipeline (KP 32.036 to KP 200),
 - 32-inch Subsea pipeline (KP 200 to KP 433), and
 - Buckle arrestors from KP 208.3 to the PLET;
- In-Line Tee Assembly (ILTA);
- Two identical Hot Tap Tee Assemblies (HTTAs) for future tie-ins;
- PLET;

- 32-inch Spool; and
- Export RBM spool tie-in flange.

The ETL is designed to require minimal maintenance during operating life, with planned IMMR activities as described in Section 3.9.17.

The design and operating parameters for the ETL are detailed in Table 3-4.

Table 3-4: Export Trunkline Design and Operating Parameters

Description	Details
<i>Trunkline</i>	
Length	433.053 km (total)
Diameter, internal	864 mm from KP -0.029 to KP 200 760 mm from KP 200 to KP 433
Wall thickness:	Line pipe: 27.3 mm – 39 mm Buckle Arrestors: 65.0 mm
Coatings: Nearshore/Midwater and Slope Crossing (KP 0.09 to KP 204)	Bituminous Enamel (BE) Concrete Weight Coating (CWC)
Slope Crossing to Deep Water (KP 204 to 433.053)	Three-layer Polypropylene
Weight Coating:	
Material	Concrete (on BE coated sections and at the slope crossing)
Density	3040 kg/m ³
Thickness	40 – 110 mm
Field joints	Heat shrink sleeve with epoxy primer
Design pressure and temperature:	
Pressure	Full Vacuum to (24.2 MPaa) (242 bara) at +30 m mean sea level (MSL)
Temperature	-10 to +60 °C
Maximum Normal Operating Pressure (NOP) at FPU export compression system ¹	21.0 MPaa (210 bara)
Normal Operating pressure range at Offshore Pipeline Termination Point ^{1,2}	70 to 95 bara
FPU Export Normal Operating Temperature Range	37 to 45 °C
Expected Maximum Export Flow Rate	1750 MMscfd
Cathodic Protection (CP): Pipeline (including crossings, transition piece and HTTAs)	Sacrificial bracelet anodes (Al-Zn-In).
ILTA and PLET	Additional anodes attached to these structures
Design Life	25 years
Hydrocarbon Product – Dry gas	
Component	~ Mole Fraction (%)

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Methane	95.0660
Ethane	0.1000
Propane	0.0008
C4 to C10	0.001094
C11+	0.000091
Helium	0.0210
Hydrogen	0.0057
Nitrogen	4.6997
Carbon Dioxide	0.1000
H ₂ S and Mercaptans	Below detection limits

Notes:

1. All pressures are references to +30 m MSL.
2. Pressure ranges are taken at the onshore end to the trunkline
3. See Table 6-33 for Development Basis of Design Reservoir Metal Characteristic Concentrations

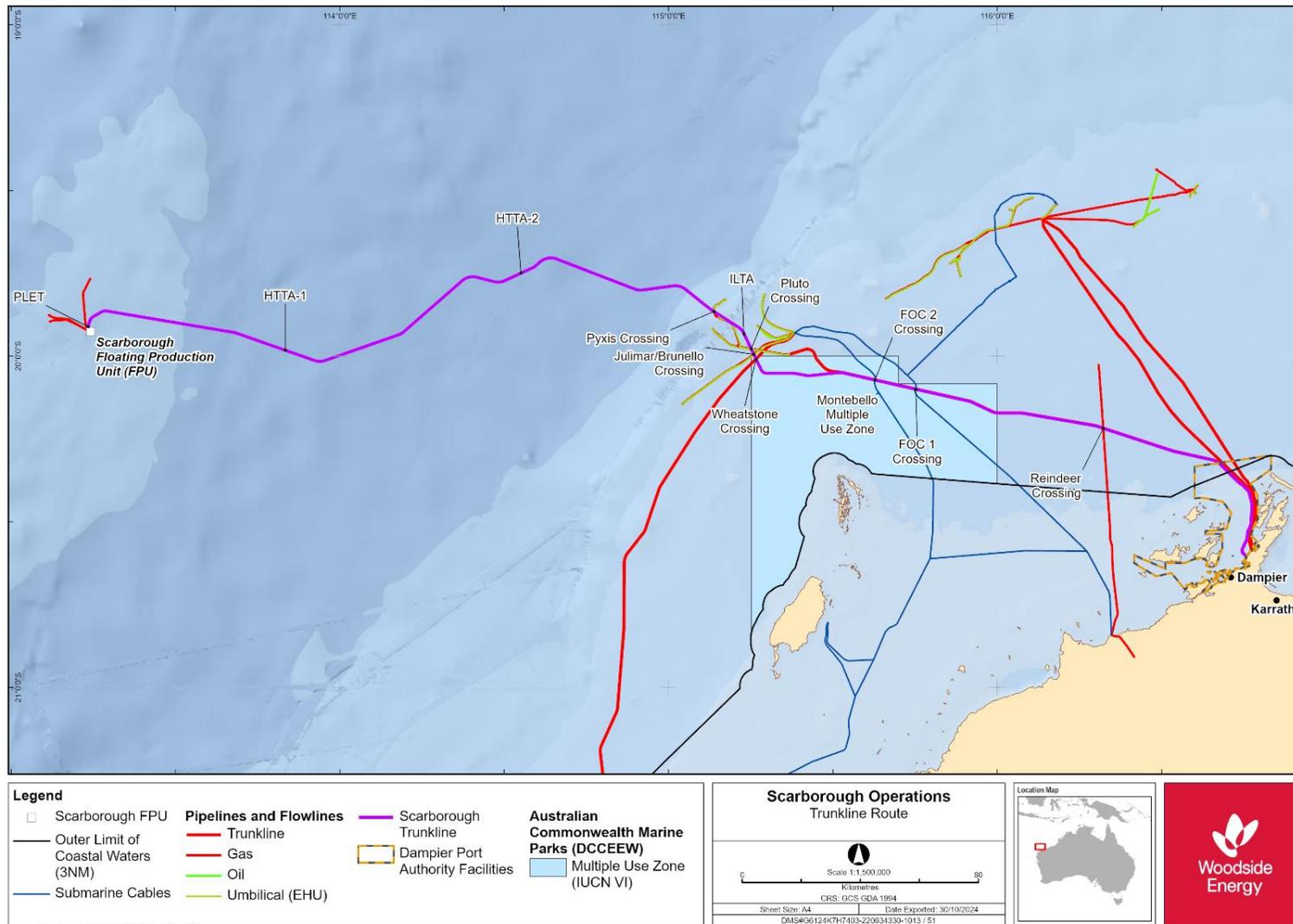


Figure 3-9: Scarborough Export Trunkline infrastructure overall layout

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3.9.5 Moorings

The FPU has a piled anchor mooring system, comprising 20 suction piles and mooring lines (five mooring lines per column) connected to chain stoppers 20 m below the water level on each column of the FPU. Each mooring line is composed of chain and wire segments, extend approximately 1800 m from the FPU and are connected to suction piles that are exposed above the seabed by ~1 to 2 m. The mooring system incorporates a monitoring system, to measure and log horizontal excursions.

3.9.6 Operational Details

This section provides a description of the main operations associated with the FPU.

3.9.6.1 Attendance Modes

Typically, the facility will be operated with a complement of personnel supplemented during times of higher need, for example start up and maintenance campaigns, up to the maximum POB. Control of the facility will be from the Integrated Remote Operations Centre (IROC) onshore in Perth or from the Local Control Room on the facility. Personnel will be removed from the facility during extreme weather events, although the facility will continue to operate.

Operations fall under any one of the modes of:

- hookup and commissioning (HUC)
- initial start-up and turnarounds (i.e. max POB)
- normal operations (attended mode)
- campaign maintenance
- cyclone response
- unattended mode.

During Hookup and Commissioning accommodation utilisation will be maximised. An Accommodation Support Vessel (ASV) could be utilised alongside the FPU to further accommodate up to ~500 people.

After HUC, Initial start-up and maintenance campaigns will have the largest number of personnel on the facility, which has been designed to accommodate around 75 people (subject to future change). During normal operations the facility will be minimally crewed.

As described in Section 3.8, normal operation mode will be entered after successful completion and close out of all performance testing.

Normal, steady-state operations are categorised by:

- production remote operations
- major projects
- maintenance, including subsea IMMR and removal activities
- well maintenance
- well start-up and commissioning
- suspension
- flowline flushing prior to well plug and abandonment.

The FPU is designed to allow for unattended operation for extended periods and is remotely controlled via the IROC. The facility is designed to be operated unattended for approximately 28 days (driven by consumables replenishment timeframes and other operation limitations), after which point an intervention visit / maintenance campaign will occur. Intervention visits are planned to be

~3 weeks long. In the initial years of operation, the FPU will only operate in unattended mode during severe cyclones, when personnel are demobilised as a precautionary safety measure. Operating in unattended mode for the longer durations is not expected to start until facility achieves reliable operations, likely two years post RFSU.

3.9.7 Process Description

3.9.7.1 Production Process

The hydrocarbon processing facilities, represented by the process flow diagram in Figure 3-10 are designed to produce dry gas safely and efficiently for export to Pluto Gas Plant / Karratha Gas Plant for processing.

The production fluids arriving from the subsea production system are processed on the FPU in three parallel gas processing trains, each comprising inlet separation, gas conditioning and export gas compression. The inlet to each gas processing train is aligned to a single production flowline/riser. There is provision (drop out spools) for commingling of multiple production flowline/risers to a single gas processing train if required later in field life.

Each gas processing train ties into a common compressor suction header at the outlet of the gas conditioning system to allow for operational flexibility and redundancy in the event of a compressor outage. Specifically, if one compressor fails, the others can continue to operate, enabling continuous processing.

The gas conditioning trains and compressors can each be isolated for maintenance while the others remain operational. In such cases, gas import rates will be reduced and/or compressor line-up will be altered in a controlled manner to avoid excess flaring. This redundancy minimises the impact of maintenance activities on production.

The production trains are supported by:

- a common liquid handling system that includes a MRU and a produced water treatment (PWT) and disposal system
- MEG storage and injection
- facilities for collection and removal of recovered hydrocarbon liquid, sand/solids and mercury.

In addition, the gas processing trains provide gas to meet FPU fuel gas requirements.

The MPGs on the FPU are dual fuel (i.e. can run on both fuel gas and diesel) and will run on diesel prior to fuel gas becoming available during initial and normal start-up. Diesel will be available for certain uses such as the BSG, EDG and FWP generators, when required for black start or emergency response.

3.9.7.2 Inlet Facilities

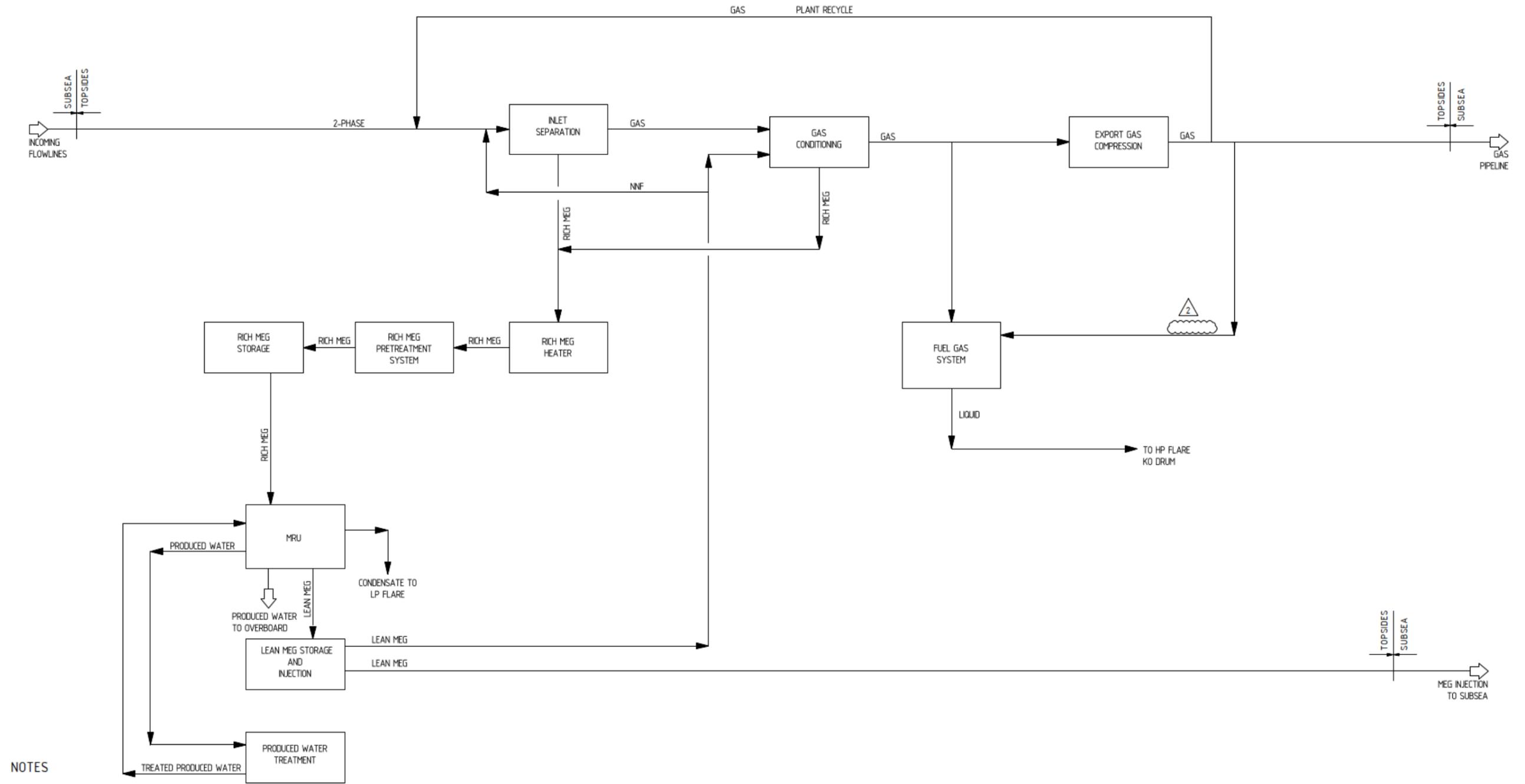
The bulk separation of liquids from the wet gas feed stream takes place at the Inlet Separator for each production flowline/riser system and to allow production fluids from each flowline to be handled and monitored separately. The inlet separation system separates the liquid stream (MEG and water) and solids from the wet gas. Although hydrocarbon liquids are not expected, provisions have been included to separate and direct these liquids towards the flare system/closed drains system for subsequent collection and removal for onshore disposal. Mercury and sand traps are provided in each Inlet Separator to capture elemental mercury and solids from the incoming fluids and to minimise carry over to downstream systems.

It is anticipated that the Scarborough reservoir fluids will contain low levels of mercury. Elemental mercury may condense in the subsea production flowlines and risers and if not removed during normal operation, the mercury is expected to be displaced during pigging operations. On the FPU, mercury is expected to collect in the bottom of the Inlet Separators and Low Temperature

Separators. Accumulated mercury will be drained periodically via dedicated nozzles when the vessels are offline and at low pressure. Mercury waste will be managed by trained personnel and placed in suitable containers for transfer to an approved specialist onshore waste management facility for treatment and disposal.

3.9.7.3 Gas Conditioning

The gas stream from each of the Inlet Separators flow to the gas conditioning system, which consists of a Gas-Gas Heat Exchanger, JT valve and Low Temperature Separator (LTS). The gas conditioning train operating conditions ensure that the water, MEG and liquid hydrocarbons in the wet gas stream are removed to meet the required gas quality specifications for export. Separated hydrocarbon liquids will be directed towards the flare system/closed drains system for subsequent collection and removal for onshore disposal.



NOTES

Figure 3-10: Production system process flow diagram

3.9.7.4 Export Gas Compression

After gas conditioning, dry gas enters the export gas compression and metering system. Three identical gas turbine driven gas compressors are used. At the discharge of the export compressors, the Export Gas Discharge Coolers reduce the gas temperature after which the gas is combined to a Common Export Header before the gas is metered and exported via the three export risers.

3.9.8 Flare Systems

The FPU has two flare systems, the high pressure (HP) flare and the low pressure (LP) flare. The main purpose of the flare systems is to safely discharge gas streams to maintain the safety of the facility, during emergency depressurisation scenarios, planned depressurisations (i.e. for maintenance activities) and overpressure relief disposal. The flare tip will be 136 m above sea level (the highest point on the FPU). Flared gas is metered by flowmeters on source streams.

3.9.8.1 High Pressure Flare System

The HP flare system collects vented hydrocarbons from process and utility systems, with a design pressure of 1400 kPag or above. The HP flare header is routed to the HP flare knockout (KO) drum, to separate liquid from gas. Vapours from the flare KO drum are then sent to the flare tip for combustion, while liquids are sent to the closed drain drum. To prevent air ingress, the HP flare header is purged continuously with a mix of nitrogen and fuel gas, to ensure complete combustion of any unburnt methane.

3.9.8.2 Low Pressure Flare System

The LP flare system collects vented hydrocarbons from process and utility systems, with a design pressure of below 1400 kPag. The LP flare header is routed to the LP flare knockout (KO) drum, to separate liquid from gas. Vapours from the flare drum are then sent through the flare system and combusted at the flare tip, while liquids are sent to the closed drain drum. To prevent air ingress, the LP flare header is purged continuously with fuel gas, to ensure complete combustion of any unburnt methane.

3.9.8.3 Flaring – Normal Operations

Small quantities of gas and nitrogen are required to be flared throughout normal operations, for safety purposes or disposal of waste streams not recovered to the process. These continuous and intermittent flows to the LP flare include flare pilot, flare purge, Low Pressure MEG Flash Vessel (LPMFV) vent, compressor seal gas, MEG vacuum scrubber system, sampling points and analysers. Flows to the HP flare include flare pilot, flare purge, control valves and sampling points. Pilot rates total approximately 110 tpa. Total continuous flows to the flare are approximately 1100 tpa.

3.9.8.4 Flaring – Intermittent Process Activities and Upsets

During periods considered to be 'non-steady state', such as during start-up, upset conditions, or when introducing new wells, increased flaring may occur. This is required to protect the integrity of the facility and to prevent harm to personnel, environment and equipment. It is anticipated that such events may occur for short periods (hours or days at a time), which has been accounted for in the emissions estimates. The following sources make up intermittent flaring:

3.9.8.4.1 Initial Start-up

Flaring during the initial start-up period is described in Section 3.8.

3.9.8.4.2 Emergency Blowdown / Manual Depressurisation

The topsides equipment and piping are divided into isolatable sections, each with a dedicated blowdown valve (BDV). During an emergency shutdown, each section is separately depressurised to the flare. Each section contains a fail-open actuated BDV which allows blowdown of the entire platform inventory.

Manual depressurisations will result in intermittent flaring of hydrocarbons, triggered by restart operations (to avoid export of off-spec gas), routine equipment maintenance, planned emergency shutdown testing and/or depressurisation of equipment and piping to remove the equipment from service. These may involve the entire facility or just parts of it.

It is anticipated that approximately 10 emergency / manual (full or partial) depressurisations will occur within the first 6-months post-RFSU, 7 in the second 6-months, and 18 per-year during normal operations. A total of approximately 630t gas will be flared per event for full facility shutdown and restart (less for partial facility).

3.9.8.4.3 Pigging

Pigging of the production flowlines is planned four times throughout field life, although this may be adjusted based on Risk Based Inspection (RBI) outcomes. Reservoir gas will be used to propel the pigs from the FLETs to the FPU receiver. Flaring will be required for depressurisation of the FPU receiver for pig removal, which will result in an estimated 2 tonnes of flaring in years that flowlines are pigged. In the event that the end well is not available to drive the pig, an alternative fluid (likely nitrogen) will be required to propel the pig to the next available well. If nitrogen is used for pigging, flaring will be required due to incompatibility with FPU and onshore fuel gas systems, estimated at 200t per flowline.

Pigging of the trunkline is planned three times throughout field life, although this may be adjusted based on RBI outcomes. After the temporary subsea pig launcher is attached to the RBM, the preservation fluid (MEG/water) plus any seawater that has entered the pig launcher during installation must be flushed out, resulting in discharge to the environment of ~6m³ of MEG/water mixture and ~2 tonnes of hydrocarbon gas. FPU export gas will be used to propel the pigs from the RBM to the onshore receiver. Flaring will be required for depressurisation of the onshore receiver for pig removal, estimated at 8t per pigging campaign. In the unlikely event of inability to launch a pig via the kickerline, nitrogen may be required. If nitrogen is used for pig launch then this may be required to be flared if it cannot be adequately blended due to incompatibility with the onshore fuel gas systems. Flaring is estimated at 100t.

3.9.8.4.4 Subsea Flowline and Export Riser Depressurisation

The well fluid in the subsea flowlines (which transport hydrocarbon gas, water and MEG from the subsea wells to the FPU) may on occasion need to be routed to the flare to reduce pressure in the flowlines and risers for the following reasons:

- Over-pressurisation (packing) of the flowlines
- Leak-off testing of well and subsea isolation valves
- Repair or replacement intervention/maintenance of subsea system
- Hydrate remediation
- Emergency depressurisation

This would result in ~200-350 kT flared for a single flowline (and associated riser).

The hydrocarbon gas in the export risers may on occasion need to be routed to the flare to reduce pressure for the following reasons:

- Leak-off testing of subsea non-return valves

- Repair or replacement intervention/maintenance of subsea system
- Hydrate remediation
- Emergency depressurisation

This would result in ~35-55 kT flared per riser.

3.9.9 Monoethylene Glycol Recovery and Storage System

The water and MEG mixture (Rich MEG) from the Inlet Separator and LTS, are combined, heated and sent to the MRU. Entrained and dissolved gases including any liquid hydrocarbons and suspended solids are initially removed from the Rich MEG stream in the MRU pre-treatment section before storage in the Rich MEG Storage Tanks.

Two Rich MEG Tanks and two Lean MEG (regenerated MEG with majority of water removed) Tanks are located in the NE and NW FPU hull columns. The MEG storage tanks are standalone tanks which are integrated into the hull structure, surrounded by a void space. The storage volumes of the Rich and Lean MEG Tanks are 620 m³ and 410 m³ respectively.

The MRU operates in two modes, being:

- salt-free mode, when the only water produced from the reservoir is condensed from the gas stream (no formation water)
- salt-mode, where formation water is also produced from the reservoir. This water carries various naturally occurring salts and other contaminants such as organic acids from the reservoir that can build up in the MEG and affect its properties.

The Scarborough production wells are not expected to produce formation water within the first 5 years of operations as they will typically start to cut water toward the end of well life, however this may occur due to reservoir uncertainty and is included in scope of the EP.

The Rich MEG is transferred from the Rich MEG Tanks to the reconcentration/reclamation section of the MRU where the water and salts (when in salt-mode) are removed from the MEG, thereby producing Lean MEG for re-use. The Lean MEG is stored within the previously mentioned Lean MEG Storage Tanks and subsequently pumped to the Subsea and FPU Process System for prevention of hydrate formation and blockages.

The separated water from the MRU is treated in the Produced Water Treatment Package before it is discharged overboard.

In salt-mode, the MRU reclamation process removes monovalent salts (primarily sodium and potassium) and divalent salts (e.g. calcium, magnesium and iron) from the MEG. MEG salts may also contain hydrocarbons, other contaminants such as mercury and elevated MEG levels. This concentrated salt slurry is recombined with treated produced water as a brine and then further diluted in the PW discharge stream before comingling with the much larger seawater return stream before discharge. It is possible that some divalent salts when removed from the MEG are no longer soluble and may be present as precipitated particles.

The MRU is provided with a separate MEG closed drains system to safely collect and dispose of depressurised liquids during maintenance and shutdown (Section 3.9.11.1).

A simplified block diagram of the combined MRU and PW treatment system is provided in Figure 3-11.

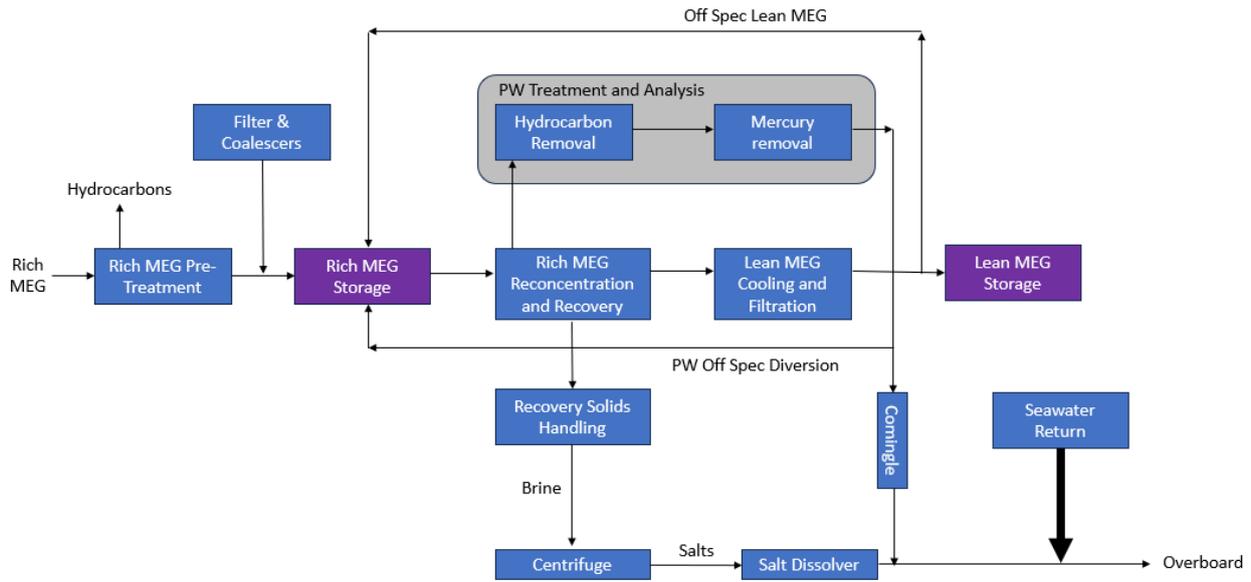


Figure 3-11: Block diagram of combined monoethylene glycol recovery unit and produced water treatment systems

3.9.10 Produced Water System

3.9.10.1 Produced Water System Description

Produced Water (PW) from the reservoirs combines with the lean MEG injected into the subsea system and is brought to the surface from the reservoirs and separated from the hydrocarbon components during the production process, then treated and discharged to the marine environment. PW can consist of produced formation water (a water reservoir below the hydrocarbon formation), condensed water (water vapour present within gas which condenses when brought to the surface), or a combination of both. The untreated PW may also contain dissolved salts, MEG, scale, corrosion inhibitors, total petroleum hydrocarbons (TPH), BTEX, mercury and residual process chemicals.

The PW treatment system is designed to process a maximum of 100 m³/day (integrity limit). Initial flow rates during operations are expected to be much lower, as PW is expected to consist of primarily condensed water. Flow rates will increase once formation water begins to be produced.

The maximum PW generation and discharge rate is 100 m³/day.

The PW will be separated from MEG by distillation in the MRU and directed to the Produced Water Treatment Plant (PWTP) for processing. The PWTP uses hydrocarbon adsorption beds operated in a duty and standby configuration and mercury adsorption beds operated in series with a lead bed and a guard bed to remove hydrocarbon and mercury respectively from the PW stream. The hydrocarbon adsorption beds are designed to achieve <29 mg/L oil in water discharge, subject to operational performance, actual reservoir composition and chemistry.

Mercury may also be present in the PW or salts removed as part of MEG recovery. The PW treatment system described in this section includes technology to remove this in the PW stream to ALARP. The system is in a “plug and play” configuration such that when the media in an adsorption bed becomes saturated, the vessel can be removed from the FPU and transported back to shore for onshore regeneration or decanting and refilling. A process flow diagram of the PWTP is presented in Figure 3-12.

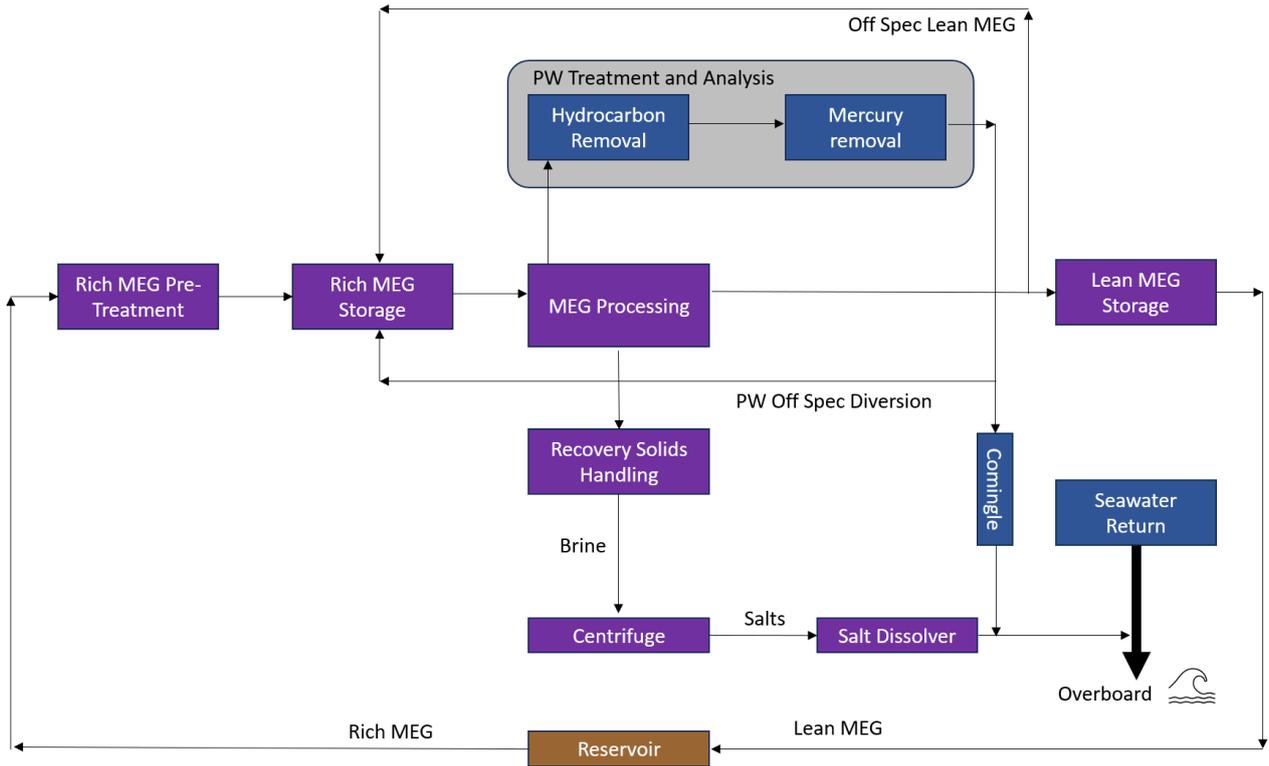


Figure 3-12: Process flow diagram of the produced water treatment plant

The treated produced water stream may be used to re-dissolve monovalent salts or to suspend divalent salts removed from the MRU for overboard disposal (when the MRU is in salt-mode). As part of adaptive management, PW from the MRU may be directed to the rich MEG storage tank for a limited duration.

The produced water discharge stream will be comingled with seawater which has been drawn from the ocean to remove heat from a closed loop cooling water system (see Section 3.9.12.3), prior to discharge overboard via the seawater dump caisson overboard 8 m below the water line. Comingling of the PW stream into the much larger seawater return stream will reduce the concentration of any contaminants remaining after passing through the media beds or associated with salts from the MEG stream by approximately 1000 times, prior to discharge.

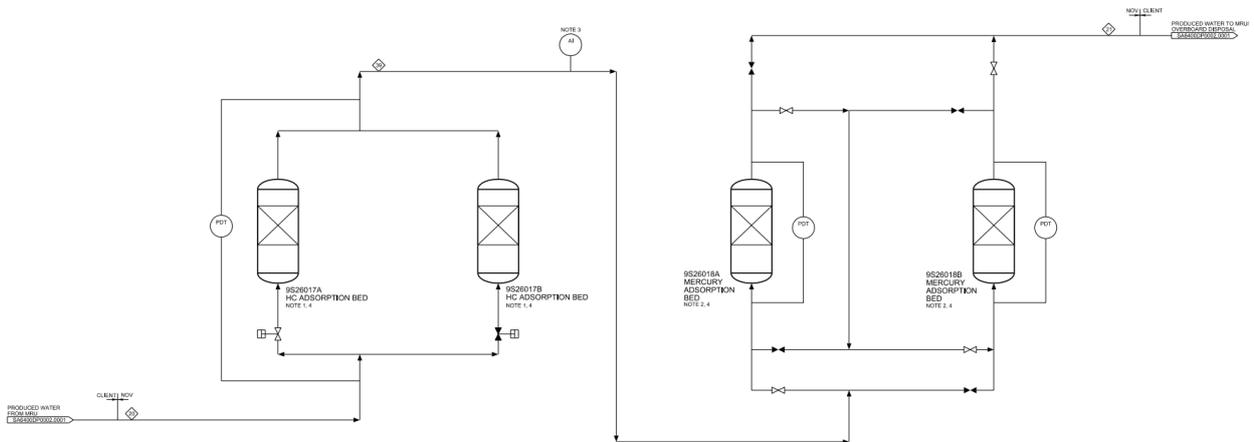


Figure 3-13: Produced water treatment unit

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3.9.10.2 Produced Water Oil-in-Water Discharge Monitoring

The measurement of Oil in Water (OIW) in the PW stream is undertaken prior to comingling with the seawater return and subsequent discharge to the ocean. OIW is measured using an online OIW analyser. The analyser is designed specifically for offshore operations and measures fluorescence this is calibrated to provide TPH in water.

During commissioning a competent technician/operator will be available on the facility to conduct:

- manual sampling, dependant on OIW concentrations, as described in the relevant commissioning document
- calibration of the online OIW analyser to ensure that OIW analyser is able to measure accurately.

3.9.11 Drainage Systems

3.9.11.1 Closed Drains

The closed drains system is used for draining hydrocarbon liquids from all process equipment except the MRU. A separate closed drain system is provided for the MRU after it has been depressurised. The drained liquids are routed to the closed drain drum. Upon reaching a sufficient volume, liquids can be pumped to the transportable waste drums to allow for onshore treatment and disposal. Alternatively, directed to the LPMFV for processing or to the Rich MEG storage tank. The MEG closed drains collects MEG from the MRU closed drains system and drains from other equipment in MEG service (Lean MEG Injection filters and pumps). MEG can be reprocessed via the LPMFV or if unsuitable for reprocessing pumped to transportable waste drums for onshore disposal. Closed drain piping systems are classed as topsides pressure containing/hazardous pipework.

3.9.11.2 Open Drains

The open drain system consists of hazardous open drains, non-hazardous open drains and machinery open drains. Rainfall on areas with no risk of hydrocarbon contamination are routed directly overboard. A diagram of the open drains system is provided in Figure 3-14.

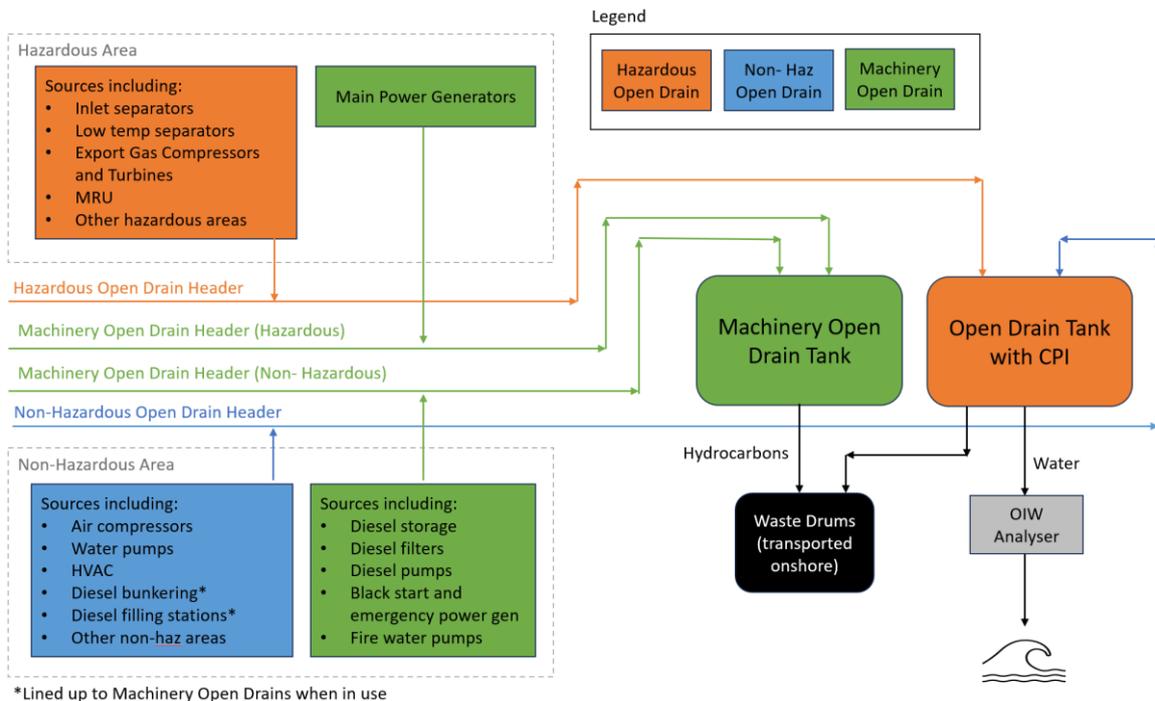


Figure 3-14: Open drains system

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The machinery open drains headers collect drained fluids from sources defined as “machinery space” under marine legislation, broadly defined as areas which include diesel containing equipment. These spaces are protected from rain ingress, by being under cover or within enclosures. Machinery open drains are sent to the machinery open drains tank for collection and are pumped to the open drains transportable waste drum for disposal onshore. Hazardous and non-hazardous open drains collect potentially contaminated fluids from the hazardous and non-hazardous areas on the FPU. Hazardous and non-hazardous safety zones are routed to separate headers before co-mingling in the open drains tank. The Open Drains Tank separates any residual hydrocarbon liquids (such as lube oil) from the incoming fluids. The oil in water content is managed through an oil in water separation system utilising a corrugated plate interceptor (CPI) to reduce OIW concentration prior to discharge, supported by instrumentation and alarms to detect and respond to potential upsets. Hydrocarbons from the open drains tank are pumped to the open drains transportable waste drum for disposal onshore, and separated water passes through an online OIW analyser prior to being discharged to the ocean via a down pipe.

Liquids such as rainwater, deluge or condensation captured across the FPU which do not have the potential to be contaminated are freely drained overboard. Any rainfall stronger than the design basis will overflow via the drain box overflow, which will be located in all drain boxes (which are exposed to rainwater and fire water) including drain boxes in non-hazardous area. The overflow lines from the drain boxes can be gathered together or routed separately overboard at safe locations below the lower deck.

3.9.12 Floating Production Unit Utility Systems

3.9.12.1 Floating Production Unit Lighting

The FPU has appropriate lighting so that there is a safe working environment to support 24-hour operations. Lighting will be installed across the process area, utilities, accommodation and hull. Lighting is split between emergency and normal lighting.

There are navigational lights on the flare tower via a narrow beam floodlight and on the boom and towers of the pedestal cranes. Helideck lighting is also provided to assist helicopter landing.

Unless required to support over the side activities (such as refuelling and lifting operations), lighting on the FPU is directed to the work area, which aids in limiting light spill to sea.

3.9.12.2 Heating Ventilation and Air Conditioning System

The heating, ventilation and air conditioning (HVAC) system comprises HVAC equipment, ductwork and associated pipework. It provides independent and inter-dependent subsystems with pressurised, conditioned, purge and exhaust air services to various areas including accommodation, and various modules which can be operated on as required basis and others on a continuous basis.

No ozone-depleting substances will be used on the FPU and refrigerants associated with the HVAC system are managed by a licenced refrigerant authority.

3.9.12.3 Seawater System

The primary function of the seawater system is to provide process and HVAC cooling. There are two seawater systems onboard the FPU:

- Seawater for cooling: The purpose of the seawater system is to supply seawater to the topsides to remove heat from the closed circuit cooling medium system. Seawater is supplied by three seawater lift pumps enclosed within protective caissons outside the hull columns. Filtration of the seawater is provided by two coarse filters. During normal operations a single filter will be online at any time. The seawater flows through the seawater side of the heat exchangers and the cooling medium flows on the cooling medium side of the exchangers.

Warm seawater exits from the exchangers where it combines with, brine from the reverse osmosis water maker package and produced water, before being routed to the Seawater Dump Caisson. Seawater rate and temperature are monitored.

- Cooling Medium: Demineralised water (with <1 ppm chloride content) is used as cooling medium. The Cooling Medium system is a closed loop system which provides required cooling in the FPU with heat rejection via cross exchange with the SW system. Cooling Medium Expansion Vessel (9V51001) is provided to accommodate system volume expansion and contraction between ambient and normal operating conditions, and its total volume is 18 m³. Cooling medium (demineralized water) has the potential to be discharged during maintenance.
- Service seawater: The service seawater system supplies seawater to the firewater ringmain, reverse osmosis water maker package, hypochlorite generation package and the hull ballasting system (when required). The seawater service system comprises of two service pumps in dedicated caissons outside of hull columns. The pumped service seawater from the hull is passed through a coarse filter to remove suspended solids to minimise blockage/fouling of downstream systems.

For both systems, concentrated hypochlorite solution is dosed from the Hypochlorite Generation Package into the intake caissons to provide marine bio-fouling growth protection for the internal surfaces of the system. Continuous dosing rate of equivalent chlorine is 1000 ppm approximately to produce sufficient volumes of concentrated sodium hypochlorite for all intake Caissons to target 2 mg/L concentration total residual chlorine in all pump discharges. During normal operation this will be a total design flowrate of about 4000 m³/h.

The Hypochlorite package has the capability to provide hypochlorite dosing when two service seawater lift pumps and two seawater lift pumps are running simultaneously (i.e. During ballasting operations) which is a total design flowrate of about 4500 m³/h to ensure minimum hypochlorite dosing concentration of 2 mg/L is met for all users.

Seawater comingled with produced water and brine will be routinely discharged overboard at a temperature less than 60°C and rates up to 95,000 m³/d.

3.9.12.4 Fresh, Potable, Utility and Demin Water System

Fresh water for the facility is produced in the Reverse Osmosis (RO) water maker package using service seawater. Fresh water is then routed to the either Fresh Water Storage Tanks or Utility Water Storage Tanks and potable water is produced following UV sterilisation. Demin water is not produced on the FPU and is supplied in portable storage tanks.

The FPU has provision for potable water bunkering. Potable water from the support vessel can be bunkered to either Fresh Water Storage Tanks (two at 86 m³) or Utility Water Storage Tank (109 m³) based on the requirement.

3.9.12.5 Power Generation and Distribution

Three dual fuel gas turbine driven generators are installed on the FPU that have the capacity to use diesel if gas is not available (such as during start-up operations). During normal operations only two are expected to be online at any one time, with the third on cold standby. In the event one online GTGs trips, a Battery Energy Storage System (BESS) will come online to provide power to maintain safe production until the Black Start (diesel) Generator starts. Then, once the Black Start Generator is online, this can maintain sufficient power with a single GTG to maintain production to start the cold standby generator. In effect, the BESS (with Black Start Diesel Generator) allows auto switchover between duty and the cold standby GTG. Once the cold standby GTG has been started, the BESS can be turned off and recharged. Critical and emergency utility power generation is provided respectively by a diesel engine driven black start generator and a diesel engine driven emergency

generator. The facility Power Management System (PMS) is designed to automatically start the third GTG when it detects that the BESS is offline.

3.9.12.6 Heating Medium

The FPU has provision for a heating medium which is a closed loop demineralised water system with chemical injection (corrosion inhibitor and oxygen scavenger). This will be discharged overboard during maintenance or for overpressure protection. Waste heat is recovered from power generator gas turbine exhaust to provide process heating requirements.

3.9.12.7 Fuel Gas System

Fuel gas is used in the power generation turbines and gas compression turbines. The system also supplies purge gas to the LP flare system and fuel gas to the flare pilots.

The Fuel Gas System receives dew pointed gas from the Compressor Suction Header during early field life, and from the Export Header during mid and late field life. Fuel gas will be supplied from the export gas compressor suction header during all start-up scenarios where compressor is offline. The Fuel Gas System treats the gas to meet the user's specifications and distributes the gas via the High Pressure (HP), the Medium Pressure (MP) and the Low Pressure (LP) distribution systems.

The Fuel Gas System includes the major equipment of:

- HP Fuel Gas Heaters
- HP Fuel Gas Scrubber
- Fuel Gas Superheater and Electric Fuel Gas Superheater
- HP Fuel Gas Filters.

There are three fuel gas distribution headers, being:

- HP Fuel Gas Header
- MP Fuel Gas Header
- LP Fuel Gas Header.

Total fuel gas consumption on the facility is metered by fuel gas flowmeters. Compressor turbine individual load is approximately 30 MW. Gas turbine driven Main Power Generators have an individual load of around 4.6 MW. GHG emissions estimates related to fuel gas consumption are presented in Section 6.

3.9.12.8 Diesel Fuel Supply System

The diesel fuel supply system includes storage and a distribution system to provide a fuel source for emergency power generation systems, firewater pumps, Fast Rescue Craft (FRC) and as a back-up fuel source for the main power generation system. Diesel is supplied to the FPU by support vessel and stored in two atmospheric Crane Pedestal Diesel Storage Tanks of around 220 m³ each, via a bunkering station, located on West and East side of the FPU. The diesel flows through a strainer on the FPU prior to metering and flow-in to the tanks. Diesel is metered and distributed to the users via a continuously pressured ring main. Unused diesel is recycled back to the crane pedestal tanks. Each user is isolated from diesel supply interruptions by the provision of break tanks.

3.9.12.9 Sand Management

Each production well is completed with downhole sand control and sand production continually monitored at each subsea xmas tree with alarm and trip capability. In addition, sand detection and alarms are installed upstream of the Inlet Separators. A well is only expected to produce solids during initial well clean up, for the first year of well production, or in the event of downhole sand control failure.

Produced sand will mainly collect in the Inlet Separator whilst some sand may reach the LPMFV within the MRU pre-treatment section.

Sand will accumulate in the bottom of the separator. The collected material will be removed periodically and transferred to a suitable transportable container for shipment to an approved onshore waste management facility for treatment and disposal.

3.9.12.10 Sewage and Putrescible Wastes

Sewage and putrescible waste (principally food scraps) produced onboard the FPU when occupied and under normal operating conditions will pass through a macerator to be ground to less than 25 mm particle diameter, before being discharged overboard via a pipe submerged below the water line. The FPU does not contain sewage holding tanks, and in the event that the sewage macerator becomes inoperable, sewage may bypass the macerator for a temporary period whilst maintenance, repairs or replacement is undertaken. Where putrescible waste macerators are not operational, the waste will be retained onboard until the macerator maintenance is completed or the waste is transported to shore for disposal as domestic waste.

3.9.12.11 Lifting Operations

Two pedestal cranes are located on the FPU one on the east side and one on the west sides of the Middle Deck. Both cranes are of 'A' frame design and driven by electric motors. A Platform Crane is located on the South platform.

3.9.12.11.1 Routine Lifting from Platform Support Vessels

Routine lifting operations primarily include transferring stores and equipment from a support vessel to the FPU. Lifts can be conducted from any of the main cranes depending on weather conditions. Support vessels are equipped with dynamic positioning (DP) systems for holding station during lifting operations.

The types of 'lifted equipment' may vary but generally include containers or skips of various sizes. The stores and equipment required by the facility are secured inside the skip or container. Containers for supply of chemicals are also routinely lifted. The equipment is appropriately rated for offshore lifting.

Following the completion of offloading from the support vessel, the FPU backloads any items to be returned to shore to the support vessel. These primarily include empty skips or containers or skips containing waste for onshore disposal.

3.9.12.11.2 Lifting around the Facility

Once lifted to the laydown area, equipment may need to be repositioned at various locations throughout the facility for operational purposes. This includes lifting stores or equipment to various landing areas throughout the facility for unloading or use, moving waste bins to required areas, or relocating ISO containers.

3.9.12.11.3 Operational Lifting (Non-crane Based)

There is also a requirement to undertake operational lifting using other lifting appliances and lifting gear. This lifting is primarily undertaken for major projects, maintenance or repairs, and involves lifting and removing equipment such as valves, spools, and motors.

3.9.12.11.4 Special Lifts

There may be occasions where equipment may need to be lifted to support hook-up, commissioning, and operations using specifically prepared lift plans. On these occasions, the equipment will be

packed up in a container or an approved lifting frame. All relevant lifting procedures will be adhered to, including preparation of an appropriate lift plan.

Lifting operations support the FPU operations and maintenance activities (e.g. transfer of domestic stores, spare and replacement parts/equipment and other marine/process consumables etc.).

The lifting operations are to be performed by cranes, monorails, trolleys and local lifting equipment. The two pedestal cranes (east and west) provide the necessary coverage for on-deck material handling requirements and lifts between the FPU and support vessels. The type of lifted equipment varies but can include containers or skips of various sizes. The stores and equipment required by the facility are secured inside the skip/container. Containers for supply of chemicals are also routinely lifted. Lifting equipment is appropriately rated and inspected for offshore lifting. Following the completion of offloading from a support vessel, the facility backloads any items to be returned to shore to the support vessel. These primarily include empty skips/containers or waste for onshore disposal.

The south platform crane located to the west of the LQ is used for in-board platform lifts and to support maintenance and testing of the lifeboats.

3.9.12.12 Instrument/Utility Air System

Compressed, filtered and dried air is supplied to the instrument and utility air systems using instrument air compressors and driers, located on the roof of the UB.

An air receiver is provided to supply instrument air for a period of time if the instrument air production from the compressors and driers is interrupted. Instrument air users include instrumentation, mainly for control valves and on/off valves and nitrogen generation. Utility air is supplied to the utility stations distributed across the FPU.

3.9.12.13 Nitrogen System

There are three nitrogen (N₂) systems provided on the FPU: the HP N₂ system and two LP N₂ systems. With respect to the two LP N₂ systems, one is classed as Low Quality (97% purity) and the other is classed as High Quality (99.99% purity).

3.9.13 Bunkering

Low sulphur diesel is transferred to FPU in bulk from support vessels via the east bunkering stations. Diesel is stored within the east and west crane pedestal tanks. The diesel is pumped from this location to the diesel pre-filters and diesel coalescing filters for clean-up before distribution to the user areas described in Section 3.9.16.

As described in Section 3.9.12.3 the FPU has provision for potable water bunkering to Fresh Water Storage Tanks or Utility Water Storage Tanks.

MEG will be bunkered to the FPU during commissioning (Section 3.9.16) via a dedicated bunkering station using an Offshore Support Vessel (OSV). A chemical tanker may be positioned outside of the Operational Area and perform ship-to-ship transfer operations between the chemical tanker and OSV. During start-up, rich MEG and well clean up fluids will be removed from the FPU to an OSV, to be disposed onshore. During operations MEG is expected to be topped up using temporary tanks or containers but provision to bunker MEG during operations is included for flexibility. Other chemicals will be transferred to the FPU via containers.

3.9.14 Ballast and Bilge System

The FPU is designed such that stability is maintained in all design conditions without the active use of the ballast system. The ballast system is designed, therefore, to keep the FPU at operational draught and on an even keel by filling and emptying a total of 28 ballast tanks located within the hull columns and in the ring pontoon. Whilst not required for day-to-day operations the ballast system

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will be required for significant volume and weight movements such as emptying or filling of MEG tanks under a maintenance activity or if a large significant load was placed/moved on the FPU. Seawater from service system which is dosed with chlorine (Section 3.9.12.3) is supplied and gravity fed to the ballast tanks via the dedicated ballast caisson in each column. The weight of water used to achieve the 32 m draft is 33,000 tonnes. Discharged ballast water will contain residual chlorine, required to prevent biofouling of this integrity critical system.

The bilge system provides functionality for removing any liquids collected in the void compartments in the event of flooding from structural or piping failure. A permanent bilge caisson and pump with maximum pump capacity of 510 m³/h is installed in each column. Water that is collected in the column void tanks drains under gravity to the bilge caisson and it is then pumped overboard from top of column.

Local bilge stripping pumps are installed at the bottom of the access shaft. The purpose of the stripping pumps is to remove residual water from the ballast tanks in preparation for entry and to clear any bilge water that may accumulate in the access shaft.

A crossover line from the bilge caisson to the ballast caisson is provided at the bottom of each column so that any tank can be de-ballasted with any one pump inoperable.

3.9.15 Safety Features and Emergency Systems

A range of safety features and emergency systems have been integrated into the design and operation of the FPU to manage safety risk. Maintenance and operation of these systems is key to ensuring safe operability of the facility.

Specific safety systems include:

- control and detection systems
- process control system
- Local Control Room (LCR)
- Remote Control Room (RCR) – onshore
- fire and gas detection system
- emergency and process shutdown systems
- emergency relief and depressurisation systems
- LP and HP flare systems
- ignition control
- emergency alarms and communications
- evacuation and rescue facilities and equipment
- collision avoidance systems
- passive and active fire protection.

Mandatory testing of the FPU helideck active fire deluge and Helifuel storage area foam safety system is undertaken for safety requirements. This discharge is directed overboard to prevent foam contamination of the drain system potentially impacting wastewater oil separation processes. The FPU's fire system uses fluorine free foam.

3.9.16 Hydrocarbon and Chemical Inventories

3.9.16.1 Hydrocarbons

The main liquid hydrocarbon inventories associated with major topside process equipment and non-process inventories of liquid hydrocarbons used on the facility are outlined in Table 3-5. Large volumes of hydrocarbon liquids are not expected due to the composition of the Scarborough well

fluid. The small amount of liquid hydrocarbon produced will be collected and transported onshore for disposal.

Table 3-5: Estimated hydrocarbon inventories of process and non-process equipment

Material	Storage Means	Storage Volumes
Process equipment⁴		
HC liquid condensate	HP Flare and LP Flare Knock-Out (KO) drums ⁵	15 m ³ for HP flare KO drum, 4 m ³ for (volume will contain different liquids including water, MEG and liquid hydrocarbon) – Normal liquid volumes
HC liquid condensate	Inlet separators and Low Temperature Separators (LTS)	Total 7 m ³ (3x inlet separators with 1.4 m ³ skimmed volume design, and 3x LTS with 0.8 m ³)
HC liquid condensate	LPMFV HC bucket	0.2 m ³
HC liquid condensate	Closed drain drum + closed drain waste drums	Total 18 m ³ (2x 8.8 m ³). Volume will contain different liquids including water, MEG and liquid hydrocarbons.
Oily water	Open drain system	Total 21 m ³ Open drains waste drum 8.8 m ³ , open drains tank 2 m ³ , machinery open drains tank 10 m ³
Non-process equipment		
Diesel	2x Diesel storage tanks 4x Day tanks	472 m ³ total (East crane pedestal 219 m ³ , west crane pedestal 219 m ³ , 2x 12 m ³ day tanks and 2x 5 m ³ day tanks)
Lube Oil/Hydraulic Fluid	3x Export Gas Compressor lube oil reservoir tank, and other various size containers based on type and use	135 m ³ total (3x 32 m ³). Various – general 20 L and 205 L drums and 1000-4000 L bulk containers
Heli fuel – Jet A1	2x portable tanks into an aviation fuel package	8 m ³ total (2x 4 m ³ ISO tanks)

3.9.16.2 Chemical Usage

Chemicals are utilised on the facility for a variety of purposes and can be divided into two broad categories (operational and non-operational) as described below.

3.9.16.3 Operational Chemicals

3.9.16.3.1 Operational Process Chemicals

A process chemical is the active chemical added to a process or static system, which provides functionality when injected in produced fluid, utility system streams or for pipeline treatment. These chemicals may be present in routine or non-routine discharge streams from the facility. Examples include corrosion inhibitors, biocides, scale inhibitors, de-emulsifiers, glycols and hydrate inhibitors.

3.9.16.3.2 Operational Non-Process Chemicals

Non-process chemicals include chemicals which do not fall into the category described above but which may be required for operational reasons and, by virtue of their use, may be intermittently discharged or have the potential to be discharged (e.g. required as a result of maintenance or

⁴ Based on Scarborough well fluid composition, HC liquid condensate is not expected in the topside processing facility.

⁵ Liquid from the drum is sent via level control valve to the Closed drain vessel.

intervention activities). Examples include subsea control fluids, workover chemicals, tracer chemicals and dyes.

3.9.16.3.3 Non-operational Chemicals

Non-operational chemicals include chemicals which are required for general maintenance or ‘housekeeping’ activities and are critical for overall maintenance of the facility and its equipment. These may include paints, degreasers, greases, lubricants and domestic cleaning products. They may also include chemicals required for specialty tasks, such as laboratory testing and analysis. Maintenance chemicals generally present negligible risk to the environment as they are not discharged as a result of their use (e.g. paint), or are used intermittently and discharged in low volumes (e.g. domestic cleaning products).

3.9.16.4 Indicative Chemical Inventories

An indicative list of bulk chemicals commonly used on the facility, and estimated storage quantities, is summarised in Table 3-6. In addition to the chemicals listed, the facility may also maintain small volumes of various operational chemicals and facility maintenance chemicals as previously described.

Table 3-6: Indicative bulk inventories of chemicals

Material	Storage Means	Working Capacity
MEG	2 x Lean MEG storage tanks 2 x Rich MEG storage tanks Regeneration System – LPMFV	2 x 396 m ³ 2 x 588 m ³ 25.63 m ³
Subsea control fluid	Hydraulic Power Unit tank: Supply reservoir Return reservoir	3.1 m ³ 2.4 m ³
Oxygen Scavenger	Fixed tank and 1.5 m ³ tote tanks	5.1 m ³
Corrosion Inhibitor	Corrosion Inhibitor tank	4.2 m ³
Sodium Carbonate	Storage tank	18.85 m ³
Kinetic Hydrate Inhibitor (KHI) (contingency)	Storage tank	74 m ³ (contingency)
Firefighting foam	Heli fuel package concentrated foam tank	Approx. 0.7 m ³
Chemical waste	Open Drains Waste drums	Total 16 m ³ (2x 8 m ³)
Citric Acid	MRU Citric Acid Storage Tank and tote tanks MRU Cleaning In Place Tank	Total 8.2 m ³ (4.2 m ³ +4 m ³)
Anti-foam	MRU Anti-foam Storage Tank	1.6 m ³

3.9.16.5 Chemical Selection, Assessment and Approval

Operational chemicals required by the Petroleum Activities Program are selected and approved in accordance with Woodside’s process for selecting and assessing chemicals. This process is used to demonstrate that the potential impacts of the chemicals selected are acceptable and ALARP, and that they meet Woodside’s corporate requirements, which requires chemicals to be selected with the lowest practicable environmental impacts and risks, subject to technical constraints.

A summary of the environmental requirements of the Chemical Selection and Assessment Environment Guideline is outlined below.

3.9.16.5.1 Environmental Selection Criteria

Woodside's process for selecting and assessing chemicals follows the principles outlined in the Offshore Chemical Notification Scheme (OCNS), which manages chemical use and discharge in the United Kingdom (UK) and the Netherlands (background on the OCNS scheme is provided below).

Operational chemicals are selected/assessed in compliance with the Woodside's process for selecting and assessing chemicals, specifically:

- Where operational chemicals with an OCNS rating of Gold/Silver/E/D and no OCNS substitution or product warning are selected, or a substance is considered to pose little or no risk to the environment, no further control is required. Such chemicals do not represent a significant impact on the environment under standard use scenarios and therefore are considered ALARP and acceptable.
- If other OCNS-rated or non-OCNS-rated operational chemicals are selected, the chemical is assessed as follows:
 - If there is no planned discharge of the operational chemical to the marine environment, written technical verification of the 'no discharge' fate is provided and no further assessment is required.
 - If there is planned discharge of the operational chemical to the marine environment, a further assessment and ALARP justification is conducted.

The ALARP assessment considers chemical toxicity and biodegradation and bioaccumulation potential, using industry standard classification criteria (Centre for Environment, Fisheries and Aquaculture Science scheme criteria).

If a product has no specific ecotoxicity, biodegradation, or bioaccumulation data available, these options are considered:

- environmental data for analogous products can be referred to where chemical ingredients and composition are largely identical, or
- environmental data may be referenced for each separate chemical ingredient (if known) within the product.

If no environmental data is available for a chemical or if the environmental data does not meet the acceptability criteria outlined above, potential alternatives for the chemical are investigated, with preference for options with a hazard quotient (HQ) band of Gold or Silver, or in OCNS Group E or D with no substitution or product warnings.

If no more environmentally suitable alternatives are available, further risk-reduction measures (e.g. controls related to use and discharge) are considered for the specific context and implemented where relevant to ensure the risk is ALARP and acceptable.

Once the further assessment/ALARP justification has been completed, confirmation that the environmental risk as a result of chemical use is ALARP and acceptable is obtained from the relevant manager.

3.9.16.5.2 Background Overview of Offshore Chemical Notification Scheme

The OCNS applies the requirements of the Oslo-Paris Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR Convention). The OSPAR Convention is widely accepted as best practice for chemical management.

All chemical substances listed on the OCNS list of registered products have an assigned ranking based on toxicity and other relevant parameters (e.g. biodegradation, bioaccumulation), in accordance one of two schemes (as shown in Figure 3-15):

- Hazard Quotient (HQ) Colour Band: Gold, Silver, White, Blue, Orange, and Purple (listed in order of increasing environmental hazard), or
- OCNS Grouping: E, D, C, B, or A (listed in order of increasing environmental hazard). Applied to inorganic substances, hydraulic fluids, and pipeline chemicals only.

Hazard Quotient Colour Band	Gold	Silver	White	Blue	Orange	Purple
OCNS Grouping	E	D	C	B	A	
	Lowest Hazard					Highest Hazard

Figure 3-15: Offshore Chemical Notification Scheme ranking

3.9.17 Inspection, Monitoring, Maintenance, and Repair Activities

Subsea infrastructure is designed not to require significant intervention. Inspection and maintenance are undertaken to confirm the integrity of the infrastructure and identify problems before they present a risk of loss of containment. Intervention may be required to repair identified problems.

To manage subsea threats (risks) the IMMR process requires an appropriate response to be selected to manage specific equipment risks. This is typically one of: Inspection, Monitoring, Maintenance, or Repair. The IMMR process for subsea infrastructure, including any redundant equipment (Section 3.9.17.1), maintains equipment in good condition and repair, for production and to enable future removal.

IMMR activities are typically undertaken from a support vessel, light construction vessel (LCV), or an uncrewed surface vessel (USV) and may use an ROV with transponders to inspect equipment. For some activities, ROVs may also be deployed from the FPU.

Maintenance and repair activities may require the deployment of frames/baskets which are temporarily placed on the seabed. These typically have a perforated base with a seabed footprint of about 15 m². Other equipment, materials or tools may need to be temporarily wet stored on the seabed in the Operational Area during installation and operations. This could include, but not be limited to, pig launcher/receiver, scour mattresses, subsea equipment prior to installation etc. Any wet stored items will be removed from the seabed.

Typical IMMR activities are described below.

3.9.17.1 Inspection

Inspection of subsea infrastructure is the process of physical verification and assessment of components to detect changes to the as-installed location and condition by comparison to initial state following installation and previous inspections. Inspections will either be planned or triggered by an event e.g. significant metocean/weather. Details of typical subsea infrastructure inspections/surveys and indicative frequencies are provided in Table 3-7. Inspection of wellheads are determined by the WOMP. Scope and frequency of subsea infrastructure (operational and redundant) inspections are determined using a Risk Based Inspection (RBI) methodology.

RBI is commonly used within the industry as a method for determining inspection frequencies (Energy Institute, 2009; DNV, 2019).

Table 3-7: Typical subsea infrastructure inspections/surveys and frequencies

Type of Inspection/Survey	Purpose	Approximate Frequency
General Visual Inspection	Check general infrastructure integrity.	Varied – every 2-6 years
Close Visual Inspections	Investigate certain subsea infrastructure components.	Varied – every 1-4 years
Hull and Mooring visual inspection	Visual inspection of the Hull and Mooring systems to satisfy class requirements.	Hull – twice every 5 years Mooring system – once every 5 years.
Cathodic Protection	Visual inspection, check cathodic protection and anodes.	Varied – every 2-6 years
Wall Thickness Surveys	Close Visual Inspection. Non-destructive testing e.g. inline inspection pigging. Ultrasonic testing.	Typical 1 yearly Varied 6-12 years Typically once every 25 years, worst case 5 yearly
Side Scan Sonar (SSS) and/or Multibeam Sonar (MBES) and/or laser profiling	Identify buckling, movement, scour and seabed features. Low frequency/intensity signals directed to seafloor, undertaken for approximately five days.	Varied – every 5-12 years
Non-Destructive Testing	Evaluates the properties of material/items using electromagnetic, radio graphic, acoustic resonance technology, ultrasonic, or magnetic equipment.	Typical: Once every 25 years Worst Case: Once every 25 years per well
Seabed sampling surveys including minor grabs/cores	Identify benthic fauna, sediment characteristics, determine level of penetration/compaction, etc. Grabs/cores typically disturb 0.1m ² of seabed per sample.	Typical: Once every 25 years Worst Case: Once every 5 years
Marine growth sampling	Samples taken of marine growth for testing.	Typical: Once every 25 years Worst Case: Once every 5 years
Sub bottom profiling	Low frequency echo sounder undertaken to identify returns of metals under the seabed.	Varied – every 1-6 years
Pigging	Inspection, maintenance, repair or to facilitate modifications.	Typical: Once every 12 years Worst case: every 5 years
Laser surveys	Used to conduct dimensional checks on spools etc. and measure proximity.	Varied: every 1-6 years

3.9.17.2 Monitoring

Monitoring of subsea infrastructure refers to the process of surveillance of the physical and chemical environment that a subsea system or component is exposed to in order to determine if and when damage may occur, and (where relevant) predict the rate or extent of that damage. Monitoring activities may include process composition testing, corrosion mitigation checks, metocean and geological seismic monitoring, and cathodic protection testing.

3.9.17.3 Maintenance

Planned maintenance activities on subsea infrastructure are undertaken to prevent deterioration or integrity failure of infrastructure. Typical maintenance activities are described in Table 3-8

Table 3-8: Typical maintenance activities and frequencies

Type of Maintenance	Purpose	Approximate Frequency
Cycling of valves via control system	Test functionality of technical integrity valves	Every 6 months for well barriers during operations, Annual for SSIVs and NRVs

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Type of Maintenance	Purpose	Approximate Frequency
Cycling of valves via ROV	Test functionality of isolation valves	Every 2 years
Marine growth removal	Reduce weight or gain visual access	Based on outcomes from visual inspections and marine growth trends on regional infrastructure
Flushing of hydraulic fluid lines	Replenish stagnant hydraulic fluid (SSIV closed loop) or repair scenarios	Every 2-5 years
Leak and pressure testing	Test integrity of subsea infrastructure	Following installation of subsea infrastructure components for performance testing, after a repair or intervention, prior to return to service

3.9.17.4 Repair

Repair activities are those required when a subsea system or component is degraded, damaged or has deteriorated to a level outside of acceptance limits. Damage sustained may not necessarily pose an immediate threat to continued system integrity but may present an elevated level of risk to environment or production reliability. Due to the design of subsea infrastructure and materials used, repairs are undertaken on an as needs basis. The requirements and frequency of these repairs are dictated by the outcome of the inspection and maintenance regimes described in Table 3-7 and Table 3-8. Typical subsea repair activities included:

- subsea choke insert replacement
- chemical injection metering valve replacement
- SCM replacement
- acoustic sand detector replacement
- Xmas tree replacement
- valve actuator replacement
- hydraulic flying lead (HFL) replacement/or relocation
- electrical flying lead (EFL) replacement/or relocation
- export trunkline or spool support with grout bag, mattress, anchors or rock spool disconnection and/or replacement
- umbilical, jumper replacement and/or relocation
- scour prevention installation
- cathodic protection system replenishment/repair.

3.9.17.5 Removal of Equipment

Removal of property will be undertaken in accordance with Section 7.3 (which also includes further detail of Woodside’s decommissioning strategy and compliance with the OPGGS Act).

When equipment is replaced, an assessment of the redundant equipment will be undertaken to assess the feasibility and risks associated with removal. Where removal is deemed to pose an unacceptable risk to existing operational infrastructure, redundant subsea infrastructure items may be left in-situ. Items are recorded as part of the ROV as left survey and included in a database for the inventory associated with each title (refer Section 6.7.2). The inventory is used to track equipment on the seabed to enable planning for future removal. Relevant redundant equipment left in-situ will be maintained as per the IMMR register and plan.

3.9.17.6 Pigging Operations

Pigging involves sending an internal tool through a pipeline using a process medium. During the pipeline lifecycle, the installation/recovery of temporary subsea pig launchers is required for pigging of both the flowlines and trunkline for a variety of reasons (e.g. inspection, maintenance, repair or to facilitate modifications). Where required, subsea isolation valve operations are carried out from a ROV via a support vessel.

Temporary pig launchers will be deployed flooded with MEG/water and require to be de-watered for pigging operations. The base case is to drive the flowline pigs with hydrocarbon gas from an end well. In the event that an end well is not available then the contingency will be to drive the pigs with nitrogen supplied by downline from a support vessel.

High concentrations of nitrogen are not compatible with the FPU and onshore fuel gas systems and therefore may require flaring of hydrocarbon/nitrogen gas if the nitrogen cannot be blended to an acceptable concentration.

The entire pipeline pigging system, including the launcher, receiver and the pipeline, is designed for maximum operation pressure of the production system.

3.9.17.7 Subsea Chemical Use

Planned chemical discharges may occur during a range of IMMR activities. These are planned to be either small volumes or discharged intermittently. Operational chemicals to be used in the Scarborough subsea infrastructure are selected and assessed using Woodside's chemical selection and assessment guideline, as detailed in Section 3.9.16. Typical chemicals which may be used in the Scarborough subsea infrastructure and may be released during IMMR activities include, but are not limited to:

- hydraulic control fluid – the subsea control fluid planned for use in subsea systems is Pelagic 100H, a water-based product, the major component of which is ethylene glycol, a control fluid that contains a dye to support integrity monitoring
- hydrate control – MEG is used for hydrate inhibition of production flowlines
- corrosion inhibitor – corrosion inhibitor is generally used to manage and prevent corrosion within flowlines; corrosion inhibitor is dosed to the MEG on FPU
- biocide – biocides are generally used to prevent the bacterial growth in trunklines and flowlines that may cause corrosion; biocides, oxygen scavenger, surfactant are only used for IMMR activities on the flowlines and trunkline and not during normal operation
- acid – where removal of calcium deposits is required, Woodside typically uses sulphamic (or equivalent) acid; alternatives such as citric acid or calcium wash may be used
- oxygen scavenger – oxygen scavenger is used to reduce/de-oxygenate the trunkline and prevent corrosion and aerobic bacterial growth
- surfactant – surfactants are formulated to remove water and organic deposits from trunklines and flowlines
- grout – the material used in grout, mattresses and rock is typically concrete-based
- staurolite products – used for abrasive/sand blasting to clean and remove marine growth, the main component is staurolite, which is a naturally forming mineral.

3.9.17.8 Typical Discharges During Inspection, Monitoring, Maintenance and Repair Activities

Minor environmental discharges are expected during subsea IMMR activities (e.g. during pressure/leak testing or flushing). Where practicable, flushing is performed before a subsea component is disconnected to reduce residual hydrocarbon or chemical releases to the environment

upon disconnection. The flushing chemicals used for this activity may be supplied from either the facility or a chemical package either via a downline from a support vessel or locally via ROV. Where possible, flushed fluids will return to the platform and be processed and treated through the production system. Table 3-9 shows typical discharge volumes during different IMMR activities.

Table 3-9: Typical discharge volumes during inspection, monitoring, maintenance and repair and subsea activities

Activity	Description
Pressure/Leak testing	Chemical dye estimated <10 L
Flushing	Residual hydrocarbon (gas) or chemical release volume is dependent upon injection port size, component geometry and pumping rates
Flowline PLR installation and purge	Release of hydrocarbon (gas) or nitrogen is estimated to be 1 T and a release of MEG is estimated to be 3 m ³
Export PLR installation and purge	Release of hydrocarbon (gas) or nitrogen is estimated to be 2 T and a release of MEG is estimated to be 6 m ³
Hot stab operations	Hydrocarbon (gas) or control fluid estimated <10 L
Subsea Control Module change out	A typical release of diluted acid is estimated to be 400 L and of control fluid is estimated to be 10 L
Umbilical or hydraulic flying lead replacement	Typical releases of control fluid, MEG with corrosion inhibitor are estimated to be <10 L each, typical acid release of <80 L
SSIV flushing	Release of hydraulic control fluid (mainly MEG) estimated to be 2400 L
Jumper replacement	Release of hydrocarbon (gas) <4 m ³ and a typical release of MEG with corrosion inhibitor is estimated to be 40 L
Choke insert change out	Release of hydrocarbon (gas) <100 L and a typical release of MEG with corrosion inhibitor is estimated to be 280 L, typical acid release of <80 L
Tree cap change out	Release of hydrocarbon (gas) estimated <50 L and a typical release of MEG with corrosion inhibitor is estimated to be <50 L
Logic plate change out	Release of hydrocarbon (gas) estimated <20 L and a typical release of MEG with corrosion inhibitor is estimated to be <20 L

3.9.17.9 Marine Growth Removal

It is often necessary to remove excess marine growth prior to undertaking many subsea IMMR activities if present. Marine growth removal is undertaken with ROV. The different techniques are described in Table 3-10.

Table 3-10: Marine growth removal methods

Activity/Equipment	Description
Water jetting	Uses high-pressure water to remove marine growth
Brush systems	Uses brushes attached to an ROV to physically remove marine growth
Acid (typically citric or sulfamic acid)	Chemically dissolves calcium deposits
Sand/abrasive blasting	Additional cleaning to allow close visual inspections

3.9.17.10 Sediment Relocation

If sediment builds up around trunkline or other subsea infrastructure, an ROV-mounted suction pump unit may be used to relocate the sediment to allow inspection/works to be undertaken. This activity is limited to the relocation of small amounts of sediment material in the immediate vicinity of the subsea infrastructure (i.e. within the existing footprint).

3.9.17.11 Underwater Acoustic Positioning

Long base line (LBL) transponders and/or Ultra Short Baseline Transponders (USBL) are commonly used acoustic positioning methods and may be installed on the seabed as required for vessel positioning. The USBL subsea transponder transmits an acoustic pulse back to the vessel receiver, hence providing an accurate positioning of the subsea transponder location. The LBL array provides accurate positioning by measuring ranges to three or more transponders deployed at known locations on the seabed and structures.

Transmissions are not continuous but consist of short 'chirps' with a duration that ranges from three to 40 milliseconds, when required for positioning. If used, the transponders will be installed in stands on the seabed within the PAA. Transponders and stands shall be removed at work completion.

3.10 Gravimetry surveys

Among the many variables associated with the Scarborough reservoir range, the large regional aquifer and the associated uncertainty of water movement are a material contributor. Gravimetry technology has been identified as a suitable complement to 4D seismic (which would be subject to a future EP) for monitoring field-wide water movement in the reservoir and to reduce uncertainty associated with water movement. The technique delivers a field-wide measurement of gravity, providing direct measurement of water movement / saturation and reservoir compaction / subsidence.

Gravimetry surveys are planned to be completed under this EP as part of this Petroleum Activities Program, at routine intervals over the life of Scarborough operations. The survey duration is approximately 55 days per survey (Section 3.4) and involves the remote surveying of the seabed and concrete pads, and the temporary placement of a passive gravity meter, sequentially on each concrete pad (224 installed previously under the WA-61-L and WA-62-L Subsea Infrastructure Installation EP) by ROV, and temporary deployment of tide gauges on the seabed by a Support Vessel, USV or LCV. The tide gauges will be recovered after the survey is complete. The purpose of the survey is to monitor pressure and saturation changes in the reservoir, to inform decisions regarding reservoir management.

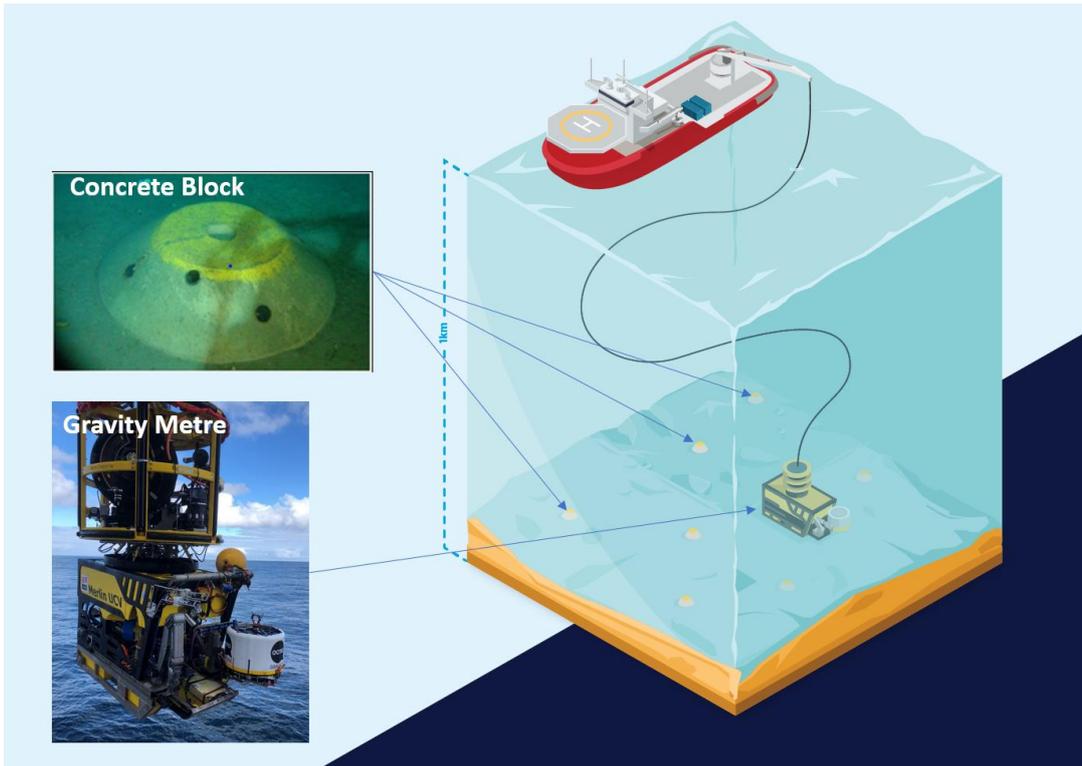


Figure 3-16: Gravimetry activity diagram (not to scale)

During the operation phase, there may be numerous time-lapse gravimetry surveys, subject to reservoir performance. The first time-lapse survey is anticipated within 18-24 months post RFSU. Subsequent surveys may occur every two to three years subject to reservoir performance and field development opportunities identified.

3.11 Vessel-based Activities

Several vessel types (Project Vessels) will be required to complete the activities associated with the Petroleum Activities Program. These include:

- Support vessels (OSV)
- AHTs
- LCV
- ASV
- USV.

Table 3-11 details when each vessel type could be used during the Petroleum Activities Program.

Table 3-11: Summary of vessels

Activity	Vessel type
Routine and Non-Routine Operations	Support Vessels ASV
Hook-up of the pre-laid mooring lines to the FPU	Tow tugs AHTs Support Vessels
Production and export riser pull-in, hook-up and connection to subsea infrastructure Dewatering of production flowlines/risers and export risers/manifold/PLET Cold commissioning of the overall subsea production system, including Xmas trees, umbilicals, and communication lines Commissioning the FPU for the introduction of reservoir hydrocarbons	Support Vessel ASV LCV
Start-up of subsea production system and FPU Well clean-up and commissioning. Gas export trunkline pressurisation and nitrogen (N ₂) removal	Support Vessels
IMMR Activities Gravimetry surveys	Support Vessel, USV or LCV

3.11.1 Support Vessels

Support Vessels are used for field work such as subsea inspection, maintenance and repair and commissioning activities or bunkering. While in field, Support Vessels may be used to backload materials and segregated waste for transport back to shore for further processing at appropriate waste management facilities (located outside of the operational area (Section 3.3). Support Vessels may also be used to transport liquid between moored tankers or onshore port locations. During start-up, rich MEG and well clean up fluids will be removed from the FPU to a Support Vessel, to be disposed of onshore.

The number and type of vessels supporting the activities may vary depending on operational requirements, vessel schedules, capability and availability. The frequency of visits of the Support Vessels is expected to be fortnightly, however, this is subject to increase or decrease depending on IMMR activities and other operational requirements over the life of the EP.

Typical Support Vessels use a dynamic positioning (DP) system to allow manoeuvrability and avoid anchoring when undertaking works, due to the close proximity of subsea infrastructure. However, vessels are equipped with anchors which may be deployed in an emergency. DP uses multiple sources of positioning data (such as satellite navigation and radio transponders) to maintain the position of the vessel at a required location. In some instances, higher levels of accuracy may be required, where satellite information is enhanced via seabed transponders. These transponders emit signals that are detected by receivers on the vessel and used to calculate position. Refer to Section 3.9.17.11 for a full description of the transponders that may be used during the Petroleum Activities Program.

All Support Vessels are required to undergo a Woodside Marine Assurance inspection to review compliance with marine laws and Woodside safety and environment requirements. Vessels may mobilise from an Australian port or directly from international waters to the PAA, in accordance with biosecurity and marine assurance requirements. Vessels will not anchor within the PAA during the activities and instead will maintain position using DP.

Specifications of the vessel *Siem Thiima* are presented in Table 3-12 as an example of the typical Support Vessel.

Table 3-12: Indicative facility support vessel specifications (Siem Thiima)

Parameter	Facility Support Vessel (based on Siem Thiima)
Type	Support Vessel
Length overall (LOA)	89.2 m
Breadth	19.0 m
Draft	7.4 m
Dead weight tonnage (DWT)	5,500 tonnes
Accommodation	Berthing for 25 personnel

3.11.2 Accommodation Support Vessel

An ASV may be required to support commissioning of the FPU, to support planned maintenance campaigns, shutdown maintenance or major projects. The ASV may be alongside the FPU in support of these activities for a period of up to 6 months at a time. . Positioning of the ASV will be determined based on assessment of weather conditions including wind and swell. Transfer of personnel to the FPU will be via a bridge connected to one of two landing platforms installed on either the south-west and south-east corners of the FPU and only connected when safe to do so in accordance with the Activity Specific Operating Guide (ASOG).The ASOG is developed by Woodside in collaboration with the ASV operator, and describes the operating procedures and safe working parameters between the FPU and ASV. Whilst alongside the FPU, the ASV will be required to comply with the requirements of the NOPSEMA accepted ASV facility safety case, and FPU facility safety case. The safety case(s) set out controls to manage potential impacts to people. Bridging documents or safety case(s) may also be required (as well as the ASOG) to support safe operation of both facilities whilst alongside.

The FPU and ASV may be at maximum POB capacity during this time and will be operating utilities such as power, water and sewage systems to enable habitation and commissioning activities. Additionally, the ASV may be used for temporary storage of equipment and supply of services to the FPU such as water and service air/nitrogen. To manage potential risks and impacts associated with the ASV being on station and potential impacts to the environment (including people) a description of the risks impacts and controls to reduce potential impacts to ALARP and acceptable levels is assessed in Section 6.

Typical ASV specifications are provided in Table 3-13 but may vary depending on operational requirements, vessel schedules, capability and availability. Typical ASVs use a DP system to allow manoeuvrability and avoid anchoring when in close proximity to the FPU.

Table 3-13: Indicative accommodation support vessel specifications

Parameter	Typical ASV (Based on Floatel Triumph)
Breadth	80 m
Length	125 m
Gross tonnage	27,211 t
Accommodation	500 POB
Dynamic Positioning	DP3
Fuel Capacity	Total capacity 1800 m ³ Largest tank capacity 267 m ³

3.11.3 Anchor Handling Tug/Tow Vessels

AHTs will be in field during the initial FPU installation and hook-up to mooring lines.

Table 3-14: Indicative anchor handling tug/tow vessel parameters

Parameter	AHT (based on Normand Saracen)
Draft (max)	7.8 m
Length	87.4 m
Gross tonnage	6107 t
Bollard Pull	265 mt
Total fuel volume	1100 m ³
Volume of largest fuel tank	238 m ³

3.11.4 Light Construction Vessel

A Light Construction Vessel (LCV) will be required for pull in of the risers and umbilicals and subsequent subsea infrastructure hook-up and may be utilised for IMMR activities. Key parameters for a typical LCV are presented in Table 3-15.

Table 3-15: Indicative light construction vessel parameters

Parameter	LCV (based on Seven Pegasus)
Draft (max)	6.75 m
Length	131.7 m
Gross tonnage	9494 t
Crane capacity (AHC)	400 t
Total fuel volume	1200 m ³
Volume of largest fuel tank	362 m ³

3.11.5 Uncrewed Surface Vessel

A USV may be utilised to complete gravimetry surveys and/or IMMR activities. The USV will be remotely controlled from an onshore remote operations centre (ROC) in Australia which is staffed 24 hours a day whilst the vessel is in transit or undertaking activities. Key roles in the ROC mirror those on a usual vessel management team and include a Vessel Master, First Officer, Offshore Manager and ROV Supervisor. The vessels are designed with multiple forms of high speed and reliable communication systems to allow connection to the ROC and provide redundancy in the case of disconnection during operations, including an independent emergency low bandwidth satellite communications system.

The USV will be assessed by Woodside Marine (Section 7.10.2.5) to review compliance with marine laws, flag requirements, vessel class and Woodside’s safety and environment requirements. A support vessel may accompany the USV during initial operations in the Scarborough field to monitor the performance of the vessel and provide any assistance if required.

Because there are no facilities to support human occupancy on USV’s, emissions and discharges are typically limited to cooling water and combustion of marine diesel. The vessel is equipped with bilge monitoring systems to monitor the bilge tanks for hydrocarbons (such as leaks from engine machinery spaces or from marine diesel tanks), and where detected the bilge pumps will auto disable and the vessel will be required to immediately return to port.

The USV may be equipped with a built-in work class ROV with the ability to deploy and retrieve equipment from the seabed. Key parameters for a typical USV are presented in Table 3-16.

Table 3-16: Indicative uncrewed surface vessel parameters

Parameter	USV (based on Reach Remote 2)	USV (based on Fugro Maali)
Draft (max)	6 m	2.6 m
Length	23.9 m	12 m
Displacement (Gross Tonnage)	~340 t	14 t
Propulsion System	Diesel-electric hybrid	Diesel-electric hybrid
Total fuel volume	74.1 m ³	3.3 m ³

3.12 Helicopter Operations

Helicopters are the primary means of transporting passengers and/or urgent freight to/from the facility and Support Vessels. They are also the preferred means of evacuating personnel in an emergency. Helicopter support is principally supplied from either Exmouth or Karratha Airports.

Search and Rescue helicopters may be refuelled on the FPU helideck in emergency scenarios.

3.13 Contingent Activities

3.13.1 Trunkline Repair and Flooding, Cleaning, Gauging and Testing

If there is an emergency situation during Trunkline operation (i.e., dragged anchor or dropped object over/on the Trunkline) there may be a need for Trunkline repairs. Repairs may involve the removal of a damaged section of the Trunkline and the remaining good section of trunkline being dewatered. It is usually necessary to carry out dewatering and repairs as soon as possible to minimize damage (corrosion) to the Trunkline internal lining.

The damaged section of trunkline will be cut from the remainder of the trunkline using equipment such as a diamond wire saw and moved out of the trunkline route. A new section of the Trunkline may be installed, or an alternative fix applied to reinstate the Trunklines functionality. Using a contingency water treatment spread, set-up at the shore crossing location within the Pluto Gas Plant, the Trunkline will first be flooded with seawater (treated or untreated, depending on recovery philosophy) for preservation, and then dewatered from shore to offshore using a pig train, potentially separated by chemically treated fresh water (desalination) slugs. The damaged section of the trunkline will then be cut into recoverable lengths (nominally 12 m joints) and recovered by an LCV.

Flood, Clean, Gauge and Test (FCGT) may be used to ensure Trunkline integrity, should there be a need to repair the Trunkline during operations. Flooding and cleaning pigs would be propelled using filtered and chemically treated seawater using an onshore pumping spread. Flooding water would be supplied by a temporary water winning line installed to provide sea water to the onshore pumping spread.

Once flooded, the trunkline would be pressurised using positive displacement pumps from the onshore shore crossing location. Hydrotesting would then be performed to measure the pressure within the trunkline over an extended period of time. Following completion of the test, the trunkline would be depressurised from onshore and left filled with treated seawater. Dewatering of the trunkline would be performed using pigs propelled by compressed air with a combination of freshwater slugs to desalinate the trunkline. The displaced hydrotest water will be discharged offshore through a valve arrangement at the end of the Trunkline. Drying and inerting would then be performed if required. Discharge offshore may occur anywhere along the Trunkline route, depending on the incident location and repair needs.

Activities at the discharge location will be performed with the LCV and may include, but not be limited to, intervention on the PLET (attachment of a pig receiver), which could release small volumes of monoethylene glycol (MEG) used to inert the cavity between the PLET valve and diverless connector, and placement of work baskets on the seabed for storage of ROV tools.

3.13.2 Wet Storing Equipment

Equipment, materials or tools may need to be temporarily wet stored on the seabed in the Operational Area during hook-up or Operations. This could include, but not be limited to, work baskets for ROV tools, pig launcher/receiver prior/after connection, damaged risers or flowlines etc. Removal of wet stored items will be planned for and undertaken when the property is neither used, nor to be used throughout operations authorised by the title.

4 DESCRIPTION OF THE EXISTING ENVIRONMENT

4.1 Overview

In accordance with Regulations 21(2) and 21(3) of the Environment Regulations, this section describes the existing environment that may be affected by the activity (planned and unplanned, as described in Section 6), including details of the particular relevant values and sensitivities of the environment, which were used for the risk assessment. Specific references to supporting information in Appendix L: Woodside Master Existing Environment have been made throughout this section.

The Environment that May Be Affected (EMBA) is the largest spatial extent where unplanned events could have an environmental consequence on the surrounding environment. For this EP, the EMBA is the potential spatial extent of surface and in-water hydrocarbons at concentrations above ecological impact thresholds, in the event of the worst-case credible spill. The ecological impact thresholds used to delineate the EMBA are defined in Section 6.8.1.2. The EMBA also includes areas that are predicted to experience shoreline contact with hydrocarbons above threshold concentrations. The worst-case credible spill scenarios for this EP are highly unlikely loss of marine diesel during a vessel collision

- at the FPU location
- from a vessel conducting activities along the trunkline in the Montebello Australian Marine Park Multi Use Zone
- from a vessel conducting activities along the trunkline at the boundary between State and Commonwealth waters.

Results from each of these scenarios were overlaid to create a combined EMBA, hereafter referred to as the EMBA (Figure 4-2).

Woodside recognises that hydrocarbons may be visible beyond the EMBA at lower concentrations than the ecological impact thresholds defined in Section 6.8.1.2. These visible hydrocarbons are not expected to cause ecological impacts. However, in recognition of this, an additional socio-cultural EMBA is defined as the potential spatial extent within which social-cultural impacts may occur from changes to the visual amenity of the marine environment. Receptors relevant to the socio-cultural EMBA include Commonwealth and State marine protected areas (MPAs), National and Commonwealth Heritage Listed places, areas of tourism and recreation, and commercial and traditional fisheries. For this EP, the socio-cultural EMBA for surface hydrocarbons encompasses an area fully within the boundaries of the EMBA for ecological impacts. The EMBA and socio-economic EMBA is shown in Figure 4-2 and described in Table 4-1.

The EMBA presented does not represent the predicted coverage of any one hydrocarbon spill or a depiction of a slick or plume at any particular point in time. Rather, the areas are a composite of a large number of theoretical paths, integrated over the full duration of the simulations under various metocean conditions, with release from three key locations.

Table 4-1: Hydrocarbon spill thresholds used to define environment that may be affected for surface and in-water hydrocarbons

Hydrocarbon Type	EMBA ₁	Socio-cultural EMBA ₁	Planning Area for Scientific Monitoring
Surface	10 g/m ² This represents the minimum oil thickness (0.01 mm) at which ecological impacts (e.g. to birds and marine mammals) are expected to occur.	1 g/m ² This represents a wider area where a visible sheen may be present on the surface and, therefore, the concentration at which socio-cultural impacts to the visual amenity of the marine environment may occur. However, it is below concentrations at which ecological impacts are expected to occur.	NA
Dissolved	50 ppb This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA guidance note: A652993, April 2019). As dissolved hydrocarbons are within the water column and not visible, impacts to socio-cultural receptors can be associated with ecological impacts. Therefore, dissolved hydrocarbons at this threshold also represent the level at which socio-cultural impacts may occur.		10 ppb This low exposure value establishes the planning area for scientific monitoring (based on potential for exceedance of water quality triggers) (NOPSEMA guidance note: A652993, April 2019). This area is described further in Appendix H: Oil Spill Preparedness and Response Mitigation Assessment: Figure 5-1. In the event of a spill, DNP will be notified of AMPs which may be contacted by hydrocarbons at this threshold.
Entrained	100 ppb This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA guidance note: A652993, April 2019). As entrained hydrocarbons are within the water column and not visible, impacts to socio-cultural receptors can be associated with ecological impacts. Therefore, entrained hydrocarbons at this threshold also represent the level at which socio-cultural impacts may occur.		
Shoreline	100 g/m ² This represents the threshold that could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat.	10 g/m ² This represents the volume where hydrocarbons may be visible on the shoreline but is below concentrations at which ecological impacts are expected to occur.	N/A

¹ Further details, including the source of the thresholds used to define the EMBA in this table, are provided in **Section 6.8.1.2**.

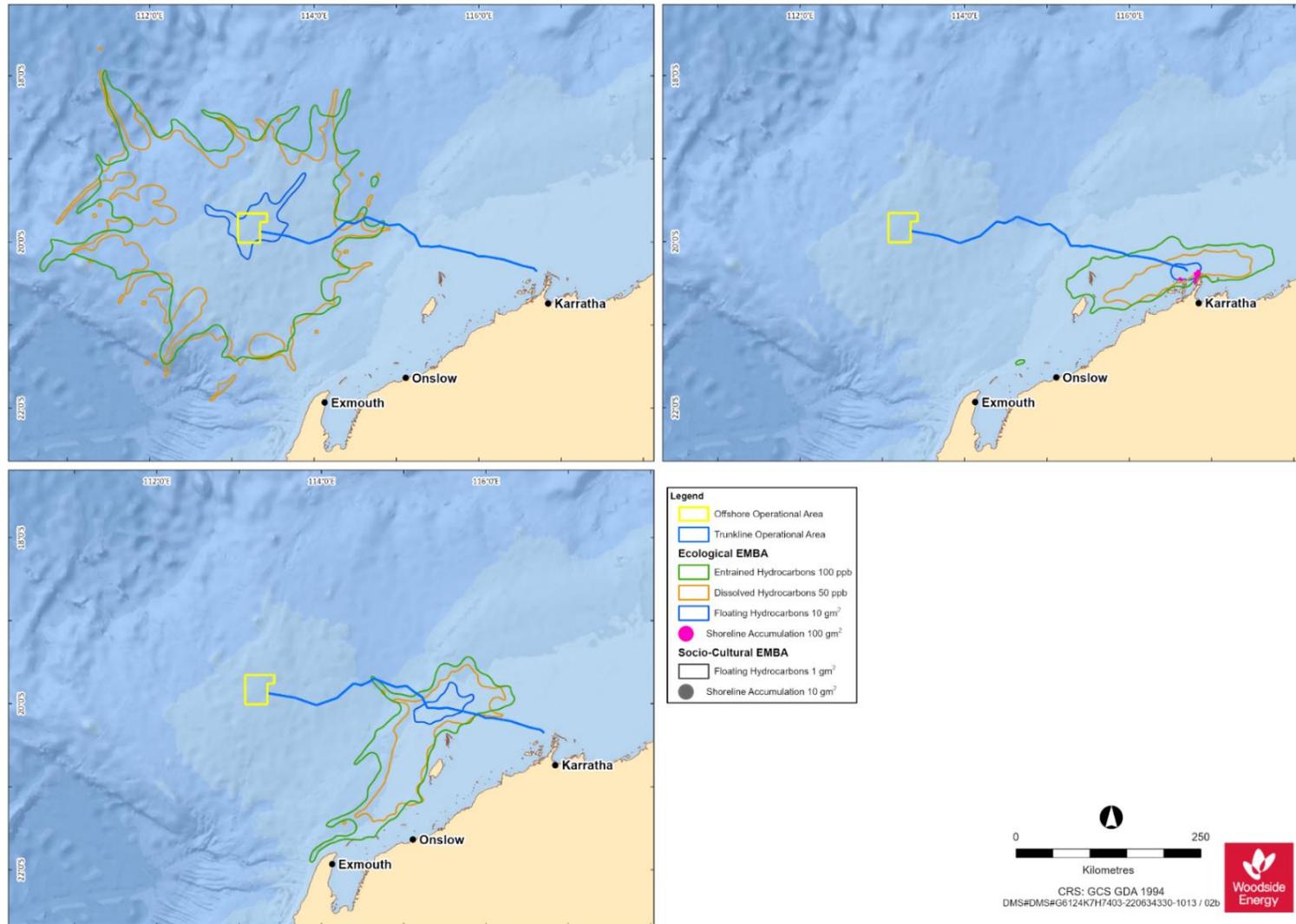


Figure 4-1 Worst-case credible spill scenario modelling

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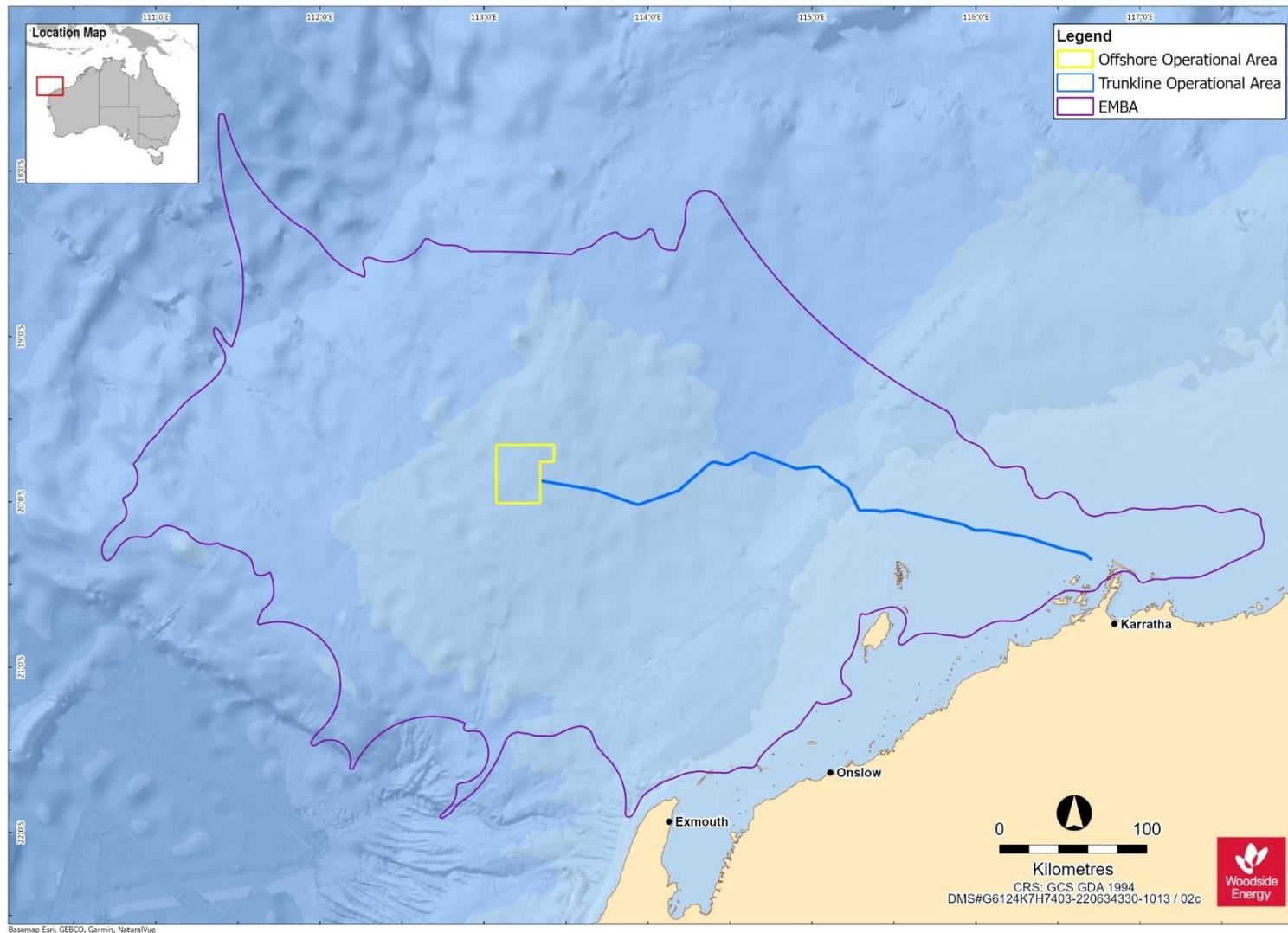


Figure 4-2: Environment that may be affected by the Petroleum Activities Program

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Page 101 of 752

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4.2 Regional Context

The PAA occurs in Commonwealth waters off the north-west coast of Western Australia (WA), located in the North-west Marine Bioregion (NWMR) (IMCRA 4.0). Within the NWMR, the Offshore Operational Area lies within the Northern Carnarvon Basin on the Exmouth Plateau, about 375 km offshore from the Burrup Peninsula. The Trunkline Operational Area is situated in water depths from ~31 m (export trunkline route at State waters boundary) to 1400 m (KP 275 of the trunkline route). The Offshore Operational Area overlaps with the Northwest Province whilst the Trunkline Operational Area overlaps the Northwest Shelf Province and the Northwest Province. The EMBA partially overlaps with the Central Western Shelf Transition, Central Western Shelf Transition, Northwest Shelf Province, Northwest Province and Northwest Transition. Appendix L: Woodside Master Existing Environment summarises the characteristics for the relevant marine bioregions.

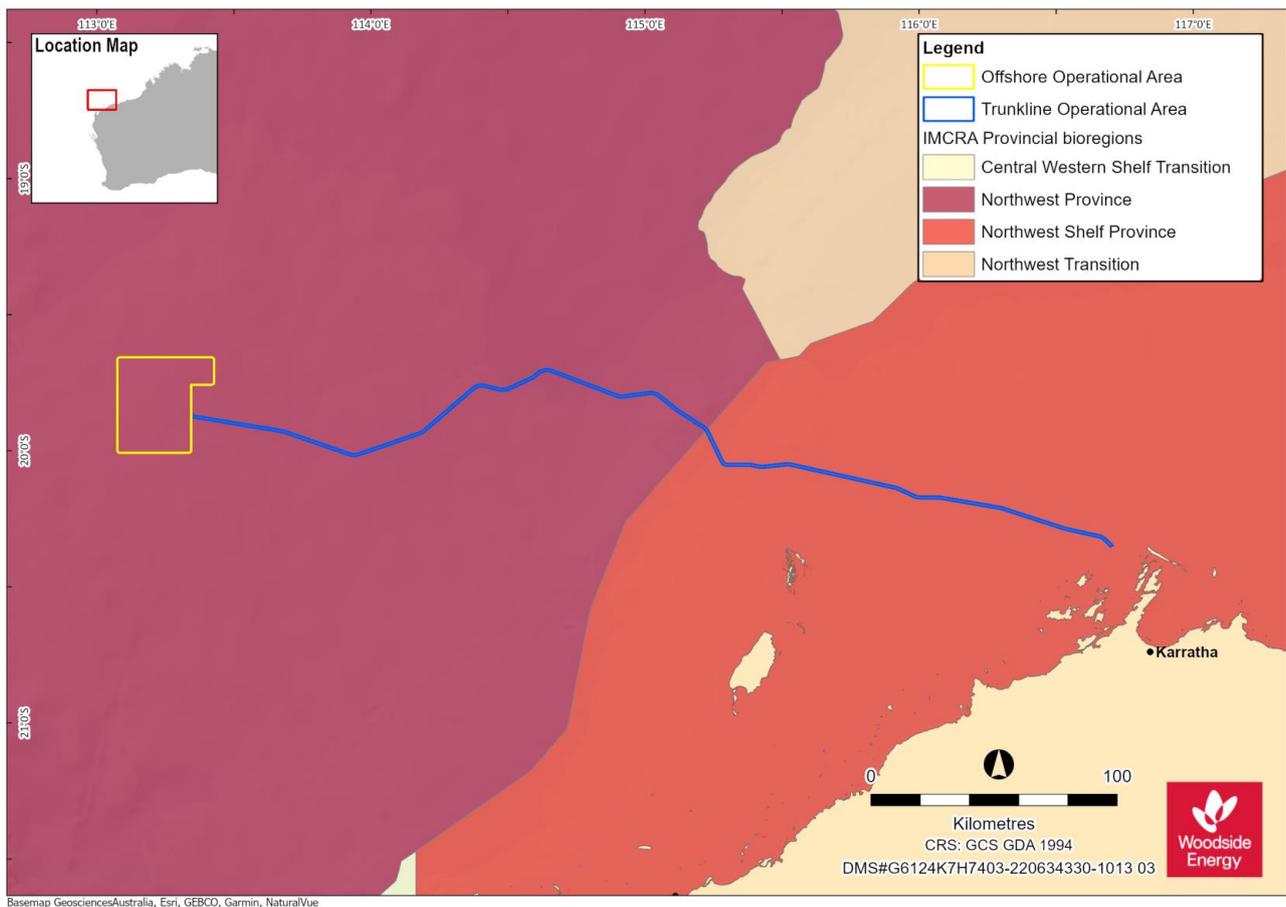


Figure 4-3: Location of the Petroleum Activities Area and relevant marine bioregions

4.3 Matters of National Environmental Significance (Environment Protection and Biodiversity Conservation Act)

Table 4-2 and Table 4-3 summarise the matters of national environmental significance (MNES) overlapping the PAA and EMBA, respectively, according to results of Appendix C: Environment Protection and Biodiversity Conservation Act Protected Matters Search. It should be noted that the EPBC Act PMST is a general database that conservatively identifies areas in which protected species have the potential to occur.

Additional information on these MNES is provided in subsequent sections of this chapter.

Table 4-2: Summary of matters of national environmental significance identified by the Environment Protection and Biodiversity Conservation Act Protected Matters Search Tool as potentially occurring within the Petroleum Activities Area

MNES	Number	Relevant Section
World Heritage Properties	0	Section 4.9
National Heritage Places	0	Section 4.9
Wetlands of International Importance (Ramsar)	0	Section 4.9
Commonwealth Marine Area	1	Section 4.8
Listed Threatened Ecological Communities	0	Section 4.6
Listed Threatened Species	24	Section 4.6
Listed Migratory Species	42	Section 4.6

Table 4-3: Summary of matters of national environmental significance identified by the Environment Protection and Biodiversity Conservation Act Protected Matters Search Tool as potentially occurring within the environment that may be affected

MNES	Number	Relevant Section
World Heritage Properties	1	Section 4.9
National Heritage Places	2	Section 4.9
Wetlands of International Importance (Ramsar)	0	Section 4.9
Commonwealth Marine Area	3	Section 4.8
Listed Threatened Ecological Communities	0	Section 4.6
Listed Threatened Species	52	Section 4.6
Listed Migratory Species	61	Section 4.6

4.4 Physical Environment

4.4.1 Offshore Operational Area

Water depths of the Offshore Operational Area range from 900 m to 1000 m. The shallowest waters are approximately in the centre of the Offshore Operational Area, with a gradual increase in depth to the north/north-west and also to the south/south-east (Figure 4-4). To the centre and west of the PAA, craters (up to 400 m across and 10 m deep) and similar pockmarks (metres to tens of metres across) have been identified through geophysical surveys (Fugro, 2010). The seafloor exhibits gradients less than 1° but extends to about 15° on the edge of craters (Fugro, 2010). These crater and pockmark formations may be associated with hydrocarbon seeps and associated authigenic carbonate formations (Fugro, 2010).

Marine sediment quality surveys within the Scarborough titles were undertaken during the 2012/2013 wet and dry seasons (ERM, 2013). The ERM marine investigation included sampling at a number of sampling sites, to:

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- provide a broad characterisation of the habitats within WA-61-L
- achieve spatial coverage across WA-61-L
- provide a representative selection of the various topographic features and corresponding benthic habitats (i.e. crater/pockmark versus non-crater areas).

Key results included:

- All the sediment samples collected were predominantly ($\geq 97\%$ w/w) composed of clay and silt; and only small amounts (1–3% w/w) of sand and shell were detected.
- Generally, low concentrations of metals and nutrients were detected. Except for nickel, metal concentrations were below the sediment default guideline values (DGVs) (Simpson, 2013) for analytes with defined DGVs (arsenic, cadmium, chromium, copper, mercury, nickel, lead and zinc). Nickel concentrations were below the high guideline value (GV).
- No hydrocarbons were detected.
- Although crater and pockmark formations have been identified in the EMBA, which have been associated with hydrocarbon seeps and authigenic carbonate formations (Fugro, 2010), the absence of hydrocarbons in sediment samples indicates the lack of recent hydrocarbon seep activity in the locations sampled (ERM, 2013).
- Water quality in the Offshore Operational Area is typical of a tropical offshore environment. Much of the surface water in this area is nutrient poor, transported from the Indonesian Throughflow (ITF) and has low primary productivity.
- The marine water quality of the offshore environment of the Exmouth Plateau was measured by collecting triplicate water samples at three stations per 15 sampling sites (across two seasons) (ERM, 2013). Water profiling and water quality sampling was undertaken in the 2012/2013 wet and dry seasons.
- The deeper waters had significantly lower dissolved oxygen concentrations (about 23%) compared to the oxygen-saturated ($\geq 100\%$) surface waters.
- Generally low concentrations of metals, nutrients and chlorophyll-a were detected. Except for cobalt, copper and zinc, mean metal concentrations throughout WA-61-L during both the wet and dry season studies were below the ANZECC guidelines trigger value for 95% species protection (ANZECC and ARMCANZ 2000).
- Total suspended solid mean concentrations were higher during the wet season (22,450 $\mu\text{g/L}$) than the dry season study (4000 $\mu\text{g/L}$) and showed variability across sites and throughout the water column.

Results from the studies indicated the water quality within the WA-61-L title is generally typical of the NWMR's tropical deep-water environment (ERM, 2013).

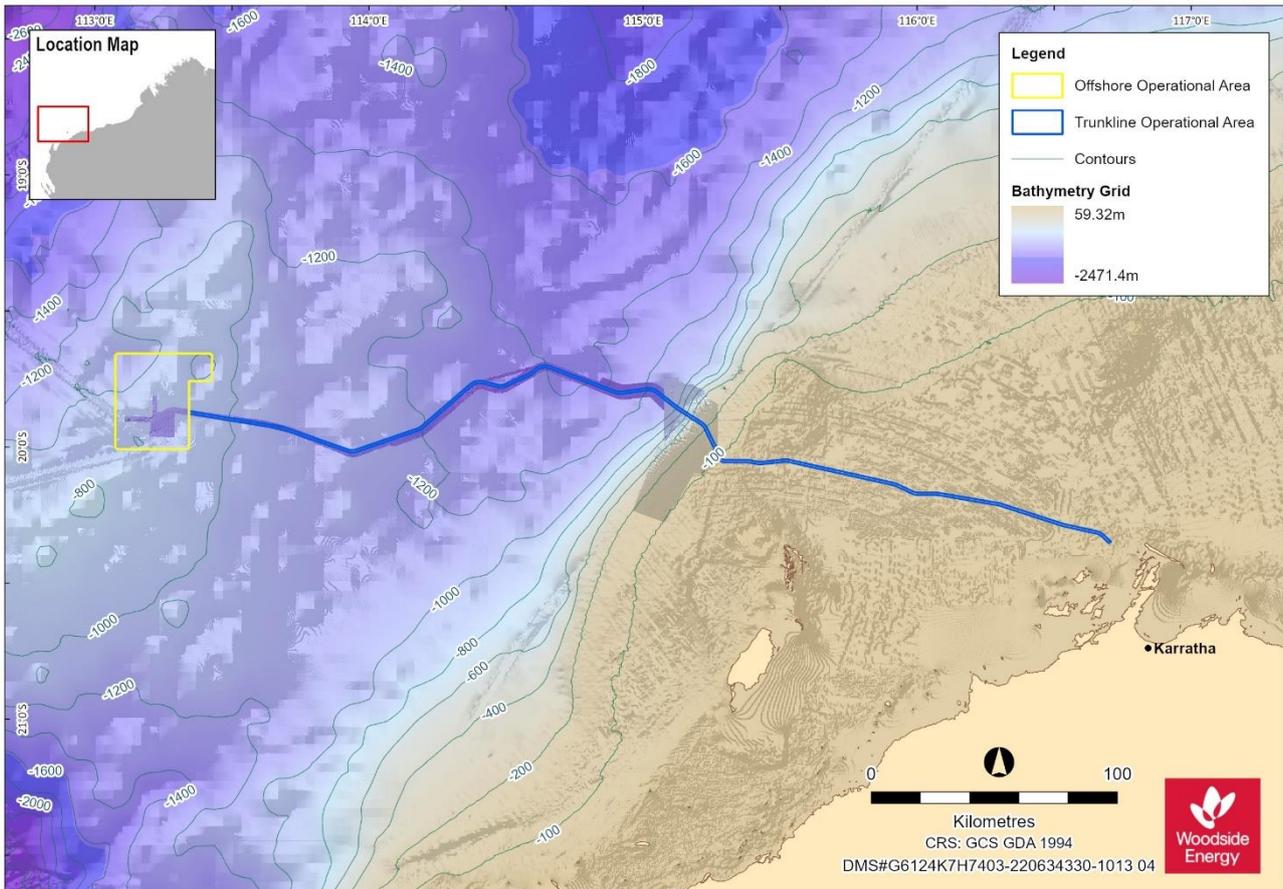


Figure 4-4: Bathymetry of the Offshore Operational Area

4.4.2 Trunkline Operational Area

The Trunkline Operational Area extends from the State-Commonwealth waters boundary on the inner continental shelf, onto the continental slope where it traverses the continental slope westwards to the Exmouth Plateau (Figure 4-5). The eastern half of the Trunkline Operational Area is adjacent to the existing Pluto trunkline. The water depth ranges from ~31 m (export trunkline route at State waters boundary) to 1400 m (KP 275 of the export trunkline route).

Table 4-4 provides a summary description of the seabed along the export trunkline route, including seabed features and along the export trunkline route from the State waters boundary (KP 32) to the intersection of the export trunkline route with the north-western limit of the Montebello Marine Park (approximately KP 191). Beyond KP 191 the seabed is located on the Exmouth Plateau, which is characterised by a thick Triassic sequence overlain by a Jurassic, Cretaceous and Cainozoic sediment sequence; and fine-grained carbonate ooze (Fugro, 2010). Sediment samples collected at the end of the export trunkline route were predominantly composed of clay and silt; and only small amounts (1–3% w/w) of sand and shell (ERM, 2013).

Appendix L: Woodside Master Existing Environment provides a summary of the physical characteristics of the environment within the EMBA in Section 2.

Table 4-4: Summary of seabed features, sediments, epifauna and infauna along the trunkline route

Section of Trunkline	Seabed features and sediments	Epifauna and infauna
KP 32 – KP 43.1	<ul style="list-style-type: none"> The seabed is predominantly flat, smooth and featureless Sediments comprise carbonate sands with some finer components. 	<p>Sparse ascidians, sponges, invertebrate communities, burrowing organisms and octocorals were observed from the drop camera study. This benthos is considered representative of the area and is similar to that observed in other regional studies (Keesing, 2019; Advisian, 2019a).</p>
KP 43.1 – KP 52.5	<ul style="list-style-type: none"> Seabed expected to comprise carbonate sand and shell gravel The seabed is predominantly flat and featureless between KP 43.1 and KP 52.5 Minor accumulations of coarser sediments between KP 43.9 and KP 44.9 and KP 47.1 to KP 50 KP 50 to KP 52 there are a number of isolated depressions visible on the seafloor. 	
KP 52.5 – KP 108.4	<ul style="list-style-type: none"> Seabed sediments are expected to comprise carbonate sands with shell gravel Depressions appear throughout the route corridor it seems that the clusters of depressions mostly occur when the calcarenite is outcropping at seafloor. These depressions run perpendicular to the proposed export trunkline route Geotechnical sampling within this section recovered carbonate sands with some silt content. 	<p>The predominantly featureless seabed is not expected to support abundant or diverse benthic communities and is considered typical of the North West Shelf.</p> <p>The presence of oil and gas infrastructure may artificially increase habitat complexity in areas of featureless seabed, resulting in higher species richness and abundance of fish species and epifauna associated with infrastructure, compared to adjacent natural habitats (McLean et al., 2020; McLean et al., 2018; McLean et al., 2017; Bond et al., 2018).</p>
KP 108.4 – KP117.6 (Montebello Marine Park MUZ)	<ul style="list-style-type: none"> Seabed sediments are expected to comprise carbonate sands with shell gravel which was confirmed by geotechnical sampling Localised increases in reflectivity tend to be associated with the presence of numerous depressions and exposure of the underlying calcarenite unit Shallow soils isopach occur along the corridor and tends to show a cover of sand which suggests that these areas are more likely to represent accumulations of coarse material or disturbed seabed rather than outcrop. 	<p>The results of previous benthic studies in the Montebello Marine Park are largely in alignment with the geophysical data (i.e. typically low relief sandy seafloor (with various bedforms) with occasional rubbly areas increasing at sites more inshore) and dominant benthic organisms identified (which varied in diversity and density within and between survey areas, but typically included a wide variety of sponges and soft corals including whips and gorgonians, hydroids, seapens and crinoids) (Advisian, 2019a).</p> <p>The harder areas of calcarenite have the potential to support more abundant and diverse benthic communities, however the patchiness of the exposure of the underlying hard substrate is expected to limit the potential to support significant epifaunal habitats.</p>
KP 164.1 – KP 173.6 (Montebello Marine Park MUZ)	<ul style="list-style-type: none"> Seabed sediments are expected to comprise carbonate sands with shell gravel The underlying calcarenite is expected to outcrop at seabed within the majority of this area, however, apart from appearing marginally less smooth and sometimes slightly mottled, the seafloor otherwise appears very uniform without any noticeable increase in reflectivity. 	
KP 173.6 – KP 191.6 (Montebello Marine Park MUZ)	<ul style="list-style-type: none"> Seabed appears moderately reflective and predominantly featureless. Isolated features and clusters are noted. These depressions often show associated small mounds 	

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Section of Trunkline	Seabed features and sediments	Epifauna and infauna
	<ul style="list-style-type: none"> Between KP 173.4 and KP 178.1 the seafloor appears more irregular and slightly mottled. Lineations in the calcarenite are oriented approximately north-east to south-west, and this area is thought to represent the outer reef which is characterised by linear ridges and relict sandwaves Relict sandwaves are present between KP 184.7 to KP 190.6. The sandwaves exhibit an approximate north-south orientation, have wavelengths of between 150 m to 300 m, and measure up to 10 m in height. Surficial seabed sediments are expected to comprise carbonate sands with shell gravel. 	

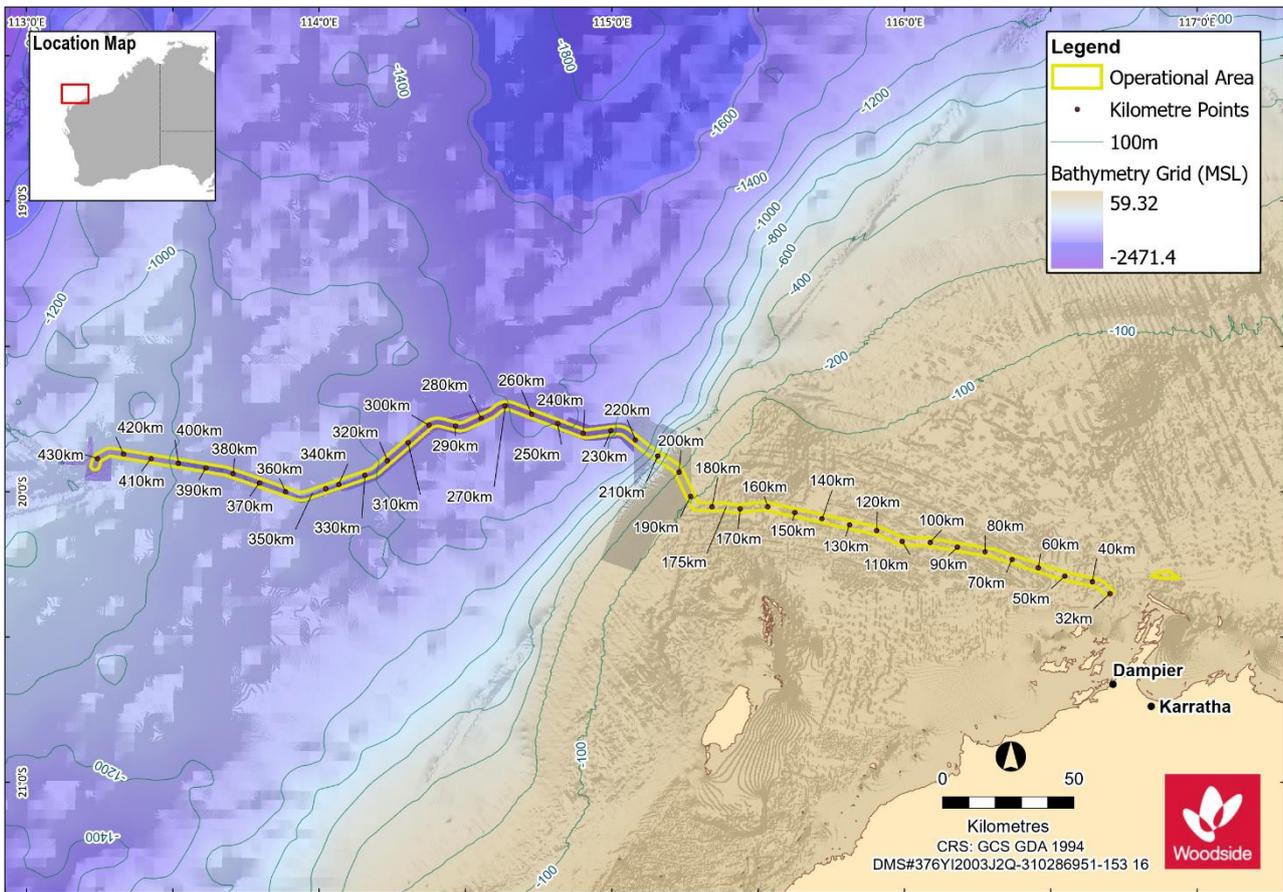


Figure 4-5: Bathymetry of the Export Trunkline Operational Area

4.5 Habitats and Biological Communities

4.5.1 Offshore Operational Area

The seafloor in the Offshore Operational Area is characterised by sparse marine life dominated by motile organisms (ERM, 2013). This soft bottom habitat also supports patchy distributions of mobile epibenthos, such as sea cucumbers, ophiuroids, echinoderms, polychaetes and sea-pens (DEWhA,

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2008a). Bivalve shell debris and bacterial mats (both with low percent cover) were the only identified features that may be indicative of historic hydrocarbon seep activity. A benthic infauna analysis reported by ERM in 2013 provided no evidence of the presence of unique hydrocarbon seep chemosynthetic benthic communities, which are typically characterised by species from the family Dorvilleidae (ERM, 2013; Thornhill et al., 2012).

Seabed habitat is characterised by sparse marine life dominated by mobile benthic biota (ERM, 2013). The benthic biota are predominantly deposit feeders such as epifauna (living on the seabed): shrimp (crustaceans) and sea cucumbers (echinoderms), and infauna (living within the surface sediments) small, burrowing worms (polychaetes) and crustaceans (ERM, 2013). Bioturbation traces (seabed surface sediment animals trails, mounds and burrows) are characteristic of such deepwater benthic habitats and were recorded during baseline survey work (ERM, 2013) and are thought to be common within the PAA and EMBA. The seabed bioturbation indicates the presence of benthic biota (epifauna and infauna) including echinoderms, crustaceans and echiurans (spoon worms) and annelids (polychaetes) (ERM, 2013).

Sampling within the Offshore Operational Area returned low phytoplankton densities (ERM, 2013). Seasonal variation was observed in the samples with total recorded taxa, species richness and species diversity (Shannon-Weiner) being significantly greater in the dry season than in the wet season (ERM, 2013). Dinoflagellates were the most abundant group within wet season study, and diatoms were generally the most abundant group in dry season study (ERM, 2013).

Similarly, greater species abundance and diversity was recorded in zooplankton samples during the dry season compared to the wet season (ERM, 2013). Copepods were the most dominant taxonomic group during both studies in terms of abundance and concentrations, with other zooplankton including ostracods, molluscs (pteropods), euphausiids (krill) and larvaceans also being identified in relatively abundant amounts (ERM, 2013).

Concentrations of fish larvae were similar in both wet and dry season samples. For both seasons ichthyoplankton communities largely comprised the larvae of meso-pelagic fishes (Myctophidae [lantern fishes] and Gonostomatidae [bristlemouths]) (ERM, 2013).

It is noted that these survey findings do not reflect the productivity trends reported in scientific literature for the region (DEWHA, 2008a; Brewer et al., 2007), whereby productivity is typically greater during the wet season when the weakening of surface currents allows for increased upwelling. However, the findings do indicate that productivity remains low across the seasons and that while seasonal variations in plankton species composition potentially occurs, overall variations in abundance are likely to be minor (ERM, 2013).

4.5.2 Trunkline Operational Area

Primary productivity in the region is typically low, driven by offshore influences, with periodic upwelling and cyclonic events driving coastal productivity (Brewer et al., 2007). Localised upwelling generally occurs as a result of the changing strength of the ITF, internal tides, cyclones, and their interaction with the complex seafloor topography.

The planktonic communities that drive primary productivity in the region are comprised of phytoplankton and zooplankton (protozoa, copepods, ichthyoplankton etc.). Phytoplankton abundance increases as a result of an increase in nutrient availability, in turn supporting an increase in zooplankton. Mass coral spawning events in the NWMR during March and April contribute to peaks in zooplankton abundance.

The planktonic communities of the Trunkline Operational Area are likely to be representative of the wider region. Offshore planktonic communities feature smaller taxa, whereas inshore communities are dominated by larger taxa such as diatoms. The greatest productivity is likely to be around the 200 m isobath, associated with the shelf break. Further information regarding the planktonic communities of the PAA and the NWMR are detailed in Sections 4.2 and 4.3 of Appendix L: Woodside Master Existing Environment and in the Scarborough OPP.

The NWMR is characterised by diverse nearshore primary producer habitats such as seagrass meadows, coral reefs and mangrove forests, to offshore soft sediment seabed habitats and submerged and emergent reef systems. Benthic communities range from infauna and low density sessile filter feeders of soft sediments and deeper waters, mobile macrobenthos and diverse hard coral communities in shallower habitats.

The EMBA is likely representative of the wider region, featuring sparse mobile epifauna (i.e., arthropods and echinoderms) and sessile filter feeders (sponges, soft corals etc.). Hard coral assemblages are generally found in shallower waters (< 50 m) on the seaward slopes of outer islands of the Dampier Archipelago, as well as fringing reefs around the Montebello Islands, Barrow Island, Muiron Islands and Ningaloo Reef. Regionally significant Rankin Bank and Glomar Shoal (~114 km north-west and ~84 km north of the Trunkline Operational Area, respectively), are present within the EMBA, hosting diverse benthic assemblages across complex seafloor features. Seagrass meadows and benthic macroalgae reefs are located in shallow waters surrounding the Dampier Archipelago, Muiron and Barrow islands in sheltered areas and subtidal habitats. This is detailed in Table 4-1 of Appendix L: Woodside Master Existing Environment.

The Trunkline Operational Area is likely to feature sparse ascidians, sponges, invertebrates, infauna and burrowing organisms and octocorals, representative of the area as detailed in Table 4-3 of Appendix L: Woodside Master Existing Environment. No primary producer communities (hard corals, seagrass, macroalgae) are expected to occur due to the lack of light.

Key habitats and ecological communities within the EMBA are identified in Table 4-5 and described in Section 4 of Appendix L: Woodside Master Existing Environment.

Table 4-5: Habitats and communities within the environment that may be affected

Habitat/community	Key locations within the EMBA
Marine primary producers	
Coral	Key locations for coral/habitat communities within the EMBA are at Rankin Bank, approximately 226 km east of the Offshore Operational Area (33 km north of the Trunkline Operational Area). The EMBA overlaps the Commonwealth waters adjacent to Ningaloo Reef KEF, known for its extensive coral reef communities, soft corals and gorgonians. Refer to Section 4 of Appendix L: Woodside Master Existing Environment for a description of coral communities in the NWMR.
Seagrass beds and macroalgae	Ningaloo Marine Park and soft-bottom substrates along the Pilbara coast support seagrass communities. Protected waters around the Dampier Archipelago, Thevenard Island, Barrow and Montebello Islands also contain seagrass communities.
Mangroves	Regionally significant mangrove communities can be found in the Montebello Islands and Enderby Island Complex (within the Dampier Archipelago).
Sandy beaches	Occur on shorelines of island groups throughout the EMBA (e.g., Barrow Island).
Salt marshes	Occur on some island groups throughout the EMBA.
Other communities and habitats	
Plankton	Plankton within the EMBA is expected to reflect the conditions of the NWMR. Primary productivity of the NWMR appears to be largely driven by offshore influences, with periodic upwelling events and cyclonic influences driving coastal productivity with nutrient recycling and advection. Refer to Section 4.3 of Appendix L: Woodside Master Existing Environment for a description of planktonic communities in the NWMR.
Pelagic and demersal fish populations	In the EMBA, fish diversity and abundance is typically correlated with habitat distribution, with complex habitats, such as coral and rocky reefs, hosting more diverse and abundant assemblages. Notable habitats hosting diverse

Habitat/community	Key locations within the EMBA
	fish assemblages include the Continental slope demersal fish communities KEF. Refer to Section 5 of Appendix L: Woodside Master Existing Environment for a description of pelagic and demersal fish populations in the NWMR.
Epifauna and infauna	The EMBA contains deep water habitats dominated by soft, fine grain sediments and sparse benthic biota. The benthic communities are characterised by benthic filter feeders and other epifauna, and infaunal bioturbators. Refer to Section 4.4 of Appendix L: Woodside Master Existing Environment for a description of epifauna and infauna in the NWMR.

4.6 Protected Species

A total of 67 EPBC Act listed species considered to be MNES were identified as potentially occurring within the EMBA, of which a subset of 49 species were identified as potentially occurring within the PAA. The full list of marine species identified from the PMST reports is provided in Appendix C: Environment Protection and Biodiversity Conservation Act Protected Matters Search, including several MNES that are not considered to be credibly impacted (e.g., terrestrial species within the EMBA). One conservation dependent species have also been identified with a potential to occur within the PAA and EMBA.

Species identified as potentially occurring within the PAA and EMBA, Biologically Important Areas (BIAs) and Habitat Critical to their Survival (Habitat Critical) that overlap the PAA and EMBA are listed in Table 4-6 to Table 4-14. A description of these species is included in Sections 5 to 8 of Appendix L: Woodside Master Existing Environment. Figure 4-6 to Figure 4-12 show the spatial overlap of relevant BIAs and Habitat Critical areas within the PAA.

4.6.1 Fish, Sharks and Rays

Table 4-6: Threatened and Migratory fish, shark and ray species predicted to occur within the Petroleum Activities Area and environment that may be affected

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Carcharodon carcharias</i>	White shark	Vulnerable	Migratory	Species or species habitat known to occur within area	Species or species habitat known to occur within area
<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Sphyrna lewini</i>	Scalloped hammerhead shark	Conservation Dependent	N/A	Species or species habitat known to occur within area	Species or species habitat known to occur within area
<i>Isurus oxyrinchus</i>	Shortfin mako	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Isurus paucus</i>	Longfin mako shark	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Mobula birostris</i>	Giant manta ray	N/A	Migratory	Species or species habitat known to occur within area	Species or species habitat known to occur within area
<i>Pristis clavata</i>	Dwarf sawfish	Vulnerable	Migratory	Species or species habitat known to occur within area	Species or species habitat known to occur within area
<i>Pristis pristis</i>	Freshwater sawfish	Vulnerable	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Pristis zijsron</i>	Green sawfish	Vulnerable	Migratory	Species or species habitat known to occur within area	Species or species habitat known to occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Rhincodon typus</i>	Whale shark	Vulnerable	Migratory	Foraging, feeding or related behaviour known to occur within area	Foraging, feeding or related behaviour known to occur within area
<i>Carcharias taurus</i> (west coast population)	Grey nurse shark	Vulnerable	N/A	Species or species habitat known to occur within area	Species or species habitat likely to occur within area
<i>Anoxypristis cuspidata</i>	Narrow sawfish	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat likely occur within area
<i>Mobula alfredi</i>	Reef manta ray	N/A	Migratory	Species or species habitat known to occur within area	Species or species habitat known to occur within area

Table 4-7: Fish, shark and ray biologically important areas within the environment that may be affected

Species	BIA type	Approximate distance (km) and direction from PAA
Whale shark	Foraging (Northward from Ningaloo along 200 m isobath)	Overlaps the PAA (Trunkline Operational Area)
	Foraging - high density prey (Ningaloo Marine Park and adjacent Commonwealth waters)	194 km south of Offshore Operational Area

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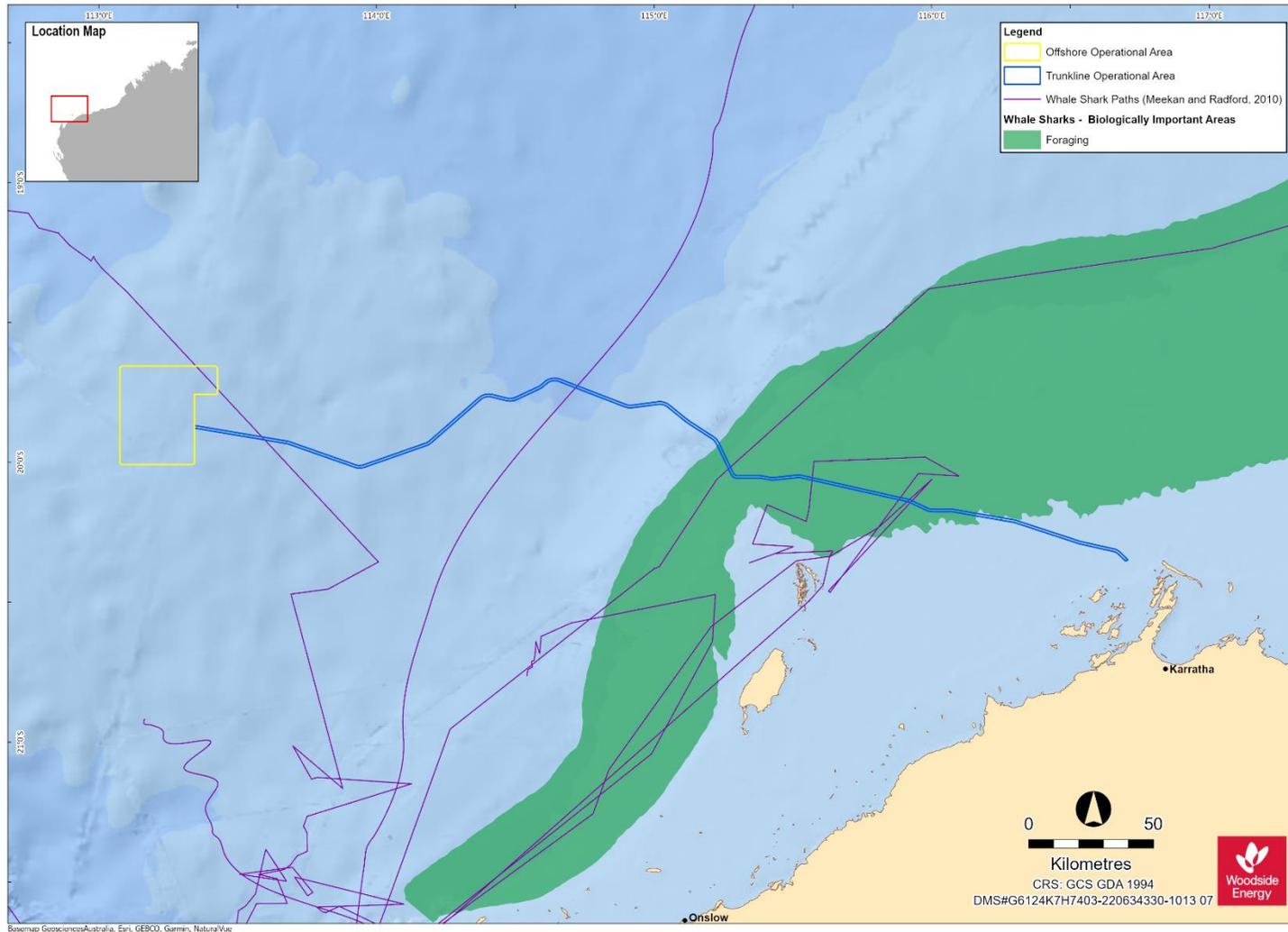


Figure 4-6: Whale shark biologically important areas overlapping the Petroleum Activities Area and satellite tracks (Meekan and Radford, 2010)

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4.6.2 Marine Reptiles

Table 4-8: Threatened and Migratory marine reptile species predicted to occur within the Petroleum Activities Area and environment that may be affected

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Caretta caretta</i>	Loggerhead turtle	Endangered	Migratory	Congregation or aggregation known to occur within area	Breeding known to occur within area
<i>Dermochelys coriacea</i>	Leatherback turtle	Endangered	Migratory	Species or species habitat known to occur within area	Species or species habitat known to occur within area
<i>Chelonia mydas</i>	Green turtle	Vulnerable	Migratory	Congregation or aggregation known to occur within area	Breeding known to occur within area
<i>Eretmochelys imbricata</i>	Hawksbill turtle	Vulnerable	Migratory	Congregation or aggregation known to occur within area	Breeding known to occur within area
<i>Natator depressus</i>	Flatback turtle	Vulnerable	Migratory	Congregation or aggregation known to occur within area	Breeding known to occur within area
<i>Aipysurus apraefrontalis</i>	Short-nosed seasnake	Critically Endangered	N/A	Species or species habitat may occur within area	Species or species habitat known to occur within area
<i>Aipysurus foliosquama</i>	Leaf-scaled Seasnake	Critically Endangered	N/A	Species or species habitat likely to occur within area	Species or species habitat known to occur within area

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Table 4-9: Marine turtle biologically important areas within the environment that may be affected

Species	BIA type	Approximate distance (km) and direction from PAA
Loggerhead turtle	Internesting buffer (Ningaloo coast and Jurabi coast)	173 km south-east of Offshore Operational Area
	Internesting buffer (Cohen Island)	Overlaps the PAA (Trunkline Operational Area)
	Internesting buffer (Rosemary Island)	Overlaps the PAA (Trunkline Operational Area)
	Internesting buffer (Lowenthal Island)	39 km south of Trunkline Operational Area
	Internesting buffer (Muiron Island)	163 km south of Trunkline Operational Area
	Internesting buffer (Montebello Islands)	18 km south of Trunkline Operational Area
	Nesting (Cohen Island)	10 km east of Trunkline Operational Area (State Waters end)
	Nesting (Muiron Island)	183 km south of Trunkline Operational Area
	Nesting (Montebello Islands)	38 km south of Trunkline Operational Area
	Nesting (Lowenthal Island)	59 km south of Trunkline Operational Area
	Nesting (Rosemary Island)	13 km south of Trunkline Operational Area (State Waters end)
Hawksbill turtle	Internesting buffer (Ningaloo coast and Jurabi coast)	173 km south of Trunkline Operational Area (FPU end)
	Internesting buffer (Montebello Is, Trimouille and NW islands)	27 km south of Trunkline Operational Area
	Internesting buffer (Ah chong and South East Is)	15 km south of Trunkline Operational Area
	Internesting buffer (Barrow Island)	44 km south of Trunkline Operational Area
	Internesting buffer (Lowendal Island Group)	8 km south of Trunkline Operational Area
	Internesting buffer (Montebello Is, Trimouille and NW islands)	35 km south of Trunkline Operational Area
	Internesting buffer (Delambre Island)	18 km east of Trunkline Operational Area (State Waters end)
	Internesting buffer (Dampier Archipelago; islands to the west of the Burrup Peninsula)	Overlaps the PAA (Trunkline Operational Area)
	Internesting buffer (Delambre Island and other Dampier Archipelago Islands)	Overlaps the PAA (Trunkline Operational Area)
	Internesting buffer (Rosemary Island)	Overlaps the PAA (Trunkline Operational Area)
	Internesting buffer (Thevenard Island)	132 km south of Trunkline Operational Area
Internesting buffer (Varanus Island)	40 km south of Trunkline Operational Area	

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Species	BIA type	Approximate distance (km) and direction from PAA
	Foraging, migration corridor, interesting, mating, nesting (Dampier Archipelago; islands to the west of the Burrup Peninsula)	11 km south-east of Trunkline Operational Area (State Waters end)
	Mating (Barrow Island)	64 km south of Trunkline Operational Area
	Nesting (Delambre Island and other Dampier Archipelago Islands)	9 km south-east of Trunkline Operational Area (State Waters end)
	Nesting (Varanus Island)	60 km south of Trunkline Operational Area
	Foraging (Delambre Island)	38 km east of Trunkline Operational Area (State Waters end)
	Nesting (Rosemary Island)	13 km south of Trunkline Operational Area (State Waters end)
	Foraging (String of islands between Cape Preston and Onslow, inshore of Barrow Is)	68 km south of Trunkline Operational Area
	Foraging (Barrow Island; shallow water coral reef and artificial reef (pipeline) habitat)	64 km south of Trunkline Operational Area
	Foraging, nesting, interesting, mating (Lowendal Island Group)	55 km south of Trunkline Operational Area
	Foraging, mating, nesting (Montebello Is - Hermite Is, NW Is, Trimouille Is)	28 km south of Trunkline Operational Area
	Nesting (Montebello Is, Trimouille and NW islands)	47 km south of Trunkline Operational Area
	Nesting (Ah chong and South East Is)	35 km south of Trunkline Operational Area
	Nesting (Barrow Island)	64 km south of Trunkline Operational Area
Flatback turtle	Interesting buffer (Montebello Island – Hermite Island, NW Island, Trimouille Island)	Overlaps the PAA (Trunkline Operational Area)
	Interesting buffer (Thevenard Island – South coast)	56 km south-east
	Foraging, interesting, mating, aggregation (Coral reef habitat west of the Montebello group. Extends the entire length of Montebellos)	39 km south of Trunkline Operational Area
	Nesting (Delambre Is)	39 km east of Trunkline Operational Area (State Waters end)
	Interesting buffer (Port Hedland, Pretty Pool)	134 km east of Trunkline Operational Area (State Waters end)
	Interesting buffer (Dixon Island)	Overlaps the PAA (Trunkline Operational Area)
	Interesting buffer (Intercourse Island)	Overlaps the PAA (Trunkline Operational Area)
	Interesting buffer (Cape Thouin/Mundabullangana/Cowrie Beach)	57 km east of Trunkline Operational Area (State Waters end)

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Species	BIA type	Approximate distance (km) and direction from PAA
	Interesting buffer (North Turtle Island)	162 km east of Trunkline Operational Area (State Waters end)
	Interesting, foraging, migration corridor, mating, nesting (Dampier Archipelago; islands to the west of the Burrup Peninsula)	10 km south-east of Trunkline Operational Area (State Waters end)
	Interesting buffer (Dampier Archipelago; islands to the west of the Burrup Peninsula)	Overlaps the PAA (Trunkline Operational Area)
	Interesting buffer (Legendre Island, Huay Is)	Overlaps the PAA (Trunkline Operational Area)
	Interesting buffer (Delambre Is)	Overlaps the PAA (Trunkline Operational Area)
	Interesting buffer (West of Cape Lambert)	Overlaps the PAA (Trunkline Operational Area)
	Interesting buffer (Port Hedland, Cemetery Beach)	130 km east of Trunkline Operational Area (State Waters end)
	Interesting buffer (Port Hedland, Paradise Beach)	141 km east of Trunkline Operational Area (State Waters end)
	Nesting (Thevernard Island - South coast)	137 km south of Trunkline Operational Area
	Foraging (Montebello Is - Hermite Is, NW Is, Trimouille Is)	28 km south of Trunkline Operational Area
	Foraging (String of islands between Cape Preston and Onslow, inshore of Barrow Is)	68 km south of Trunkline Operational Area
	Mating and nesting (Montebello Is - Hermite Is, NW Is, Trimouille Is)	28 km south of Trunkline Operational Area
	Nesting, foraging, mating (Barrow Island)	63 km south of Trunkline Operational Area
	Foraging, nesting (Legendre Is, Huay Is)	21 km east of Trunkline Operational Area (State Waters end)
	Foraging (Delambre Is)	38 km east of Trunkline Operational Area (State Waters end)
Green turtle	Interesting buffer (Dampier Archipelago (islands to the west of the Burrup Peninsula))	Overlaps the PAA (Trunkline Operational Area)
	Interesting buffer (Legendre Island, Huay Island)	1 km east of Trunkline Operational Area (State Waters end)
	Interesting buffer (Montebello Is - Hermite Is, NW Is, Trimouille Is)	8 km south of Trunkline Operational Area
	Interesting buffer (Montebello Islands)	5 km south of Trunkline Operational Area
	Interesting buffer (Delambre Is)	18 km east of Trunkline Operational Area (State Waters end)
	Interesting buffer (North West Cape)	174 km south of Trunkline Operational Area
	Interesting buffer (North and South Muiron Is)	161 km south of Trunkline Operational Area

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Species	BIA type	Approximate distance (km) and direction from PAA
	Interesting buffer (Middle Is. West Coast Barrow Island West Coast and North Coast)	43 km south of Trunkline Operational Area
	Mating, basking (Middle Is. West Coast Barrow Island West Coast and North Coast)	63 km south of Trunkline Operational Area
	Mating, nesting, interesting (Montebello Islands)	25 km south of Trunkline Operational Area
	Foraging (String of islands between Cape Preston and Onslow, inshore of Barrow Is)	68 km south of Trunkline Operational Area
	Foraging (inshore tidal and shallow subtidal areas around Barrow Island)	64 km south of Trunkline Operational Area
	Foraging, mating, nesting (Montebello Is - Hermite Is, NW Is, Trimouille Is)	28 km south of Trunkline Operational Area
	Interesting (Barrow Island)	64 km south of Trunkline Operational Area
	Nesting (North and South Muiron Is)	183 km south of Trunkline Operational Area
	Interesting, mating, aggregation (Coral reef habitat west of the Montebello group. Extends the entire length of Montebellos)	39 km south of Trunkline Operational Area
	Foraging, migration corridor, interesting, mating, nesting (Dampier Archipelago (islands to the west of the Burrup Peninsula))	11 km south-east of Trunkline Operational Area (State Waters end)
	Foraging, nesting (Legendre Is, Huay Is)	21 km east of Trunkline Operational Area (State Waters end)
	Foraging, nesting (Delambre Is)	38 km east of Trunkline Operational Area (State Waters end)
	Nesting (Middle Is. West Coast Barrow Island West Coast and North Coast)	63 km south of Trunkline Operational Area
	Foraging (Coral reef habitat west of the Montebello group. Extends the entire length of Montebellos)	39 km south of Trunkline Operational Area
	Foraging (Montebello Islands)	25 km south of Trunkline Operational Area

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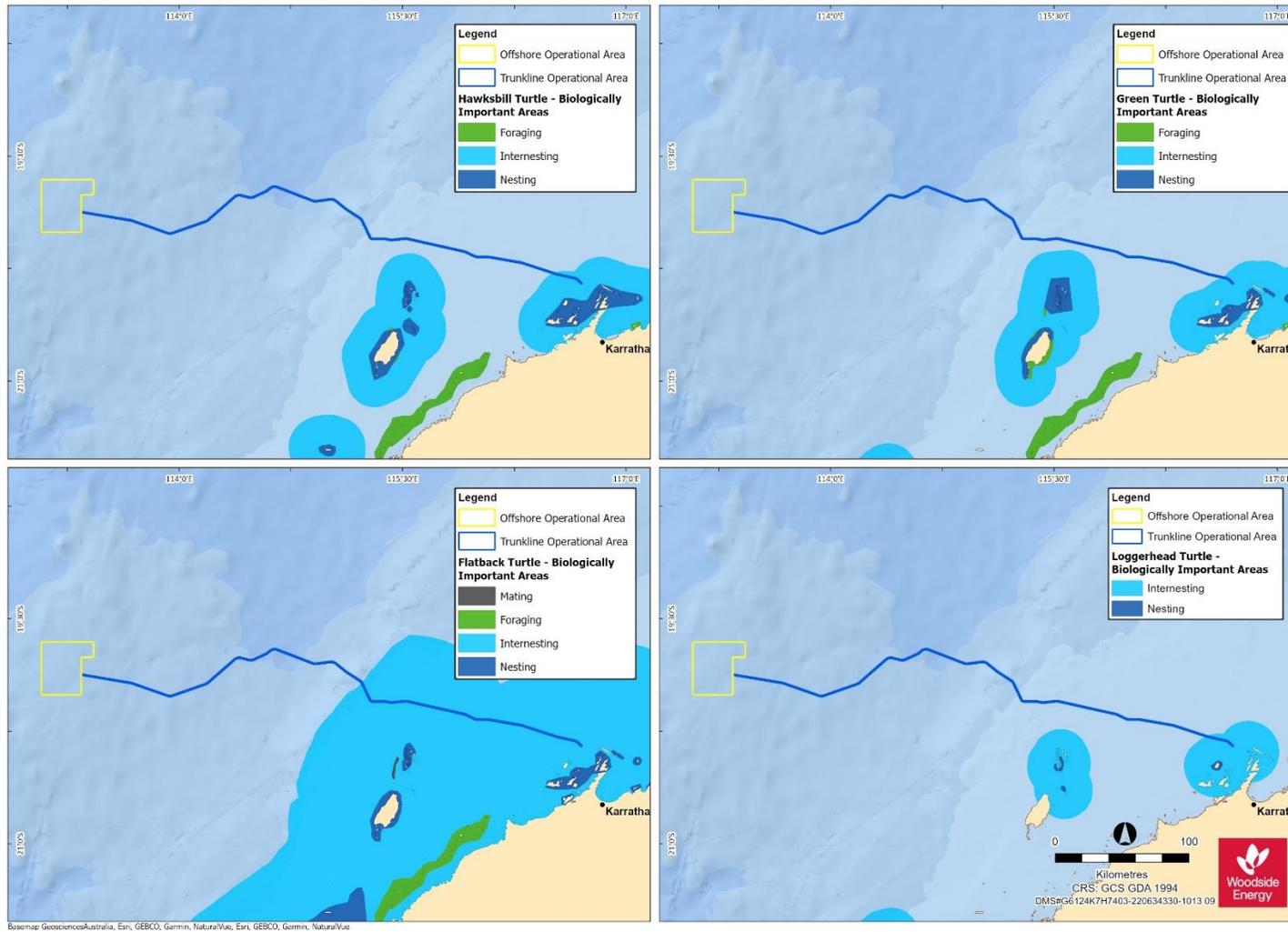


Figure 4-7: Marine turtle biologically important areas overlapping the Petroleum Activities Area

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Table 4-10: Marine turtle ‘habitat critical’ within the environment that may be affected

Species	Genetic Stock	Nesting locations	Approximate distance of area from PAA	Interesting buffer	Nesting period	Hatching period
Flatback turtle	Pilbara	Barrow Island, Montebello Islands, coastal islands from Cape Preston to Locker Island	Overlaps the PAA (Trunkline Operational Area)	60 km	Oct – Mar (peak: Nov-Jan)	Feb- Mar
		Dampier Archipelago, including Delambre Island and Huay Island.	Overlaps the PAA (Trunkline Operational Area)	60 km	Oct – Mar (peak: Nov-Jan)	Feb- Mar
		Mundabullangana Beach.	75 km east of Trunkline Operational Area (State Waters)	60 km	Oct – Mar (peak: Nov-Jan)	Feb- Mar
Green turtle	North West Shelf	Dampier Archipelago	Overlaps the PAA (Trunkline Operational Area)	20 km	Nov–Mar (peak: Dec-Feb)	Jan–May (peak: Feb–Mar)
		Barrow Island, Montebello Islands, Serrurier Island and Thevenard Island.	12 km south of Trunkline Operational Area	20 km	Nov–Mar (peak: Dec-Feb)	Jan–May (peak: Feb–Mar)
		Exmouth Gulf and Ningaloo coast.	177 km south of Trunkline Operational Area (FPU end)	20 km	Nov–Mar (peak: Dec-Feb)	Jan–May (peak: Feb–Mar)
Hawksbill turtle	Western Australia	Dampier Archipelago, including Delambre Island and Rosemary Island.	Overlaps the PAA (Trunkline Operational Area)	20 km	All year (peak: Oct – Feb)	All year (peak: Dec – Feb)
		Cape Preston to mouth of Exmouth Gulf including Montebello Islands and Lowendal Islands.	12 km south of Trunkline Operational Area	20 km	All year (peak: Oct – Feb)	All year (peak: Dec – Feb)
Loggerhead Turtle	North West Shelf	Exmouth Gulf and Ningaloo coast.	177 km south-east of Offshore Operational Area	20 km	Nov – Mar (peak: Jan)	Dec - April

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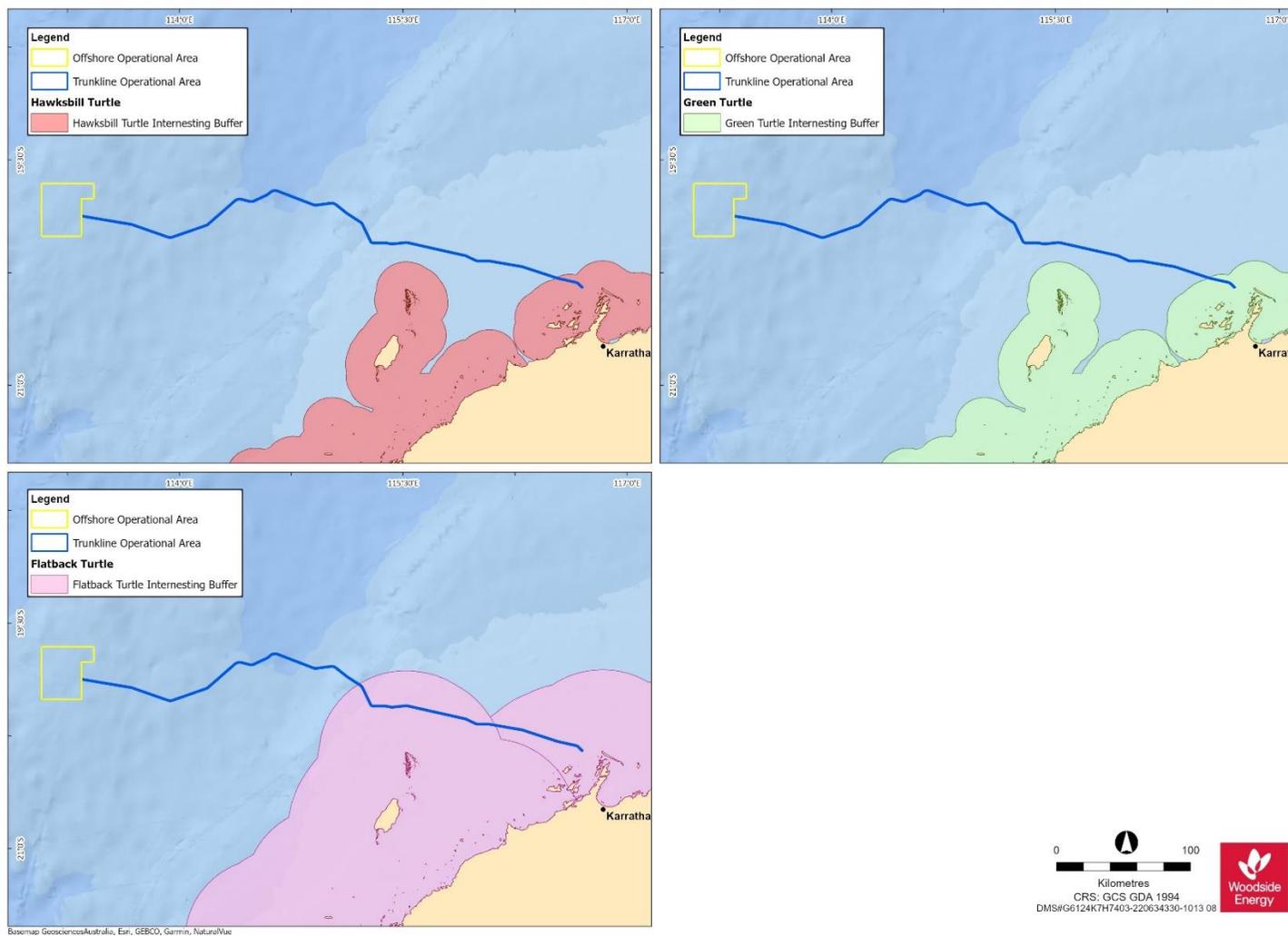


Figure 4-8: Habitat critical to the survival of marine turtles overlapping the Petroleum Activities Area

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4.6.3 Marine Mammals

Table 4-11: Threatened and Migratory marine mammal species predicted to occur within the Petroleum Activities Area and environment that may be affected

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Balaenoptera musculus</i>	Blue whale	Endangered	Migratory	Migration route known to occur within area	Migration route known to occur within area
<i>Balaenoptera borealis</i>	Sei whale	Vulnerable	Migratory	Foraging, feeding or related behaviour likely to occur within area	Foraging, feeding or related behaviour likely to occur within area
<i>Balaenoptera physalus</i>	Fin whale	Vulnerable	Migratory	Foraging, feeding or related behaviour likely to occur within area	Foraging, feeding or related behaviour likely to occur within area
<i>Megaptera novaeangliae</i>	Humpback whale	N/A	Migratory	Breeding known to occur within area	Breeding known to occur within area
<i>Balaenoptera edeni</i>	Bryde's whale	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Physeter macrocephalus</i>	Sperm whale	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Balaenoptera bonaerensis</i>	Antarctic minke whale	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Orcinus orca</i>	Killer whale, orca	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Eubalaena australis</i>	Southern right whale	Endangered	Migratory	N/A	Species or species habitat likely to occur within area
<i>Orcaella heinsohni</i>	Australian Snubfin Dolphin	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Sousa sahalensis</i>	Australian humpback dolphin	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Tursiops aduncus</i>	Spotted bottlenose dolphin (Arafura/Timor Sea populations)	N/A	Migratory	Species or species habitat known to occur within area	Species or species habitat known to occur within area
<i>Dugong dugon</i>	Dugong	N/A	Migratory	Species or species habitat known to occur within area	Breeding known to occur within area

* Note: Dolphins of unconfirmed species (potentially Risso's or spinner dolphins) also present in the area (McCauley, 2011b)

Table 4-12: Marine mammal biologically important areas within the environment that may be affected

Species	BIA type	Approximate distance (km) and direction from PAA
Pygmy blue whales	Migration (Augusta to Derby)	Overlaps the PAA (Trunkline Operational Area)
	Distribution	Overlaps the PAA (Offshore Operational Area and Trunkline Operational Area)
Humpback whale	Migration (north and south) (Kimberley region to south of Shark Bay)	Overlaps the PAA (Trunkline Operational Area)
Southern Right Whale	Reproduction BIA and Habitat Critical to the Survival (Exmouth Gulf and Ningaloo)	192 km south of Trunkline Operational Area
Dugong	Breeding, nursing, calving, foraging [high density seagrass beds] (Exmouth Gulf)	192 km south of Trunkline Operational Area

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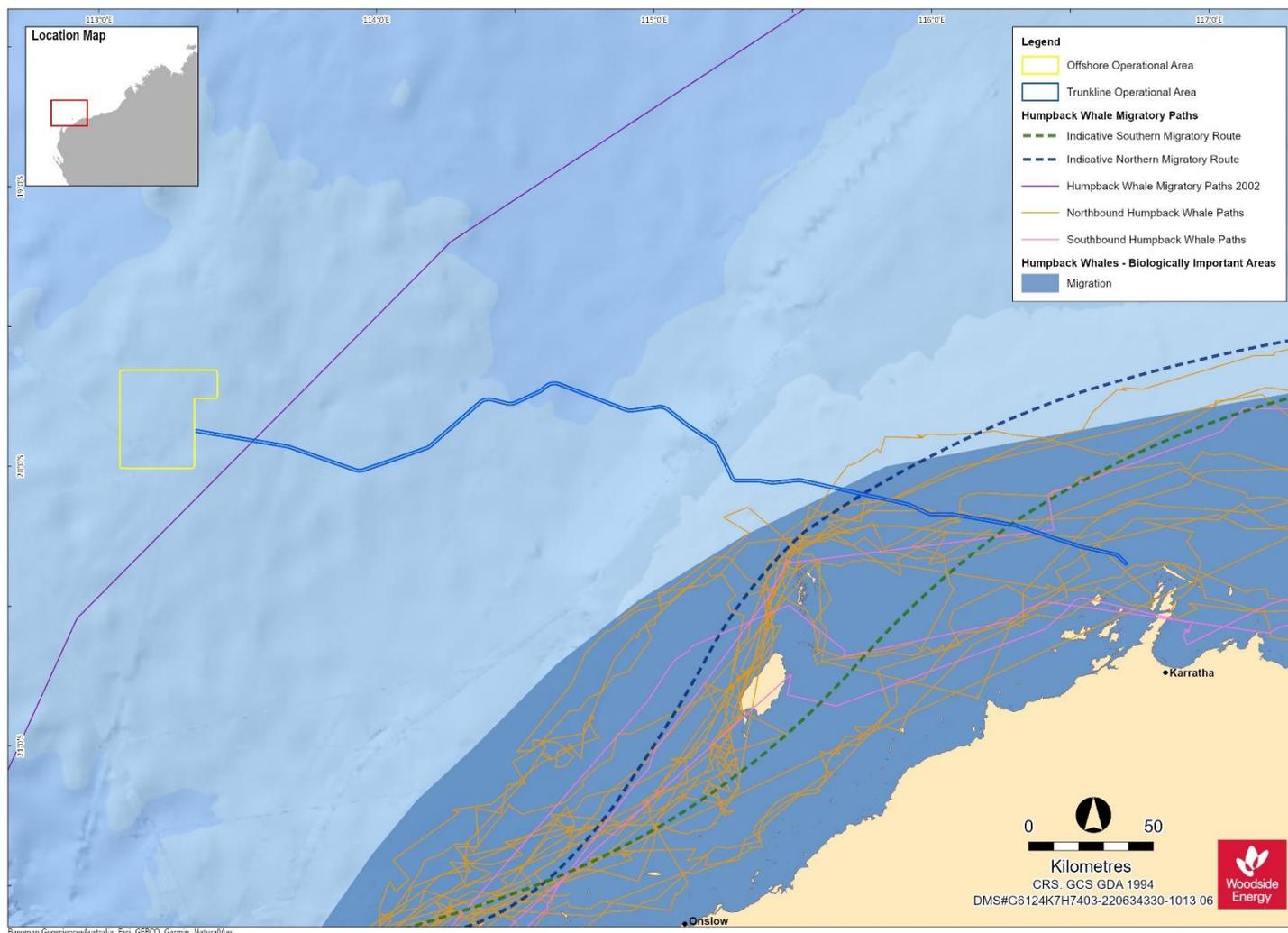


Figure 4-9: Humpback whale biologically important areas overlapping the Petroleum Activities Area and satellite tracks of tagged whales (Double et al., 2010, 2012)

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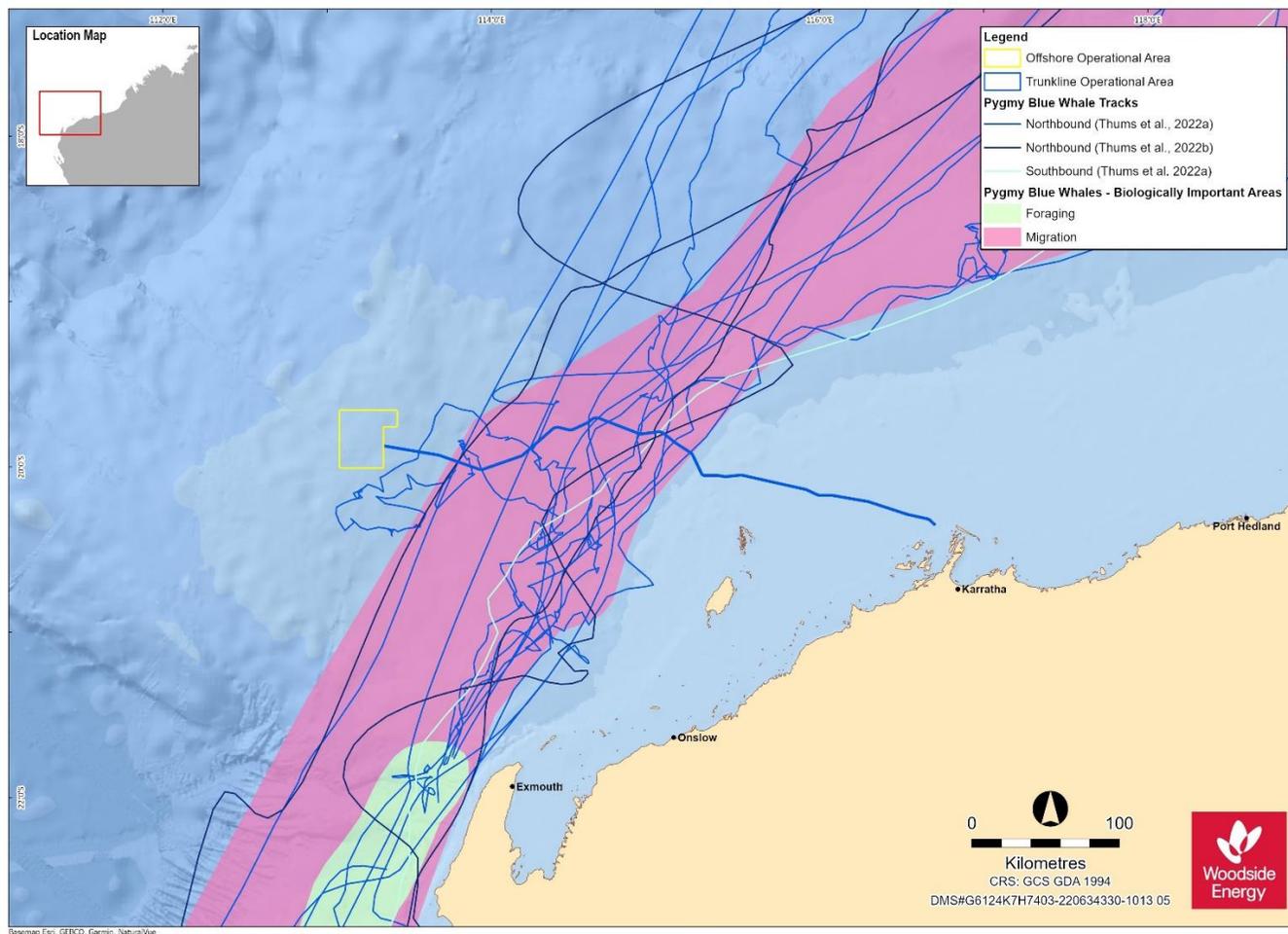


Figure 4-10: Pygmy blue whale biologically important areas and distribution range (as per the National Conservation Values Atlas and Blue Whale Conservation Management Plan, respectively) with reference to the Petroleum Activities Area and the 20 tracks of satellite tagged pygmy blue whales recorded in the NWMR, of the 22 tracks presented in Thums et al. (2022)

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4.6.3.1 Pygmy Blue Whales

The blue whale (*Balaenoptera musculus*) is currently listed as Endangered, Migratory and Cetacean under the EPBC Act and Endangered under the WA Biodiversity Conservation Act 2016 (BC Act, September 2018).

The important biological habitats for critical life stages of the pygmy blue whale life cycle are presented in the Blue Whale Conservation Management Plan (CMP) (CoA, 2015a) and the National Conservation Values Atlas (NCVA). The foraging areas correspond to blue whale biologically important areas (BIAs) based on foraging of varying density and likelihood. The NCVA also includes an area of offshore waters in Western Australia that represents the migratory corridor or Migratory BIA for pygmy blue whales; refer to Figure 4-10.

The pygmy blue whale migration BIA overlaps the Trunkline Operational Area and is approximately 35 km to the east of the Offshore Operational Area (Figure 4-10). Both the Trunkline and Offshore Operational Areas overlap the broader pygmy blue whale distribution BIA (Figure 4-11), a spatially defined area representing presence certainty and not biologically important behaviour (e.g. breeding, foraging, migration). The distribution range acknowledges the migratory movement of pygmy blue whales to the west of the Migratory BIA, though the majority of the important migration areas for north-west Australia are within the migratory BIA (Thums et al. 2022) and telemetry data also indicates north of the North West Cape pygmy blue whales transit through deeper and further offshore waters (Thums et al., 2022; Double et al., 2014).

Considering the pygmy blue whale migration BIA overlaps the Trunkline Operational Area, migrating whales are expected to be present during the north and south bound migratory seasons (April to July and October to January, respectively) (McCauley, 2011; Gavrillov et al., 2018; Thums et al., 2022). It is likely that individuals may also transit it and around the Offshore Operational Area; however, only transient individuals or small groups are expected occasionally due to the distance from the migration BIA (35 km). The Exmouth Plateau KEF (refer to Section 4.7) is an area of localised upwelling and may be a source of food for occasional pygmy blue whale foraging. Migrating pygmy blue whales (northbound) display predominately relatively fast, directed travel interspersed with relatively short periods of low move persistence indicative of foraging (Thums et al., 2022) and acoustic detection (McCauley, 2011) indicated a short, sharp pulse of southbound migrating pygmy blue whales.

Thums et al. (2022) acknowledge that the majority of important migration areas for north-west Australia were encompassed by the pygmy blue whale migration BIA, as indicated by 20 tracks for northbound pygmy blue whale (presented in Figure 4-10). Furthermore, the analysis identified areas from Ningaloo Reef to the Rowley Shoals as important for foraging (and/or breeding/resting) using the overlay of three modelled metrics (occupancy, number of whales and move persistence) by Thums et al. (2022). These include areas within and to the west of the migration BIA, indicating there is some but most likely low likelihood of foraging whales being present in the Offshore Operational Area.

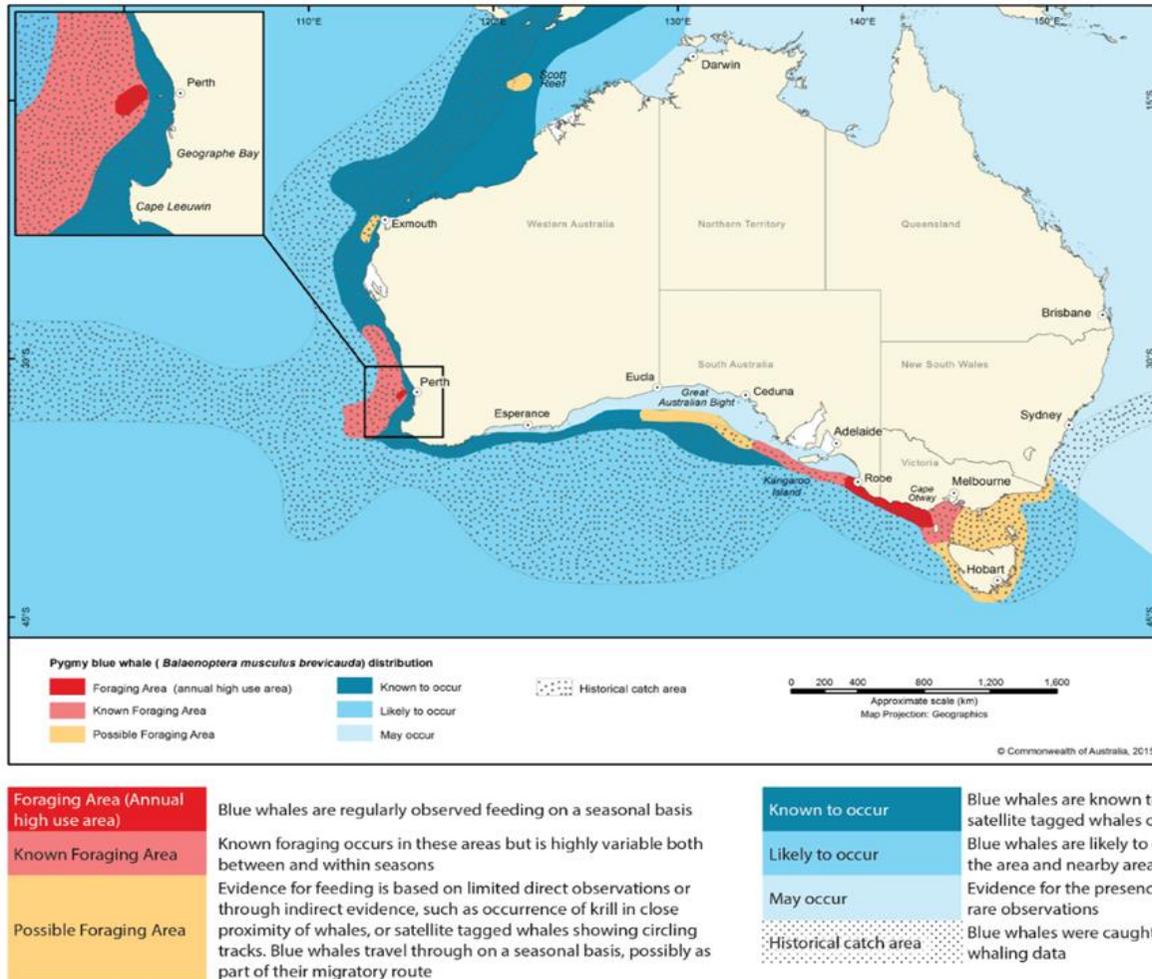


Figure 4-11: Important foraging and areas of occurrence for pygmy blue whales as presented in the Blue Whale Conservation Plan (Commonwealth of Australia, 2015a); note: known to occur area in the Blue Whale Conservation Management Plan is the same as the distribution range presented in the National Conservation Values Atlas

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4.6.4 Seabirds and Migratory Shorebirds

Table 4-13: Threatened and Migratory seabird and shorebird species predicted to occur within the Petroleum Activities Area⁶ and environment that may be affected⁷

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Macronectes giganteus</i>	Southern giant petrel	Endangered	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Phethon lepturus fulvus</i>	Christmas island white-tailed tropicbird	Endangered	N/A	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Phaethon lepturus</i>	White-tailed tropicbird	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat likely to occur within area
<i>Fregata ariel</i>	Lesser frigatebird	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
<i>Anous stolidus</i>	Common noddy	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat likely to occur within area
<i>Thalassarche steadi</i>	White-capped albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area
<i>Thalassarche carteri</i>	Indian yellow-nosed albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area

⁶ N.B. The wedge-tailed shearwater was not identified in the PMST as potentially occurring within the PAA. However, given its BIA overlaps the eastern end of the Trunkline Operational Area, it is considered likely that the species may be encountered within the PAA.

⁷ N.B. The Lesser Crested Tern was not identified in the PMST as potentially occurring within the EMBA. However, given it has several BIAs south of the Trunkline Operational Area, it is considered likely that the species may be encountered within the EMBA.

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Thalassarche impavida</i>	Campbell albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area
<i>Pterodroma mollis</i>	Soft-plumaged petrel	Vulnerable	N/A	N/A	Foraging, feeding or related behaviour likely to occur within area
<i>Sternula nereis nereis</i>	Australian fairy tern	Vulnerable	N/A	Breeding known to occur within area	Breeding known to occur within area
<i>Fregata minor</i>	Great frigatebird	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Ardenna carneipes</i>	Flesh-footed shearwater	N/A	Migratory	N/A	Species or species habitat likely to occur within area
<i>Calonectris leucomelas</i>	Streaked shearwater	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Onychoprion anaethetus</i>	Bridled tern	N/A	Migratory	N/A	Breeding known to occur within area
<i>Sterna dougallii</i>	Roseate tern	N/A	Migratory	Breeding likely to occur within area	Breeding known to occur within area
<i>Pandion haliaetus</i>	Osprey	N/A	Migratory	N/A	Breeding known to occur within area
<i>Apus pacificus</i>	Fork-tailed Swift	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Hydroprogne caspia</i>	Caspian Tern	N/A	Migratory	N/A	Breeding known to occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Sternula albifrons</i>	Little Tern	N/A	Migratory	N/A	Species or species habitat may occur within area
<i>Ardenna pacifica</i>	Wedge-tailed Shearwater	N/A	Migratory	N/A	Breeding known to occur within area
Migratory Shorebirds					
<i>Calidris canutus</i>	Red knot, knot	Vulnerable	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
<i>Actitis hypoleucos</i>	Common sandpiper	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	Vulnerable	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
<i>Calidris melanotos</i>	Pectoral sandpiper	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Numenius madagascariensis</i>	Eastern curlew	Critically Endangered	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
<i>Calidris ferruginea</i>	Curlew sandpiper	Critically Endangered	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Limnodromus semipalmatus</i>	Asian Dowitcher	N/A	Migratory	N/A	Species or species habitat may occur within area
<i>Limosa lapponica</i>	Bar-tailed Godwit	N/A	Migratory	N/A	Species or species habitat known to occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	EMBA
<i>Tringa nebularia</i>	Common Greenshank, Greenshank	N/A	Migratory	N/A	Species or species habitat likely to occur within area
<i>Thalasseus bergii</i>	Greater Crested Tern	N/A	Migratory	N/A	Breeding known to occur within area
<i>Charadrius leschenaultii</i>	Greater Sand Plover, Large Sand Plover	Vulnerable	Migratory	N/A	Species or species habitat known to occur within area
<i>Limosa lapponica menzbieri</i>	Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit	Endangered	Migratory	N/A	Species or species habitat known to occur within area
<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	N/A	Migratory	N/A	Species or species habitat may occur within area
<i>Glareola maldivarum</i>	Oriental Pratincole	N/A	Migratory	N/A	Species or species habitat may occur within area
<i>Phaethon</i>	Red-Tailed Tropicbird (Indian Ocean)	Endangered	N/A	N/A	Species or species habitat likely to occur within area

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Table 4-14: Seabird biologically important areas within the environment that may be affected

Species	BIA type	Approximate distance (km) a direction from PAA
Wedge-tailed shearwater	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef)	Overlaps Trunkline Operational Area from KP 32 to ~KP 220. Occurs throughout EMBA across fringing islands of Dampier Archipelago to Cape Range and to Barrow Island.
Roseate Tern	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef)	Numerous BIAs: 2 x BIAs overlap the PAA; 117 km, 97 km, 44 km, 23 km south of Trunkline Operational Area; 12 km; 7km east of Trunkline Operational Area (State Waters)
Fairy Tern	Breeding (Gascoyne and Pilbara coasts and islands)	Numerous BIAs: 1 x BIA overlaps the PAA; 3km south-east of Trunkline Operational Area (State Waters); 52 km, 58 km, 47 km south of Trunkline Operational Area (State Waters); 141 km, 137 km, 54 km, 30 km, 25 km south of Trunkline Operational Area; 200 km, 195 km south of Trunkline Operational Area (FPU end)
Lesser Crested Tern	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef)	Numerous BIAs: 125 km, 52 km, 30 km south of Trunkline Operational Area

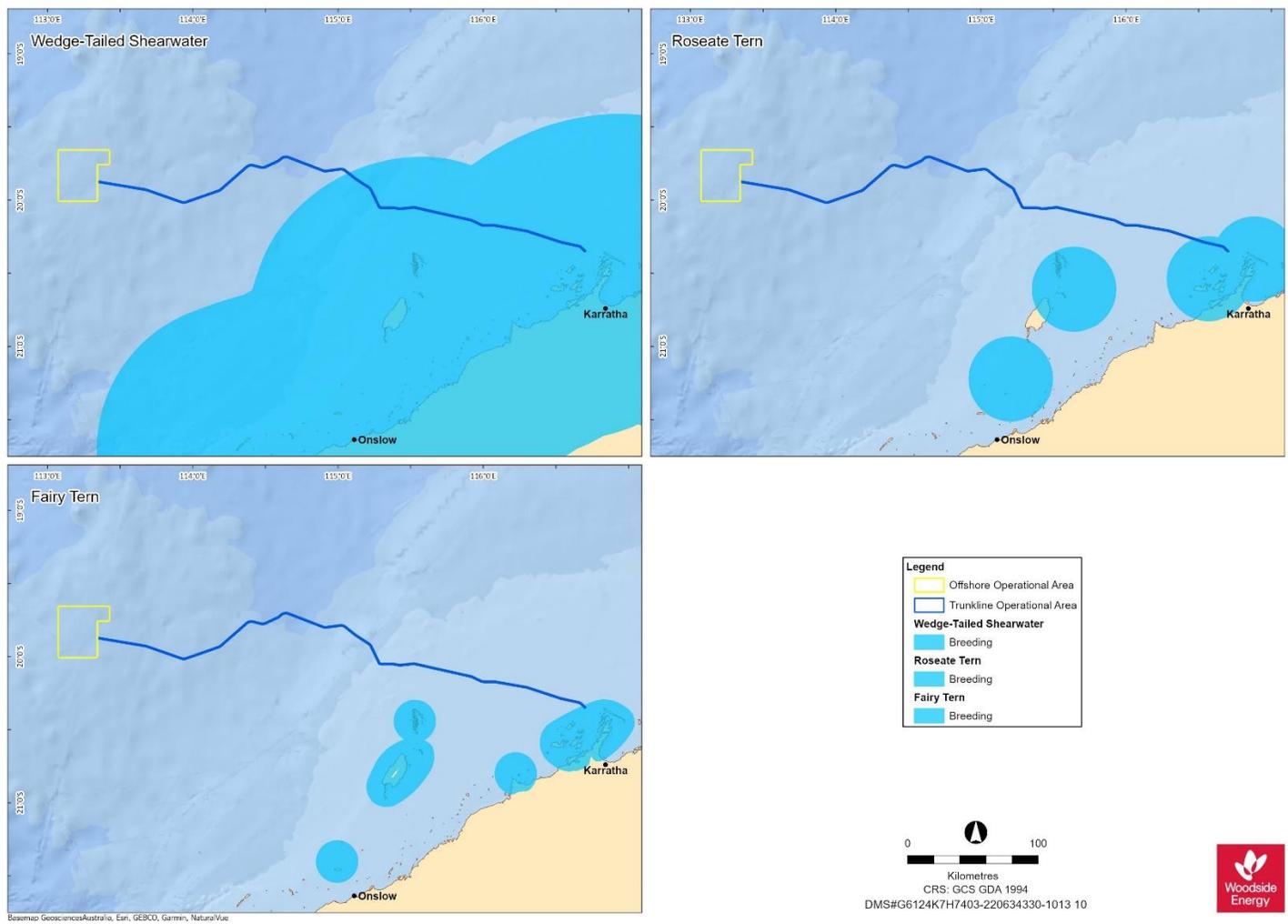


Figure 4-12: Seabird biologically important areas overlapping the Petroleum Activities Area

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4.6.5 Seasonal Sensitivities for Protected Species

Seasonal sensitivities for protected migratory species identified as potentially occurring within the PAA are identified in Table 4-15.

As shown in Figure 4-10, the Trunkline Operational Area overlaps the pygmy blue whale migratory corridor and the PAA lies 183 km from the possible pygmy blue whale foraging area off North-west Cape/Ningaloo Coast.

In September 2021, DAWE (now DCCEEW) and NOPSEMA released guidance on key terms within the Conservation Management Plan for the Blue Whale CMP⁸. This guidance recognises the potential for whale foraging and feeding to occur in areas of high primary productivity outside of designated foraging areas. Migrating pygmy blue whales are not necessarily confined to the designated migratory corridor, and there is the potential for individuals to undertake opportunistic foraging within and adjacent to the PAA, particularly during the northbound migration.

⁸ <https://www.environment.gov.au/epbc/publications/guidance-key-terms-blue-whale-conservation-management-plan>

Table 4-15: Key seasonal sensitivities for protected migratory species

Species	Life stage/Activity**	J	F	M	A	M	J	J	A	S	O	N	D
Marine turtles													
Green	Nesting	*	*									*	*
	Emergence	*	*	*									
Flatback	Nesting	*	*									*	*
	Emergence	*	*										
Hawksbill	Nesting										*	*	*
	Emergence	*											*
Loggerhead	Nesting	*											
	Emergence												
Marine mammals													
Pygmy blue whale	Northbound					*	*						
	Southbound											*	
Humpback whale	Northbound					*	*						
	Southbound								*				
Southern Right Whale	Calving/Presence					*	*						
Fish/Elasmobranchs													
Whale shark	Foraging – north of Ningaloo along 200 m Isobath												
Manta rays	Presence/aggregation-breeding (Ningaloo)												
Seabirds													
Wedge-tailed shearwater	Foraging/breeding				**								
Roseate tern	Breeding												
Lesser Frigatebird	Breeding												
Lesser Crested Tern	Breeding												
Fairy tern	Foraging/breeding												
Migratory shorebirds													
General	Peak presence (non-breeding)												

* Asterisk denotes peak periods.

** Note given the offshore location of the PAA, and distance from islands/mainland, specific life stages such as nesting do not occur in the PAA.

*** Wedge-tail shearwater rookeries have been confirmed on Goodwyn Island and Malus Island (Pendoley Environmental, 2022) and Malus Satellite, Lady Nora and northeast Enderby Island have had rookeries detected post survey (Pendoley Environmental, 2022). Peak breeding period denoted by fledging synchronised exodus period occurs in April (Advisian, 2022).

4.7 Key Ecological Features

Key ecological features (KEFs) are not MNES, however are considered components of a Commonwealth marine area. They are considered important for a marine region’s biodiversity or ecosystem-based functioning. Five KEFs overlap the EMBA, of which three overlap the PAA (Figure 4-13). KEFs within the EMBA are identified in Table 4-16.

Table 4-16: Key ecological features within the Petroleum Activities Area or environment that may be affected

Key Ecological Feature	Distance (km) and direction from PAA to KEF	Overlaps with EMBA	Description
Exmouth Plateau	Overlaps PAA (Offshore Operational Area and Trunkline Operational Area)	✓	Water depth: 500–5000 m. Unique seafloor features with regional ecological significance. Believed to affect deep water flow and associated with internal tides, contributing to localised upwelling.
Continental Slope Demersal Fish Communities	Overlaps PAA (Trunkline Operational Area only)	✓	High biodiversity values, hosting more than 500 fish species, 76 of which are endemic.
Ancient coastline at 125 m depth contour	Overlaps PAA (Trunkline Operational Area only)	✓	Water depths 115–135 m. Provides some hard benthic substrate for regionally significant biodiversity hotspots and localised upwelling. Recent surveys suggest less hard substrate may now exist that once thought, with prevalence of soft sediment that has infilled parts of the palaeo shoreline (Wakeford et al., 2023).
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	131 km south of Offshore Operational Area	✓	Interacts with Leeuwin Current to create localised upwellings and support aggregations of marine megafauna, migratory fish and seabirds.
Commonwealth waters adjacent to Ningaloo Reef	182 km south of Trunkline Operational Area	✓	Defined as the waters contained within the Ningaloo AMP and thus shares the same ecological values and integrity.

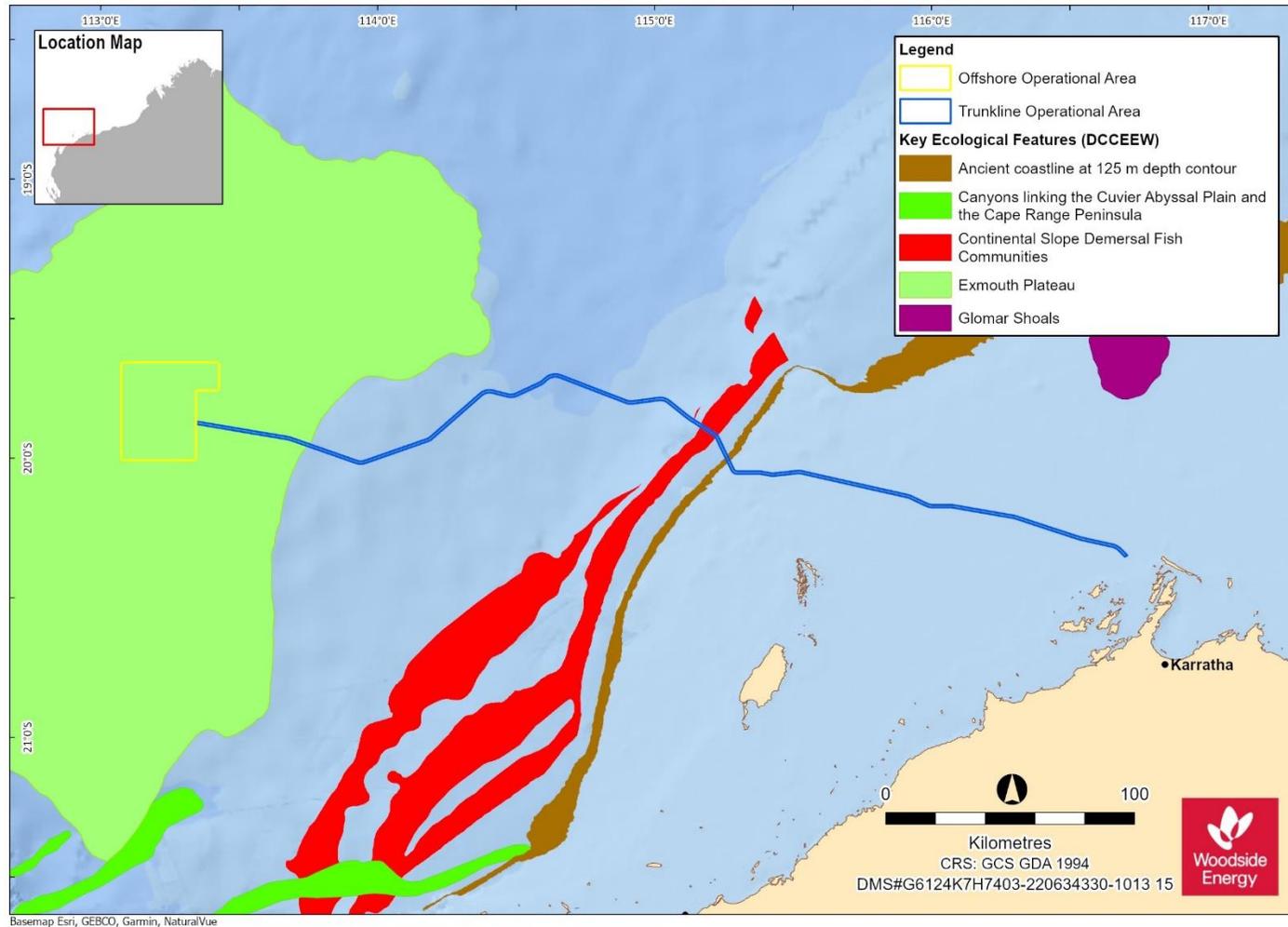


Figure 4-13: Key ecological features overlapping the Petroleum Activities Area

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4.8 Protected Places

Protected places within the PAA and EMBA are identified in Table 4-17 and presented in Figure 4-14 and the Scarborough OPP outlines the natural values and sensitivities of protected places and other sensitive areas in the PAA and EMBA.

Table 4-17: Established protected places and other sensitive areas overlapping the environment that may be affected

	Distance (km) and direction from PAA to protected place or sensitive area	IUCN category* or relevant park zone overlapping the PAA and/or EMBA
Australian Marine Parks (AMPs)		
Gascoyne AMP	77 km south of Offshore Operational Area	IUCN VI
	210 km south-west of Offshore Operational Area	IUCN II
	174 km south-west of Offshore Operational Area	IUCN IV
Dampier AMP	14 km east of Trunkline Operational Area (State Waters)	IUCN IV
	35 km east of Trunkline Operational Area (State Waters)	IUCN II
	44 km east of Trunkline Operational Area (State Waters)	IUCN VI
Ningaloo AMP	182 km south of Trunkline Operational Area (FPU end)	IUCN IV
Montebello AMP	Overlaps the PAA (Trunkline Operational Area only)	IUCN VI
State Marine Parks and Nature Reserves		
Marine Parks		
Montebello Islands	Numerous: 25 km, 39 km, 43 km, 46 km south of Trunkline Operational Area	IUCN II
	Numerous: 27 km, 38 km, 42 km south of Trunkline Operational Area	IUCN IA
	27 km south of Trunkline Operational Area	IUCN IV
	Numerous: 34 km, 35km, 35 km, 36 km, 37 km, 38km, 38 km, 39 km, 41 km, 41 km, 48 km south of Trunkline Operational Area	IUCN VI (Pearling)
Ningaloo	188 km south of Trunkline Operational Area (FPU end)	IUCN II
Barrow Island	74km south of Trunkline Operational Area (State Waters)	IUCN IA
Nature Reserve		
Great Sandy Island Nature Reserve	57 km south of Trunkline Operational Area	IUCN IA
Barrow Island	80km south of Trunkline Operational Area (State Waters)	IUCN IA
Lowendal Islands	62km south of Trunkline Operational Area (State Waters)	IUCN IA
Muiron Islands	185km south of Trunkline Operational Area (State Waters)	IUCN IA

	Distance (km) and direction from PAA to protected place or sensitive area	IUCN category* or relevant park zone overlapping the PAA and/or EMBA
Round Island	206km south of Trunkline Operational Area (State Waters)	IUCN IA
Serrurier Island	181km south of Trunkline Operational Area (State Waters)	IUCN IA
Conservation Park		
Montebello Islands Conservation Park	32 km south of Trunkline Operational Area (State Waters)	IUCN II
	43km south of Trunkline Operational Area (State Waters)	IUCN II
Marine Management Areas		
Barrow Island	40 km south of Trunkline Operational Area	IUCN VI
	74 km south of Trunkline Operational Area	IUCN IA
Muiron Islands	179km south of Trunkline Operational Area (FPU end)	IUCN VI
Unnamed Terrestrial Reserves ((5(1)(h) Reserves)		
Jurabi Coastal Park	197km south of Trunkline Operational Area (FPU end)	IUCN II
Unnamed WA36909	21km south of Trunkline Operational Area (FPU end)	IUCN II
Unnamed WA36910	18km south of Trunkline Operational Area (FPU end)	IUCN II
Unnamed WA40828	36km south of Trunkline Operational Area (State Waters)	IUCN V
Unnamed WA40877	16km south of Trunkline Operational Area (FPU end)	IUCN V
Unnamed WA41080	32km south of Trunkline Operational Area (State Waters)	IUCN V
Ramsar Wetlands of Importance		
None		
Nationally Important Wetlands		
None		
Other protected areas		
Fish Habitat Protection Areas		
None		

* Conservation objectives for IUCN categories include:

Ia: Strict Nature Reserve

Ib: Wilderness Area

II: National Park

III: Natural Monument or Feature

IV: Habitat/Species Management Area

V: Protected Landscape

VI: Protected area with sustainable use of natural resources – allow human use but prohibits large scale development.

IUCN categories for the marine park are provided and, in brackets, the IUCN categories for specific zones within each Marine Park as assigned under the North-west Marine Parks Network Management Plan 2018 and South-west Marine Parks Network Management Plan 2018.

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Page 139 of 752

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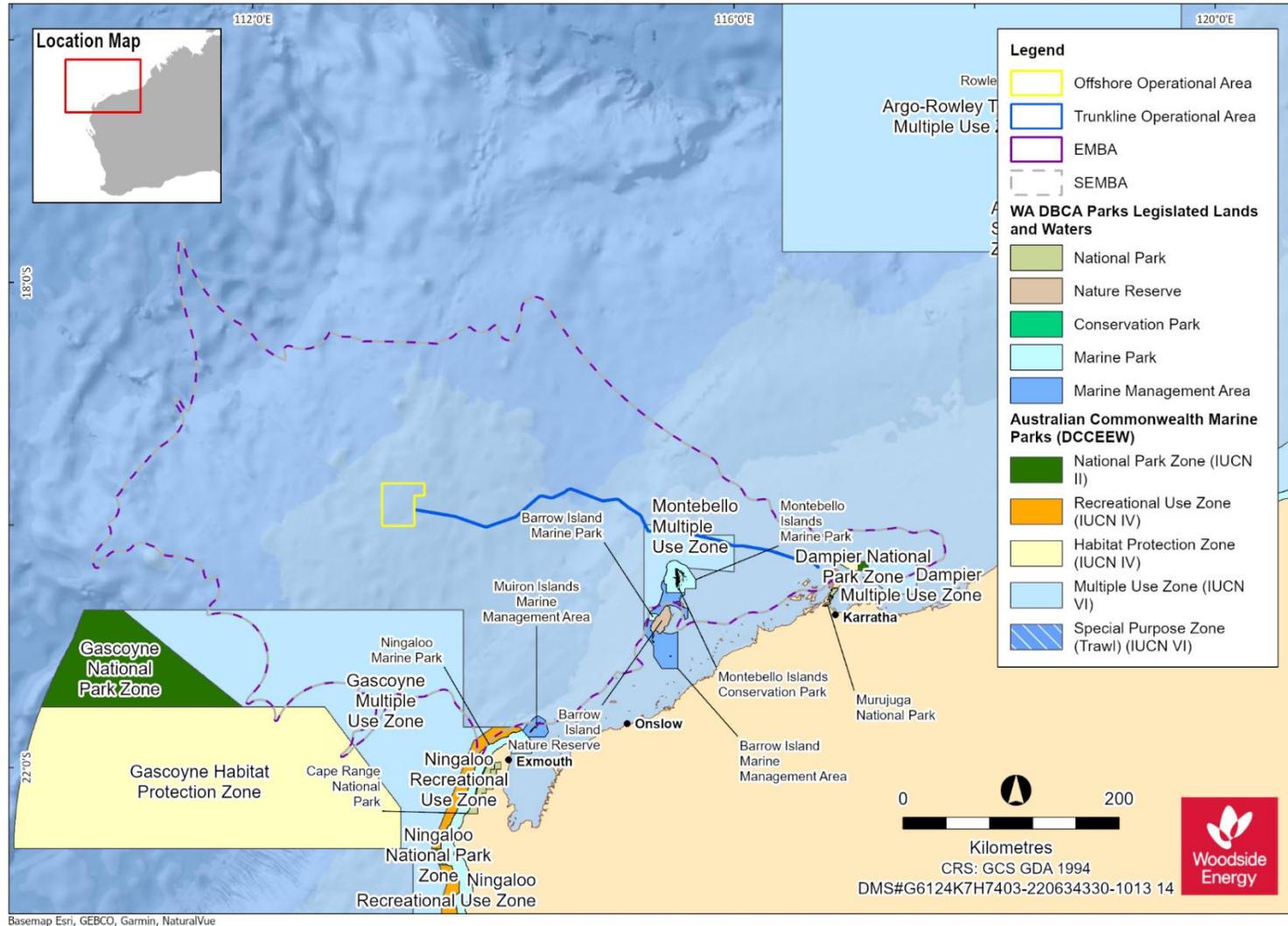


Figure 4-14: Protected areas overlapping the environment that may be affected

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4.9 Cultural Features and Heritage Values

4.9.1 Background

Woodside recognises that the 'environment' for the purpose of the evaluation under the Environment Regulations includes:

- the heritage value of places
- the social, economic, and cultural features of the broader environment.

In this section, the heritage value of places within the PAA and EMBA and the cultural features of the PAA and EMBA are described.

In line with The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (ICOMOS 2013) (Burra Charter) and associated practice notes, Woodside understands heritage value to refer to the cultural significance of a place to an individual or group. A cultural feature, by contrast, is understood to be comparable to the Burra Charter term “fabric” and refer to a place’s elements, fixtures, contents and objects which have cultural values. Although these features are necessarily physical, the place they inhabit or comprise may have tangible and intangible dimensions (ICOMOS 2013).

Woodside has undertaken archaeological assessments and ethnographic surveys to identify potential cultural values or features that may be impacted by Scarborough activities. These works have not identified heritage places, objects or values which will be impacted by the activities planned under this EP. However, through consultation with relevant persons, Woodside recognises the spiritual and cultural connection to the environment⁹ that First Nations people hold.

4.9.2 First Nations Peoples

As a starting point for understanding cultural features of the environment for First Nations groups, Woodside uses the existing systems, such as native title, to identify First Nations groups that may have functions, interests or activities that may be affected. To that end, Woodside identifies native title representative bodies and nominated representative entities (defined in Section 5), as well as native title claims, determinations and Indigenous Land Use Agreements (ILUAs) which the EMBA overlaps. Native title claims, determinations and ILUAs are defined under the *Native Title Act 1993* (Cth). While acknowledging that cultural features and heritage values may exist outside of the native title framework, Woodside considers this to be the broadest extent over which First Nations groups have claimed native title rights and interests.

Native title claims are applications made to the Federal Court under the *Native Title Act 1993* (Cth) for a determination or decision about native title in a particular area. A claim is made by a native title claim group which asserts it holds native title rights and interests in an area of land and/or water, according to its traditional laws and customs. By making a claim, the native title claim group seeks a decision that native title exists so that its native title rights and interests are recognised by the common law of Australia. This is called a native title determination. A determination is a decision by a recognised body, such as the Federal Court or High Court of Australia, that native title either does or does not exist in relation to a particular area (National Native Title Tribunal).

⁹ Regulation 5 of the Environment Regulations defines “environment” to mean:

- a) ecosystems and their constituent parts, including people and communities
- b) natural and physical resources
- c) the qualities and characteristics of locations, places and areas
- d) the heritage values of places, and includes
- e) the social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d).

A requirement to establishing a positive determination of native title in court is proving that there is an organised society that occupied the land and/or waters at the time of British annexation. The requirement of an 'organised society' is set out by Justice Toohey in the historic judgment of *Mabo v Queensland (No 2)* [1992] HCA 23; (1992) 175 CLR 1 ('Mabo'). Justice Toohey had the following to say (at 187):

it is inconceivable that indigenous inhabitants in occupation of land did not have a system by which land was utilized in a way determined by that society. There must, of course, be a society sufficiently organized to create and sustain rights and duties...

Therefore, Woodside understands that native title rights and interests are held communally by an organised society, that native title claims are understood to represent the area over which First Nations groups are claiming these rights and interests, and that native title determinations provide clarity on where native title rights and interests are found to either exist or not exist. Where native title rights or interests are determined to exist, they will be held by a Registered Native Title Body Corporate (section 57 of the *Native Title Act 1993* (Cth)) in trust or as agent for native title holders.

ILUAs are voluntary agreements between native title parties and other people or bodies about the use and management of land and/or waters and are registered by the Native Title Registrar in the Register of ILUAs. An ILUA can be made over areas where:

- native title has been determined to exist in at least part of the area, or
- a native title claim has been made, or
- where no native title claim has been made.

While registered, ILUAs operate as a contract between the parties, including relevant native title holders (National Native Title Tribunal).

The Native Title Act provides for a Representative Aboriginal/Torres Strait Islander Body (Native Title Representative Body) to be recognised by the Commonwealth Minister for an area. Native Title Representative Bodies have specialist functions set out in the Native Title Act within the area for which they are the Native Title Representative Body. However, the functions of a Native Title Representative Body are such that they do not hold details on the cultural features or heritage values of an area and therefore do not inform Woodside's understanding of heritage values or cultural features.

For the activity in this EP, there are 16 ILUAs and six native title claims or determinations overlapping or adjacent to the EMBA (see Figure 4-15).

4.9.3 Coastally Adjacent First Nations Groups

Woodside understands that First Nations groups are keenly aware of the extent of their rights, interests and responsibilities for Country, and these are generally discrete, defined areas, including areas of sea (Smyth 2007). To identify cultural features and heritage values which may exist outside of native title claim, determination and ILUA areas, Woodside considers native title claims, determinations and ILUAs coastally adjacent to the EMBA to be an instructive means of identifying potentially relevant First Nations groups to be consulted (See Table 5-2).

That said, Woodside understands from engagement with stakeholders that extending a native title group's responsibility to areas which those groups have elected not to include in their claims or ILUAs can have significant cultural consequences for First Nations groups and individuals. This may also, over time, build expectations in the broader First Nations community that a group is responsible for maintaining environmental values in areas for which they do not hold traditional knowledge. Woodside also acknowledges that a First Nations group's relative proximity to Operational Areas or EMBA is not necessarily a meaningful indicator of the connection of First Nations groups to the area and that providing advice over such areas can be culturally dangerous. As a result, caution must be used when conducting broader engagement.

There are no native title claims, determinations or ILUAs, native title rights or interests identified overlapping the PAA.

A summary of native title claims, determinations and ILUAs overlapping or coastally adjacent to the EMBA is illustrated in Figure 4-15 and set out in Table 4-18. Claims and determinations have not been differentiated in this table, as it is acknowledged that either of these may indicate the existence of rights and interests.

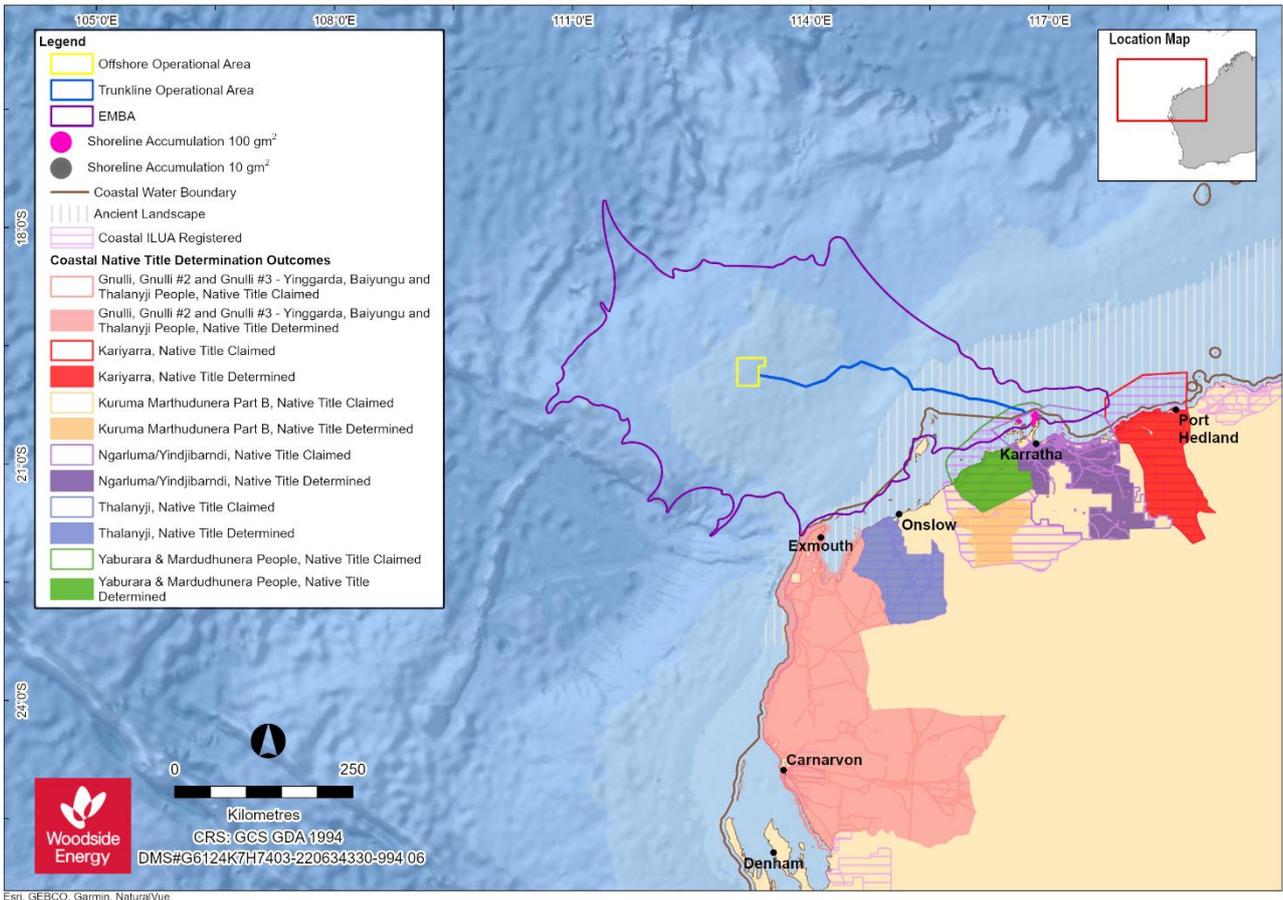


Figure 4-15: Petroleum Activities Area and environment that may be affected in relation to native title claims, determinations and Indigenous Land Use Agreements

Table 4-18: Summary of Native Title Claim or Determination and Indigenous Land Use Agreements that overlap or are coastally adjacent to the Environment that May be Affected

Claim/Determination/ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People	Yes – Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC), Yinggarda Aboriginal Corporation (YAC)	Yes	Yes
Ngarluma People	Ngarluma Aboriginal Corporation (NAC)	No	Yes
Ngarluma/Yindjibarndi People	NAC, Yindjibarndi Aboriginal Corporation	Yes	Yes
Ngarla People	Wanparta Aboriginal Corporation	No	Yes

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Claim/Determination/ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Thalanyji	Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	No	Yes
Yaburara & Mardudhunera People	Wirrawandi Aboriginal Corporation (WAC)	Yes	Yes
Kariyarra People	Kariyarra Aboriginal Corporation	Yes	Yes
Kuruma Marthudunera and Yaburara and Coastal Mardudhunera Indigenous Land Use Agreement	WAC, Robe River Kuruma Aboriginal Corporation	Yes	Yes
RTIO Ngarluma ILUA (Body Corporate Agreement)	NAC	Yes	Yes
Gnaraloo ILUA	NTGAC	No	Yes
KM & YM ILUA	WAC, Robe River Kuruma Aboriginal Corporation	Yes	Yes
Cape Preston Project Deed (YM Mardie ILUA)	WAC	Yes	Yes
RTIO Kuruma Marthudunera People ILUA	Robe River Kuruma Aboriginal Corporation	No	Yes
Macedon ILUA	BTAC	No	Yes
Ningaloo Conservation Estate ILUA	NTGAC	No	Yes
Anketell Port, Infrastructure Corridor and Industrial Estates Agreement	NAC, Kariyarra Aboriginal Corporation	Yes	Yes
Brickhouse and Yinggarda Aboriginal Corporation ILUA	YAC	No	Yes
Cape Preston West Export Facility	WAC	No	Yes
Quobba – Yinggarda Pastoral ILUA	YAC	No	Yes
FMG – Kariyarra Land Access ILUA	No representative body specified	Yes	Yes
Atlinta-Kariyarra Electricity Infrastructure ILUA	No representative body specified	Yes	Yes
Cape Preston Project Deed (YM Mardie ILUA)	Wirrawandi Aboriginal Corporation	Yes	Yes
Kariyarra and State ILUA	Kariyarra Aboriginal Corporation	No	Yes

4.9.3.1 Marine Parks

Woodside acknowledges that Commonwealth and State Marine Park Management Plans have sought to recognise cultural values of First Nations groups. Australian Marine Parks (AMP) describe this framework in the following way: ‘when making decisions about what can occur in marine parks and what action we will take to protect marine parks, we take values into account’. AMP summarises these values as natural values, cultural values, heritage values and socio-economic values. Woodside undertakes an assessment of cultural values within Marine Park Management Plans where the operational area or EMBA overlaps an AMP. Woodside considers the management plans of marine parks that overlap the Operational Area and the EMBA to determine whether cultural features and heritage values have been identified and whether there are specified representative bodies referenced to contact regarding potential cultural features and heritage places.

The Trunkline Operational Area overlaps features of the Montebello AMP. The EMBA overlaps features of a further three AMPs under the North-West Marine Parks Network Management Plan 2018. The PAA does not overlap any State Marine Parks, however the EMBA overlaps two State Marine Parks. Where these plans specify identifiable representative bodies who may hold knowledge of heritage values or cultural features—including but not limited to Registered Native Title Bodies Corporate—these bodies are consulted (Appendix F: Consultation, Table 1). Consultation with these groups may identify heritage values and cultural features beyond those addressed in the marine park management plans. Four identifiable representative bodies were specified for the AMPs overlapped by the EMBA (see Table 4-19).

The marine park management plans note for the Dampier, Gascoyne, Montebello and Ningaloo AMPs that the Yamatji Marlpa Aboriginal Corporation (YMAC) is the relevant Native Title Representative Body. Consultation with YMAC included discussion of the Traditional Custodians who may hold knowledge of heritage values or cultural features (see Appendix F: Consultation, Table 2).

Table 4-19: Summary of Commonwealth and State Marine Park Management Plan overlap with the environment that may be affected

Marine Park Management Plan	PAA Overlap	EMBA Overlap	Specified Bodies
Commonwealth Marine Park Management Plan			
Gascoyne AMP	No	Yes	NTGAC, YAC
Dampier AMP	No	Yes	NAC, YAC, YMAC
Ningaloo AMP	No	Yes	NTGAC, YMAC
Montebello AMP	Yes	Yes	YMAC
State Marine Park Management Plan			
Montebello/Barrow Islands Marine Conservation Reserves	No	Yes	No identifiable body specified
Ningaloo Marine Park and Muiron Islands Marine Management Area	No	Yes	Yamatji Marlpa Barna Baba Maaja Aboriginal Corporation (now renamed to YMAC)

In the management plans for the AMPs it is noted that “Sea country is valued for Indigenous cultural identity, health and wellbeing.” Cultural identity is understood to refer to the fact that “essence of being a 'Saltwater' person is ontological rather than merely technological. That is, it is about how people relate spiritually to the sea and engage with spiritual forces that created it, the marine flora and fauna and people.” (McDonald and Phillips, 2021).

The North-West Marine Parks Network Management Plan 2018 notes shipwrecks within the AMPs and overlap with World, National and Commonwealth heritage lists. These are addressed in Sections 4.9.8 and 4.9.9.

The Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005 – 2015: Management Plan Number 52 (relating to the Muiron Islands Marine Management Area and Ningaloo Marine Park) notes the aesthetic values of the seascape as a cultural value and that “Panoramic vistas of turquoise lagoon waters, reefs, beaches, breaking surf and the blue open ocean beyond the reef line are major attractions of the reserves.” In particular, the plan notes that “Inappropriate structures along the coastline, on the islands and in the surrounding waters have the potential to degrade the aesthetic values of the reserves. Coastal developments and maritime infrastructure projects must therefore be planned with careful consideration of this issue.” As the Petroleum Activities Program described in this EP does not include the addition of any structures within these parks, no impacts on the aesthetic values of these parks are anticipated.

A number of management plans for the state marine parks also note Indigenous and maritime heritage within the marine parks. These are addressed in Section 4.9.4 and Section 4.9.8.

4.9.4 Sea Country Values

'Sea Country' can be defined as the area of sea over which a First Nations group has interests, cultural value, connection and use. It has been noted that "the saltwater peoples of the north-west are associated with discrete clan estates or tribal areas, often referred to in contemporary Aboriginal English as 'saltwater country' or 'sea country'. "Country refers to more than just a geographical area: it is shorthand for all the values, places, resources, stories and cultural obligations associated with that geographical area." (Smyth 2007). "Sea country is valued for Indigenous cultural identity, health and wellbeing" (DNP 2018a, 2018b). Cultural identity is understood to refer to the fact that "essence of being a 'Saltwater' person is ontological rather than merely technological. That is, it is about how people relate spiritually to the sea and engage with spiritual forces that created it, the marine flora and fauna and people" (McDonald and Phillips, 2021).

In terms of seascape extent, McNiven (2004) suggests that "For those mainland groups whose exploitation of the sea was limited to littoral resources, it is likely that seascapes extended no more than c. 20–30 km out to sea, out to the horizon and the limit of human visibility. ... However, in some coastal places, clouds that can be seen well over 100 km out to sea are imbued with spiritual significance. For those groups with elaborate canoe technology, seascapes extend well over the horizon." While there is some evidence of traditional watercraft in Australia's North West, the recorded evidence is limited to travel across inland rivers (e.g. Barber and Jackson, 2011) or travel between coastal islands (Paterson et al 2019).

Woodside recognises the potential for marine ecosystems to include cultural features as well as environmental values. The link between environmental protection and cultural heritage protection is illustrated in the Australian Government's Indigenous Protected Areas Program. The Indigenous Protected Areas program provides for "areas of land and sea managed by Indigenous groups as protected areas for biodiversity conservation...IPAs deliver environmental benefits...Managing IPAs also helps Indigenous communities protect the cultural values of their country for future generations..." (NIAA, 2024). This intrinsic link concept is also described by MAC (2021) as it relates to the values of the marine environment that are of cultural importance to MAC based on engagement with their Elders and Murujuga Land and Sea Unit Rangers. Elders were clear that all living things in Mermaid Sound are connected, and that Mermaid Sound and Dampier Archipelago (Murujuga) are considered one place where the entire environment and all ecosystems hold both cultural and environmental value, with these types of values (cultural and environmental) intrinsically linked (MAC, 2021 as cited in Woodside, 2023a).

Cultural features of coastal areas may include marine species that may travel many thousands of kilometres through areas with similar cultural values to multiple Indigenous language groups. Some species may travel as far as 5,000 km from Antarctica to the Kimberley region of Western Australia (Double et al., 2010, 2012), passing Indigenous language groups along the entire west coast of Australia. Distribution and migratory patterns of migratory species are described in Section 4.6.

Sea country values have been defined using multiple lines of evidence including:

- desktop assessment of sea country values from publicly available sources
- specific studies including ethnographic surveys and archaeological heritage assessments
- consultation with First Nations groups and individuals.

The process for identifying First Nations groups who may have interests and connection in Sea Country are set out in Section 4.9.3 and Section 5. The scope of advice Traditional Custodians were encouraged to provide through ethnographic surveys (see Section 4.9.4) or through project consultation was not limited by reference to any particular boundaries or limits of Sea Country.

4.9.4.1 Desktop Assessment of Sea Country Values

4.9.4.1.1 Cultural Features and Heritage Values Identified in Publicly Available Literature

Publicly available sources were assessed for records of previously identified Sea Country values or cultural features that may overlap with the PAA or EMBA. Where cultural features or Sea Country values were identified these are summarised in Table 4-20 according to the First Nations groups (where identified or inferable) who hold these values.

Cultural features and heritage values are restricted to onshore locations above the highest astronomical tide (HAT) or inland waters and where the geographical extent is not specified or unclear it has been included for completeness.

Table 4-20: Cultural features and heritage values identified in publicly available literature

First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
Gnulli (Baiyungu, Thalanyji, Yinggarda)	Feature: resources including marine animals. Value: traditional knowledge holds that ancestors live on the land and in the water. Therefore, people have obligations to access and care for these places (e.g., keeping them clean).	Peck on behalf of the Gnulli Native Title Claim Group v State of Western Australia [2019] FCA 2090	Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified)
	Feature: heritage sites in the Ningaloo region include shell middens, artefact scatters, skeletal material/burial sites, camps, meeting places, hunting places and water sources. Feature: resources including gajalbu (emu), bundgurdi (kangaroo), bardurra (bush turkey), majun (marine turtles), turtle eggs, bilygurumarda (osprey), fish, shellfish and plants. Feature: mudflats, mangroves and sand dunes provide a critical breeding ground for marine and terrestrial wildlife. Value: the Ningaloo region contains cultural heritage dating back at least 32,000 years, including ceremonial thalu sites. Value: connection to Country is important to the Traditional owners' spirituality and religion. Value: caring for Country - "The southern coastal reserves along the Ningaloo Coast are jointly managed by Traditional Owners and the DBCA. The Joint Management Body ensures that the Traditional Owners have an opportunity to make decisions about environmental management and land use". This document also includes information that is marked that cannot be copied, reproduced or used without consent.	DBCA 2020	No Possible (turtles, fish) No (other resources) No No Possible (unspecified) No	Possible (Shoreline accumulation areas) Possible (turtles, turtle eggs, fish, shellfish) No (other resources) Possible (mangroves) Possible (unspecified, but likely refers to onshore areas outside the EMBA) Possible (unspecified, but likely due to location of EMBA) Yes
	Feature: resources including mangrove crabs, gastropods, shellfish, dugong, turtle.	Morse 1993.	Possible (turtles, dugong) No (other resources from a cultural context)	Possible (all)
	Value: traditional knowledge recalls that a salt water serpent lives in the sea and brings fish to shore.	Zaunmayr 2016	Possible (unspecified)	Possible (unspecified)

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First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
Ngarda-Ngarli (Mardudhunera, Ngarluma, Wong-Goo-Tt- Oo, Yaburara and/or Yindjibarndi)	Feature: archaeological sites on Murujuga. Feature: ceremonial sites. Feature: dreaming sites.	Department of the Environment and Heritage 2006	No No Possible (unspecified)	Possible Possible (unspecified) Possible (unspecified)
	Value: traditional knowledge recalls that the sea is a source of creation for flying foxes. Value: petroglyphs are understood as permanent signs left by ancestral beings. Value: petroglyphs depict the law. Value: cultural obligations to look after places of special potency. Value: petroglyphs are important in initiation and education.	DEC 2013	Possible (unspecified) No No Possible No	Possible (unspecified) Possible (submerged) Possible (submerged) Possible Possible (submerged)
	Value: the sea is acknowledged a starting point for songlines, including the flying fox songline.	MAC 2023a	Possible (unspecified)	Possible (unspecified)
	Feature: resources including fishes, turtles and dugong. Value: traditional knowledge recalls a sea serpent which travelled from the coast to inland pools.	Water Corporation 2019	Possible (turtles, dugong, fish) Possible (unspecified)	Possible (turtles, dugong, fish) Possible (unspecified)
	Value: traditional knowledge recalls a water serpent from the ocean now lives in an inland pool. He created many sites and punishes law breakers. Value: In a separate account a sea serpent punishing people was driven back to the sea by a freshwater serpent.	Barber and Jackson 2011	Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified)
	Value: traditional knowledge recalls Manggan created the seas.	NAC n.d.	Yes	Yes
	Value: traditional knowledge recalls Pannawonica Hill being carried from the sea near Barrow Island or Murujuga by a spirit bird.	Hook et al 2004.	Possible (unspecified)	Possible
	Value: traditional knowledge recalls Murujuga is where ancestral beings emerged from the sea and brought the Law.	Australian Heritage Council 2012	Possible (unspecified)	Possible (unspecified)
	Feature: Submerged First Nations archaeological sites in Cape Bruguieres channel.	Benjamin et al 2020	No	No
	Feature: Submerged First Nations archaeological sites in Cape Flying Foam Passage.	Benjamin et al 2023	No	No

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First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
	Value: traditional knowledge recalls Maarga (creation ancestors) lifted the land and sky out of the ocean.	Milroy and Revell 2013 Japingka Aboriginal Art Gallery 2023.	Possible (unspecified)	Possible (unspecified)
	Feature: submerged waterholes related to the Kangaroo songline. Value; traditional knowledge holds that Songlines continue beyond the current coast and across the submerged landscape.	Kearney et al 2023.	Possible Possible (unspecified)	Possible Possible (unspecified)
	Value: songlines are captured through storytelling, rock art, songs and dance, and in the landmarks themselves. Value: Murujuga is the start of many songlines, including the Seven Sisters.	Bainger 2021	Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified)
	Value: songlines at Murujuga date back to times when the sea-level was lower.	MAC 2023b.	Possible (unspecified)	Possible (unspecified)
	Feature: rock art Feature: sacred sites	Weerianna Street Media Production 2017.	No Possible (unspecified)	Possible (submerged) Possible (unspecified)
	Feature: resources including fish, turtles. Feature: fish traps exist throughout the archipelago. Feature: shell middens exist on coastal margins. Feature: submerged archaeological sites. Value: Law emerged from the sea and travelled inland.	Leach 2020.	Possible (turtles, fish) No No No Possible (unspecified)	Possible (turtles, fish) Possible Possible Possible Possible (unspecified)
	Feature: resources including mangrove seeds, turtles, turtle eggs) Value: it is recalled that ceremonies were conducted on islands.	Smyth 2007	Possible (turtles) No (other resources)	Possible (turtles, turtle eggs, mangrove seeds) Possible (unspecified)
	Feature: archaeological sites on Murujuga.	McDonald 2015 McDonald 2023	No	Possible (submerged)
	Feature: archaeological sites on Enderby Island.	McDonald et al 2022a	No	No
	Feature: archaeological sites on Rosemary Island.	McDonald et al 2022b	No	No

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First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
	Feature: petroglyph and other archaeological sites at Murujuga. Feature: archaeological evidence of the use of resources including fish, turtles, marine mammals, crocodiles, crabs and sea urchins.	Dortch et al 2019	No Possible albeit unlikely (submerged)	Possible (submerged) Possible (submerged, highly unlikely for most evidence of faunal use to survive inundation)
Thalanyji	Feature: resources including fish, shellfish, crabs, crustaceans, sea urchins, turtle, dugong and flora and fauna associated with mangrove communities. Feature: archaeological sites on Barrow Island. Value: connection to Country.	Commonwealth of Australia 2002	Possible (fish, turtle, dugong, invertebrates) No Possible (unspecified)	Possible (fish, turtle, dugong, invertebrates) Possible (Barrow Island based on potential shoreline contact) Possible (unspecified)
	Feature: resources include turtles, eggs, fish, shellfish and plants.	DBCA et al. 2002	Possible (fish, turtle)	Possible (fish, turtle, eggs, shellfish)
	Value: traditional knowledge recalls a water snake is located in inland waters.	Hayes on behalf of the Thalanyji People v State of Western Australia [2008] FCA 1487	No (inland waters)	No (inland waters)
	Value: connection to Country. Value: transfer of knowledge. Value: access to Country.	DBCA 2022	Possible (unspecified) Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified) Possible (unspecified)
	Value: access to Barrow and possibly Montebello Islands	Hook et al. 2004	No	Possible
	Feature: artefact scatters are located in coastal sand dunes. Feature: burials are located in coastal sand dunes. Value: traditional knowledge recalls a water snake is located in inland waters.	Hook 2020	No No No	Possible (shoreline accumulation areas) Possible (shoreline accumulation areas) No
	Feature: archaeological sites are located on Barrow Island.	Ditchfield et al. 2018 Paterson 2017	No	Possible (Shoreline accumulation areas)

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First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
	Feature: archaeological sites are located at Barrow and Montebello Islands.	Dortch et al. 2019.	No	Possible (Shoreline accumulation areas— Barrow Island)
	Feature: archaeological evidence of the use of resources including fish, turtles, marine mammals, crocodiles, crabs and sea urchins.		No	Possible (submerged, highly unlikely for most evidence of faunal use to survive inundation)
	Feature: thalu ceremonial sites for the increase of turtle, shark, ray, fish, squid, octopus, hill kangaroo and emu. Feature: ceremonies. Value: connection to Country. Value: transfer of knowledge. Value: access to Country.	DBCA 2022	No No Possible Possible Possible	No (ceremonial use) Possible (submerged thalu sites e.g., petroglyphs) No Possible Possible Possible
Unspecified	Feature: the ocean can include sacred sites and songlines. Value: people have kin relationships to important animals, plants tides and currents.	Smyth 2008	Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified)
	Feature: archaeological sites in submerged landscapes.	Bradshaw 2021.	No	Possible
	Value: sea country has customary law defining ownership and management rights and responsibilities.	Muller 2008.	Possible (unspecified)	Possible (unspecified)
	Value: knowledge of Sea Country Value: connection to Sea Country Value: care for Sea Country Value: the extent of Sea Country is determined by the travels of dreaming ancestors. This is recorded and conveyed through songlines.	Kearney et al 2023.	Possible (unspecified) Possible (unspecified) Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified) Possible (unspecified) Possible (unspecified)
	Feature; archaeological sites indicate that islands were occupied prior to sea level rise.	DBCA 2020	No	Possible (submerged)

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First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
	<p>Value: sea country includes values, places, resources, stories and cultural obligations.</p> <p>Value: activities relating to resources included:</p> <ul style="list-style-type: none"> • dugong hunting • turtle hunting • turtle egg collecting • seabird egg collecting • spearing fish • reef trapping fish • herding fish • line fishing • collecting fish in stone fish traps • poisoning fish • gathering shellfish and other marine resources. 	Smyth 2007	Possible	Possible
	<p>Value: people have kinship relationships with every plant and animal.</p> <p>Value: certain species, including fish and seafood, must not be eaten during initiation rituals due to their sacredness to the creation being Barrimirndi. Breaking this law may lead to cyclones.</p>	Juluwarlu 2004	Likely to occur	Likely to occur
	<p>Feature: tangible and intangible heritage.</p> <p>Feature: archaeological evidence of varied occupation and adaptation.</p> <p>Value: a distinct way of life centred around the use of limited water and coastal resources.</p>	Macfarlane and McConnell 2017	<p>Possible (unspecified)</p> <p>No</p> <p>No</p>	<p>Possible (unspecified)</p> <p>Possible (submerged, highly unlikely for most evidence of faunal use to survive inundation)</p> <p>Possible (unspecified)</p>

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4.9.4.1.2 Cultural Features and Heritage Values Identified in Other Assessments

In addition to publicly available literature, Woodside has reviewed its own publicly available Cultural Heritage Management Plan (CHMP) which was developed in consultation with MAC for the nearshore installation of the export trunkline. The CHMP identifies a list of features which may hold heritage values. Not all features on this list, included in Table 5-7 of the CHMP, exist in the area relevant to the CHMP or in the EMBA for this EP (Woodside, 2023a).

The features listed in the CHMP include, at the highest level:

- A Tangible Heritage
- B Ethnographic Sites
- C Intangible Heritage
- D Heritage Landscapes
- E Features with National Heritage Values
- F Features with Outstanding Universal Values
- G Submerged Heritage
- H Features with Values to Neighbouring Groups.

Features described by items A to G are discussed for the purposes of this EP elsewhere in Section 4.9. Item H in the CHMP recognises that Traditional Custodians of Country beyond Murujuga may hold values such as those in items A-G. Given the scope of relevant persons considered under this EP (relevant persons consulted in the course of preparing this EP have interests in the EMBA which extends well beyond Murujuga), the distinction between cultural heritage on Murujuga and beyond Murujuga is not considered meaningful. Where features were noted to exist in or near the area relevant to the CHMP, Table 4-21 considers their relevance to the EMBA.

Table 4-21: Values identified in the Scarborough Cultural Heritage Management Plan (Woodside, 2023a)

Feature		Identification in the CHMP	Relevance to the EMBA
A.1.a	Petroglyphs	Noted onshore only.	The EMBA overlaps the Ancient Landscape where these features may exist.
A.1.b	Artefact scatters	Archaeological assessment of the submerged landscape (UWA 2021) assessed the likelihood of impacting potential archaeological Indigenous heritage such as artefact scatters/middens in the nearshore or offshore Development Envelope as low to nil.	The EMBA overlaps the Ancient Landscape where these features may exist.
A.1.d	Middens		
D.3	Submerged calcarenite ridges	Calcarenite features at the edge of the continental shelf are young enough that they may include artefacts, but these features are covered by modern sediments and marine growth, and the export trunkline will be installed over this. These calcarenite ridges will be crossed by the export trunkline.	Exists within EMBA
A.1.b.i	Site 19675 (Tool Shed)	Noted onshore only.	Outside of EMBA
B.1	Features with spiritual values	It was concluded that ethnographic sites with spiritual values exist outside	No ethnographic sites have been identified within the EMBA.

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Feature		Identification in the CHMP	Relevance to the EMBA
B.2	Features with social/cultural values	of the Development Envelope (Mott 2019, McDonald and Phillips 2021). No impacts from the Project to ethnographic sites were foreseen during these consultations. It was concluded that ethnographic sites which may have social and cultural values exist outside of the Development Envelope (Mott 2019, McDonald and Phillips 2021). No impacts from the Project to ethnographic sites were foreseen during these consultations.	
B.1.a	Songlines	It was concluded that ethnographic sites and features connected to songlines exist outside of the Development Envelope (Mott 2019, McDonald and Phillips 2021). No impacts from the Project to ethnographic sites were identified during these surveys. Woodside notes that trunklines and other infrastructure including shipping channels already exist in close proximity to the proposed export trunkline route, and if there were to be any impacts to surviving songlines these would be significantly more likely to be described as qualitative (i.e. “weaken” a songline) rather than binary or absolute (i.e. destroy a songline).	Areas identified in the CHMP with connection to songlines or stories were limited to onshore locations and islands not included within the EMBA.
C.1.b	Stories		
B.2.a	Places for which access must be preserved	Noted onshore only.	Limitation of access is a relevant consideration within the EMBA.
C.1	Living culture	The continuous living culture of Murujuga is a component of the Outstanding Universal Values proposed as a justification for World Heritage Listing.	Ongoing access, connection to Country and transfer of knowledge are relevant considerations for the EMBA.
C.1.a	Customs	Consultation with MAC has identified concerns about the movement of rocks to and from Country as requiring consultation with representatives of other areas.	Relevant consideration for PPA where rocks are locally sourced. Not relevant to internationally sourced rocks.
C.2.a	Animals of medicinal/food/economic value	Miscellaneous values as identified in MAC 2021.	The relevant values of MAC 2021 are considered in Section 4.9.4.1 .
C.2.c	Plants		
C.2.c.i-vi	Plants (misc values)		
D.1	Conservation zones	Noted onshore only.	Outside of EMBA
D.4	Submerged hills	Archaeological assessment of the submerged landscape (UWA 2021) identified submerged hills which may have archaeological or other heritage values.	Exists within EMBA

Feature		Identification in the CHMP	Relevance to the EMBA
D.5.a	Rivers	<p>Archaeological assessment of the submerged landscape (UWA 2021) identified a submerged river which may have archaeological or other heritage values but confirmed that the export trunkline does not cross this feature.</p> <p>Review of SSS data (Nutley 2022b) concluded that “In the middle shelf and outer shelf there were no indicators of former riverbeds, creek lines or lakes with which [any archaeological] feature may be associated.”</p>	The EMBA overlaps the Ancient Landscape where these features may exist.

4.9.4.2 Studies of Cultural Features and Heritage Values

4.9.4.2.1 First Nations Archaeological Heritage Assessment

Woodside understands that communal cultural connection may exist between Traditional Custodians and land and waters. It is understood from the onshore archaeological record that First Nations people have occupied the Australian continent for at least 65,000 years (Clarkson et al 2017) and in many places maintain a strong continuing connection that is said to extend back in First Nations cosmology to the beginning of time.

It is understood that the sea level has risen significantly during the 65,000 years of First Nations occupation, and areas that were once inhabited are now submerged on the continental shelf (Veth et al., 2019; UWA, 2021). Woodside also understands that, at its lowest level during First Nations occupation, sea level was between 125 m (O’Leary et al., 2020; Veth et al., 2019; Williams et al., 2018) and 130 m below current levels (Benjamin et al., 2020; Benjamin et al., 2023; UWA, 2021). Archaeological material preserved on the Ancient Landscape has the potential to provide further information about the earliest periods of human occupation (Veth et al., 2019; UWA, 2021).

Recent archaeological discoveries demonstrate that the now submerged landscape was occupied and inhabited and can retain archaeological material from this time (Benjamin et al., 2020; Benjamin et al., 2023; see Ward et al., 2022 for an opposing view).

In recognition of this, Woodside considers the Ancient Landscape between the mainland and the Ancient Coastline KEF (see Table 4-16) as an area where potential First Nations archaeological material may exist on the seabed, as this covers the full extent of this possible First Nations occupation. The PAA intersects part of the Ancient Landscape but also extends beyond the furthest extent of the Ancient Landscape.

Archaeological material on the Ancient Landscape is a relevant matter for the proposed activity given the overlap, and potential for seabed disturbance related to planned IMMR activities along the export trunkline and therefore potential for impacts to archaeological material. Woodside undertakes desktop assessments of archaeological potential, based on geophysical and bathymetric data, for any seabed disturbance at depths of less than 130 m. These assessments did not identify any archaeological sites or values in Commonwealth waters that may be impacted by the Petroleum Activities Program.

Known First Nations heritage places including archaeological sites may be protected subject to declarations under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth), *Underwater Cultural Heritage Act 2018* (Cth) or EPBC Act. However, these Acts only extend protection to First Nations heritage places specified by declaration or otherwise included on a statutory list. Woodside understands that there is no First Nations archaeology known to exist

anywhere within Commonwealth waters and no areas subject to declarations or prescriptions under these Acts are located within the EMBA.

For this EP, a search of DPLH's Aboriginal Heritage Inquiry System was undertaken, which showed 58 Registered Aboriginal Sites and 5 Lodged Aboriginal Sites in the EMBA (see Appendix D: Aboriginal Cultural Heritage Inquiry System Searches).

Woodside has conducted extensive assessments described below (along with consultation) to adequately understand and describe the existing environment. If further relevant information on cultural values is received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7).

Where First Nations archaeological material is identified within the EMBA, Woodside will discuss the management of this material with appropriate Traditional Custodian group(s), starting with any adjacent Native Title Body Corporate.

Existing Research and Desktop Assessment

In Australia until recently, the consideration of submerged archaeological sites has generally focused on the sub-discipline of maritime archaeology with connection to Australian Indigenous archaeology through studies of Indigenous fish-traps, whaling stations and shipwreck survivor camps. However, except for Indigenous fish traps in intertidal zones, the consideration of Indigenous heritage sites submerged by post-glacial sea-level rise has only recently been considered (Mott, 2019).

There has been long and continuous occupation of the coastal Pilbara region as evidenced by scientific studies (Balme et al., 2009; McDonald et al., 2018; Veth et al., 2017). Petroglyph motifs feature a range of subject matter with many examples depicting extinct fauna and early stylistic techniques (McNickle, 1984; McDonald, 2005; Mulvaney, 2009, 2010, 2013).

To assess and define potential for preservation of submerged Late Pleistocene and Holocene sediment bodies that may contain preserved archaeological deposits, modelling on continental shelf development in the Dampier Archipelago has been undertaken. Analysis and modelling between the Last Glacial Maximum, through the Holocene marine transgression and up to the present day has shown that archaeological materials, if present, would most likely be evident in deposits associated with the early phases of inundation of the Dampier Archipelago, dating from around 9 to 7 ka before present (BP) (Ward et al., 2013). In contrast, the study proposes that coastal archaeology older than about 12 ka BP, when the post-glacial sea levels were below about 50 m, will have been exposed to a phase of faster tidal currents on the continental shelf, and hence eroded or poorly preserved (Ward et al., 2013). These areas of hypothesised lower preservation potential include most of the PAA relevant to this EP (see Table 3-2).

A paper examining terrestrial analogy as a predictive tool for targeting submerged archaeological sites, provides several key elements to consider when examining the potential for identifying and managing submerged Indigenous heritage sites (Veth et al., 2019). Analysis of more than 2,500 known archaeological sites from the Dampier Archipelago reveals that the vast majority are rock art sites, but these are interspersed by a significant number of artefact scatters, myriad stone structures, shell middens, and quarry and reduction areas. Most of these sites are focused on coastal and interior valleys, associated uplands, and coastal embayments. While over two thirds of sites occur on granophyre and basalt substrates, the others are located on quaternary sediments. Regional research on nearby continental islands shows that use of these environments can be expected to pre-date sea-level rise (Veth et al., 2019).

Through the Deep History of Sea Country (DHSC) project, researchers undertook a systematic and hierarchical approach to underwater investigation of the submerged landscapes at Murujuga (Dampier Archipelago). The researchers looked at the previously recorded Indigenous heritage sites from terrestrial surveys and used principles of geological, geomorphological and environmental associations to extrapolate to submerged landscapes. Where possible, the research considered submerged landscape principles as comparable but recognised that a range of factors may affect

direct comparisons. A major constraint to any comparative studies is the shortage of marine stratigraphic, paleo-environmental, or geochronological data, and thus comparisons were initially divided into hard (crystalline) rock and soft (sedimentary) rock contexts, with the relative age of a potential site or deposit based on bathymetry (i.e., depth below modern sea level) and morphological setting. These essentially inform and delineate prospective target areas for broad-scale underwater mapping (Veth et al., 2019).

The sites considered most likely to survive inundation, based on the review of existing literature, were logically the more robust forms including:

- midden and artefacts within cemented dunes, relict water holes, and beach rock deposits
- quarry outcrops, extraction pits, and associated reduction debris in fine-grained volcanic outcrops
- curvilinear stone structures and standing stones sitting on volcanic pavements and jammed into volcanic rock piles
- lag deposits of artefacts and possibly midden on hardpan in suitable landscape contexts with good preservation conditions (e.g. shallow declination shorelines in sheltered passages of the inner archipelago or on the leeward side of hard-rock/fringing reef cause-ways adjacent to the outer islands)
- small overhangs and shelters with preserved deposits, facing away from the dominant wave and wind action. (Veth et al., 2019).

Geotechnical sampling along the export trunkline route has shown that sediments are predominantly comprised of soft silty sands and therefore those landforms other than the first are highly unlikely to be present along the export trunkline alignment. Rocks such as the dolerites, gabros and other volcanic rocks on which Murujuga rock art is found are not present in the PAA.

Integrated Heritage Services was engaged by Woodside to conduct an Indigenous heritage desktop investigation and initial ethnographic consultations with Traditional Custodian representatives, for the offshore and landfall component of the project (Mott, 2019). After the finalisation of Mott (2019), the conclusions of Veth et al (2019) were tested through direct inspection with DHSC divers which led to the discovery of two locations with Indigenous underwater cultural heritage (Benjamin et al., 2020) in Flying Foam Passage and Cape Bruigeres in State waters outside the EMBA. This demonstrated the potential for underwater cultural heritage (UCH) to exist on the NW Shelf and highlighted the need to assess the potential impacts of offshore developments on submerged heritage landscapes (UWA, 2021).

MAC was consulted during the development of the Scarborough Project (Nearshore Component) Dredging and Spoil Disposal Management Plan (DSDMP) which included Commonwealth activities associated with Scarborough project construction activity for full activity context. As a part of the DSDMP consultation, MAC advised that DHSC had identified two areas considered “culturally prospective”:

The first is the Madeline [sic] Shoals, which... is formed of the same igneous geology as the other areas of the archipelago where sub-tidal archaeological sites have been found. The second area is a 3 km wide relict submerged paleo beach barrier system that extends across the northern entrance to Mermaid Sound, over which the proposed trunk line route passes. This is an area of hard grounds... with high potential to contain Aboriginal lithic materials cemented within the deposits.

Scarborough Export Trunkline Cultural Heritage Assessment (UWA, 2021)

Following the recommendations of Mott (2019), Woodside engaged with the DHSC project from mid-2019. Woodside subsequently engaged researchers from the then-concluded DHSC project based at the University of Western Australia (UWA) to assess the prospectivity for archaeological sites along the Scarborough export trunkline route and adjacent areas, beginning at the Burrup Peninsula and ending at the edge of the continental shelf in consultation with MAC (UWA, 2021).

The UWA Indigenous UCH assessment along the proposed export trunkline route developed a predictive model for the potential for UCH to be located within the submerged landscapes along the Scarborough export trunkline route (UWA, 2021). The study concluded that the export trunkline route is likely to have “low to nil impacts” to Indigenous archaeological values across the project footprint in Commonwealth waters (UWA, 2021).

The middle shelf landscape crossed by the export trunkline was determined to be of very low or no likelihood of impact to Indigenous archaeological values and “The current development envelope is the preferred pipeline route within mid shelf” (UWA, 2021). The assessment noted that “The mid shelf is flat, relatively featureless and covered by a thick layer of recent marine sediments. The absence of definable landscape features, exacerbated by marine sediment cover observed along the 300 m wide survey corridor makes this 30 m wide export trunkline development corridor low prospectivity for any residual, in-situ, surface manifestations of Indigenous heritage” (UWA, 2021). Two “low relief beach ridge and beach barrier features” that were identified were considered to predate the 65,000 years of scientifically verified occupation of the Australian continent and “Therefore, they are likely to have a low prospectivity for cultural heritage being captured in these durable surfaces at formation, and similarly low potential for subsequently deposited cultural material having survived initial inundation and subsequent marine pedogenic forces.” (UWA, 2021). The assessment also identified within the EMBA “two mounds which are interpreted as low relief hills of an unknown geology, each more than 15 km from the proposed pipeline envelope” (UWA, 2021).

Although the outer shelf possesses a highly prospective cultural landscape, the assessment concluded “Scarborough pipeline development is likely to have nil to low impact on any potential heritage values and the current development envelope is the preferred pipeline route here” (UWA, 2021). Within the EMBA, “There are several locations at the outer edge of the continental shelf where the reconstructed submerged landscapes are assessed as having high potential for significant heritage being present... These high potential landscape features are especially notable to the north of the proposed pipeline. If submerged heritage was to be encountered here, it would be of high significance, and we have identified several sections of the route where this possibility is greater than elsewhere.” For clarity, the assessment also notes that “While there are landforms and features that were identified on the seabed as having a higher probability of hosting indigenous UCH and would benefit from direct observations via ROV/AUV, these have not been identified within the proposed pipeline route.” (UWA, 2021) and “The current pipeline alignment avoids several higher value landforms which increased heritage sensitivity (i.e., karst depressions, tidal channels) in proximity to the pipeline.” (UWA, 2021).

The EMBA also includes areas of the inner shelf where “development proposal is likely to have nil or very low impact on any places with heritage values. The identification of more prospective submerged landscapes across this inner shelf, make the current proposal the preferred pipeline route within Mermaid Sound.” (UWA 2021). The inner shelf includes “submerged barrier systems which outcrop at the seabed.” (UWA 2021). The assessment noted these were dated “between 80,000 to 130,000 years BP and 186,000 to 245,000 years BP. Given these early ages it is unlikely that these barriers formed as an active cultural landscape and therefore these are unlikely to be prospective for encapsulated archaeological evidence. While it is possible that people may have occupied these exposed landscapes at any time in the last 65,000 years, the absence of water or other attractors associated with these identified low relief limestone-ridge landscapes lowers this potential, while their exposed nature makes for low survival chances of artefactual deposits laid on these exposed hard surfaces” (UWA, 2021).

The inner shelf includes “no palaeochannels, relict waterholes, clay pan features, or igneous rock outcrops – such as can be observed in other parts of the Dampier Archipelago – that have been identified has hosting or potentially hosting cultural heritage sites” (UWA, 2021). While “The palaeochannels of the Maitland River and Nicoll River are identifiable on the seabed to the south of Enderby Island and the east of the Archipelago on the inner shelf... The proposed pipeline transects neither of these palaeochannels – nor any submerged mounds/hills (i.e., features of potential

mythological significance to the Ngarda ngarli) that can be identified from the bathymetric reconstruction.” (UWA, 2021).

Side Scan Sonar Review (Nutley, 2022)

At the request of MAC, a review of existing side scan sonar data for the PAA on the Ancient Landscape was undertaken by a maritime archaeologist (Nutley, 2022), with a particular but not exclusive focus on submerged fish traps. Although the remote sensing data was not targeted specifically at underwater cultural heritage when originally collected, the review noted the data was sufficient to provide a platform for assessing features that may require further investigation (Nutley, 2022). This review included the barrier systems identified in UWA (2021) in the mid- and inner shelf.

This review identified numerous clusters of depressions which are “certainly naturally occurring features” and “none of them appear to be archaeological in nature” but requested further advice on what these represented to better understand the landscape and whether these were permanent features such as karsts. Woodside considers from existing data and previous investigation that these depressions in sandy sediments are a result of marine life and moving fluids. The report concluded: “No indication of stone structures such as fish traps, or hut foundations could be detected in the inner reef, middle shelf or outer shelf areas. In the middle shelf and outer shelf there were no indicators of former riverbeds, creek lines or lakes with which such feature may be associated.” (Nutley, 2022).

ROV Inspection of Barrier Systems (Nutley, 2023a)

MAC requested that calcarenite ridges on the inner shelf be directly inspected where the export trunkline would be installed in State Waters. This installation is subject to separate approvals outside this EP, although the EMBA for activities under this EP does extend into State waters. Direct inspection in these areas was completed by ROV with the participation of a qualified marine archaeologist and representative of MAC (Nutley, 2023a). No instances of potential cultural heritage material were detected during these inspections (Nutley, 2023a).

The investigation “confirmed the presence of the former calcarenite, coastal barrier ridgelines that would have been exposed prior to inundation following global warming and substantial melting of the icecaps” (Nutley, 2023a). It was noted that any stone tools “would have been subject to tidal movements, currents and storm waves and to have been redeposited into the ravines and valleys between the ridges. The geodetic data for the area shows that such ravines and valleys are filled with post-inundation marine sediments of up to five or more metres in depth.” (Nutley, 2023a). The assessment also found “No evidence of former waterways or subsea springs or river valleys were present at the surface of the seabed.” (Nutley, 2023a).

4.9.4.2.2 First Nations Ethnographic Heritage Assessment

Ethnographic surveys are a form of heritage survey conducted by anthropologists or ethnographers to understand cultural features of heritage significance and heritage values within a landscape. This is distinguished from archaeological survey (which focusses on the material remains of human culture) and consultation (which is not confined to an assessment of heritage, is not limited to values of a landscape and may be conducted without an ethnographic methodology).

Ethnographic surveys are “*undertaken to identify Aboriginal cultural heritage sites and values that are identifiable as tangible and intangible elements that are important to the Aboriginal people of the State, and are recognised through social, spiritual, historical, scientific or aesthetic values, as part of Aboriginal tradition.*”

“To achieve this, an ethnographic survey is undertaken with an Aboriginal person or persons who in accordance with Aboriginal tradition, holds particular knowledge about the Aboriginal cultural heritage and has traditional rights, interests and responsibilities in respect of the Aboriginal cultural heritage (Mott, 2023).”

Woodside seeks to undertake ethnographic surveys where planned impacts overlap an area where First Nations group has an established cultural jurisdiction over an area of land or sea. Cultural

jurisdiction confirms ethnographic survey participants “in accordance with Aboriginal tradition, hold particular knowledge about the Aboriginal cultural heritage”, and may be established through a number of mechanisms, including prescription under heritage legislation (e.g. the *Aboriginal Heritage Act 1972* and subsidiary legislation), recognition through the determination of Native Title rights, or through land access agreements including ILUAs or ILUA-like agreements.

Where ethnographic surveys are requested during broader consultation in which a relevant person articulates their cultural jurisdiction, Woodside will assess this request and, where appropriate, undertake surveys. Surveys may not be appropriate, for example, where another party has established cultural jurisdiction or an adequate ethnographic survey has already been carried out over the area.

As ethnographic surveys are dependent on the participation of traditional knowledge holders, it is not possible to meaningfully conduct ethnographic surveys proactively over areas for which cultural jurisdiction is not established or unclear.

To supplement understanding of the area subject to MAC’s cultural jurisdiction, Woodside commissioned ethnographic surveys in 2019 and 2020 to support the Scarborough Project (Mott, 2019, McDonald and Phillips, 2021). Woodside has committed to support MAC with further ethnographic work, but MAC has not yet elected to progress this work.

An ethnographic survey may determine both the tangible and intangible cultural heritage which may be associated with cultural features. Importantly, ethnographic surveys are only one tool in identifying cultural features and heritage values; Woodside has supplemented this work with archaeological assessments described in Section 4.9.4 and extensive consultation with Traditional Custodians described in Section 5. Typical results from ethnographic surveys may include the identification of songlines, ceremonial places such as ‘thalu’ sites for managing environmental resources, or places where activities such as birthing, initiation or other significant activities are performed. As a form of heritage survey, distinct from more general consultation, surveys were limited to discussions of the relevant landscape. However, participants were not restricted in the types of tangible and intangible cultural heritage they were encouraged to identify.

Preliminary Desktop Assessment and Ethnographic Inspection (Mott, 2019)

The 2019 survey was undertaken due to the potential planned impact of offshore, nearshore and onshore activities associated with the Scarborough project within the cultural jurisdiction of Ngarda Ngarli people, traditional custodians of Murujuga. The survey was conducted with members of all five Traditional Custodian groups of Murujuga (Mardudhunera, Ngarluma, Wong-Goo-Tt-Oo, Yaburara and Yindjibarndi) invited through Prescribed Bodies Corporate for Ngarda Ngarli people (including NAC and WAC) and MAC, who met on country with heritage consultants.

The aim of this aspect of the work was “to undertake an initial ethnographic site visit to consult with traditional owners to discuss the current research undertaken by others on submerged landscapes generally, and to seek specific feedback on the nature of the proposed export trunkline pipeline plans including the pipe landfall area, adjacent to a significant Aboriginal heritage site” (Mott, 2019). Participants were provided with a map of the Scarborough development (Figure 4-16) and asked to identify any values in the surrounding landscape.

No cultural features or heritage values were identified in the Operational Area or EMBA through this survey (Mott 2019).

Within the recommendations arising from this work, it was advised “If any deviations from the current Project Area footprints are made, addendum desktop heritage assessment and consultation with traditional owners should be undertaken.” The desktop component of Mott (2019) related to archaeological heritage, and subsequent archaeological assessments are described in Section 4.9.4.

Consultation with Traditional Custodians for the project, have been undertaken as described in Section 4.9.4 and Section 5.

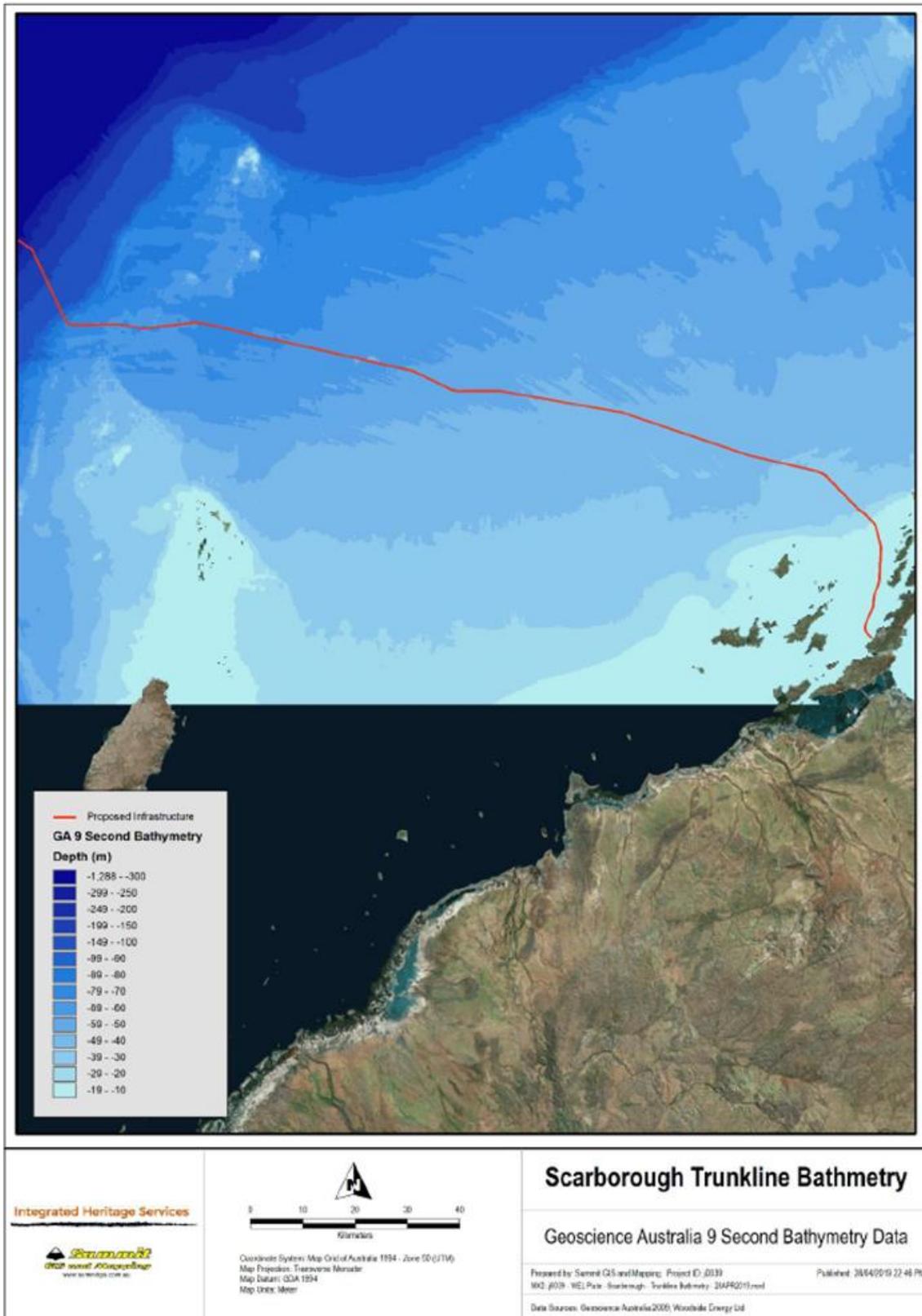


Figure 4-16: Scarborough development extent considered in the 2019 ethnographic survey (Mott, 2019)

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Ethnographic Consultation (McDonald and Phillips, 2021)

The 2020 survey was undertaken due to the potential planned impact of offshore, nearshore and onshore activities associated with the Scarborough project within the cultural jurisdiction of Ngarda Ngarli people, traditional custodians of Murujuga. The survey was conducted by MAC as representatives of Traditional Custodians for the onshore and nearshore aspects of the Scarborough Project. MAC appointed their preferred heritage consultants to meet on Country with the MAC Circle of Elders to discuss the project and identify any cultural values (McDonald and Phillips 2021). The resulting report is owned by MAC and was approved by the Circle of Elders prior to being provided to Woodside. Representatives from the Mardudhunera, Ngarluma, Yaburara, Yindjibarndi and Wong-Goo-Tt-Oo Peoples—all five Indigenous groups represented by MAC (MAC 2022)—participated in this survey (McDonald and Phillips 2021).

The scope of works for this survey defines the purpose of this survey as follows:

The ethnographic consultation aims at providing an understanding of the cultural heritage values associated with the submerged landscape.

Specifically, the survey and reporting will provide Woodside an understanding of the cultural values within the coastal, nearshore and offshore proposed Scarborough export trunkline and associated works areas.

The scope of the assessment was informed by the Scarborough project's development footprint as provided in Figure 4-17 . A landscape-scale approach was undertaken, considering heritage values that may be identified by participants well beyond this footprint. No boundary was imposed on the participants, and participants were not restricted in the types of heritage value they were encouraged to identify. As an indication of the breadth of the cultural landscape that the survey considered, cultural features and heritage values were identified more than 60km from the development footprint.

Participants were shown an introductory video explaining the key parameters of the Scarborough project including the proposed export trunkline (McDonald and Phillips 2021). The survey identified ethnographic sites onshore, but these are outside the Operational Area and EMBA and scope of this EP (McDonald and Phillips, 2021).

It is not appropriate or practical to request Traditional Custodians to list all ethnographic values onshore which they have not identified as potentially impacted, however some identified in the report included stories related to Eaglehawk Island and several sites at Withnell Bay several kilometres from the project footprint in State waters, outside of the EMBA and exclusively onshore. Some of these sites have spiritual connections and songlines throughout the landscape including to Cape Preston and Depuch Island. It was not proposed in the report that the Project would pose any risk to these sites or values, which are located well outside the EMBA. It was noted that some traditional knowledge of ethnographic values may have been lost through the effects of colonisation generally, and as a result of the Flying Foam Massacre in particular (McDonald and Phillips 2021).



Figure 4-17: Scarborough Development Location considered in the 2020 ethnographic survey (McDonald and Phillips, 2021)

4.9.4.2.3 Future Ethnographic Surveys

McDonald and Phillips (2021) represents the findings of Phase I of a planned two-part ethnographic survey, and recommends that the Phase II ethnographic survey be initiated. The second phase goes beyond industry standard by engaging with neighbouring First Nations groups to identify potential ethnographic values that traverse traditional group boundaries. Per Appendix F: Consultation, Table 2, Woodside has communicated its commitment to the Phase II survey to MAC. MAC has not yet elected to progress this work.

Phase I of the ethnographic survey was run by MAC, and the scope of this survey required “Full recording and significance assessment. The consultant is to provide advice as to whether there are cultural values within and nearby the footprint area...” Discussion with MAC’s then CEO has confirmed that MAC does not consider that they have failed to deliver on this scope. The survey was conducted with members of MAC’s Circle of Elders, who are recognised as cultural authorities for Murujuga, and the final report was approved by the Circle of Elders prior to being provided to Woodside.

Therefore, the Phase I survey adequately describes and assesses the cultural, spiritual, aesthetic and social values held by Traditional Custodians for the project area and surrounding land and seascape. Given the nature of the proposed Phase 2 survey, it is not necessary to complete Phase II survey before or in order to commence the operation of the Scarborough Project.

Woodside has also conducted extensive engagement with appropriate representatives as determined by MAC over the course of several years as well as a number of neighbouring Indigenous First Nations groups and representatives as detailed in Section 5. As reported in Section 4.9.4, this consultation with MAC has resulted in the detailing of cultural values beyond the heritage values that

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may be identified through ethnographic survey, and in greater detail than the results of ethnographic survey to date. On 21 July 2023, MAC advised by letter that MAC “have no concerns at this point in time” regarding the proposed activities subject to this EP.

Beyond MAC, no Indigenous group has articulated cultural jurisdiction over any area of waters subject to impacts from planned activities. BTAC has stated that their Sea Country extends “out to the vast islands off the coast of the Pilbara, including the Monte Bello Islands, Barrow Island, and the Mackerel Islands.” These locations are outside of the extent of planned impacts. A review of publicly available literature has been undertaken to seek clarity on the extent of Sea Country for Thalanyji people in Section 4.9.4.1 and has not identified any areas recorded as Thalanyji Sea Country which overlap the extent of proposed impacts.

Woodside has offered support, through ongoing consultation, for initiatives proposed by Traditional Custodians to record Sea Country values (see Appendix G: Program of Ongoing Engagement with Traditional Custodians).

Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received (including any relevant new information on cultural values from the Phase II survey or other sources), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7).

4.9.4.3 Consultation Feedback to Inform Existing Environment

4.9.4.3.1 Summary of Values Raised During Consultation

A summary of the topics/interests and values raised by First Nations groups through consultations on this Petroleum Activities Program, or raised in context of general Scarborough Project activities or other activities are provided in Table 4-22.

First Nations cultural values are communally held. This is reflected in Vision 3 of Dhawura Ngilan that “Aboriginal and Torres Strait Islander heritage is managed... according to community ownership” (Heritage Chairs of Australia and New Zealand 2021). Dhawura Ngilan also specifically notes that “Aboriginal and Torres Strait Islander... intangible knowledge systems, which are held in songlines and language, are endangered. This knowledge is held by Elders and the community...” Through consultation Registered Native Title Bodies Corporate and nominated representative corporations have identified or raised topics relating to environmental values of cultural interest. Woodside recognises the spiritual and cultural connection to the environment¹⁰ that First Nations people hold.

Appendix G: Program of Ongoing Engagement with Traditional Custodians provides a mechanism for ongoing dialogue between Woodside and Traditional Custodians, beyond that required by Regulation 25. The program enables Woodside to manage the potential impacts and risks to cultural values which may be identified during Woodside’s activities via ongoing dialogue with Traditional Custodians. Should feedback be received (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7).

¹⁰ Definition of ‘Environment’ in Regulation 4 of the OPPGS (Environment) Regulations are defined as:

- a) ecosystems and their constituent parts, including people and communities, and
- b) natural and physical resources, and
- c) the qualities and characteristics of locations, places and areas, and
- d) the heritage values of places, and includes
- e) the social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d).

Table 4-22: Feedback received via consultation to inform Existing Environment Description

Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
BTAC representing some of the Gnulli native title claimants (Baiyungu and Thalanyji people)	Raised in context of general Scarborough Project activities	Value: Cultural obligation to care for the environmental values of sea country Sea country extends “out to the vast islands off the coast of the Pilbara, including the Monte Bello Islands, Barrow Island, and the Mackerel Islands”	Possible (unspecified) No	Possible (unspecified) Possible (unspecified)
Kariyarra Aboriginal Corporation	Raised in context of general Scarborough Project activities	Interest: Assertion of sea rights in native title claim area <i>Interpreted as general connection to country, assertion of rights to access country and cultural obligation to care for environmental values of sea country</i>	No	Yes
	Raised in context of general EP consultation	Value: Coastal resource collection - fishing, trapping, crabbing, catching turtles, dugong, stingray (barbs) and collecting shellfish.	No	Possible
		Value: On Country access - visiting offshore islands at low tide and intergenerational knowledge transfer.	No	Possible
		Value: Cultural obligations to care for Country, including Sea Country. Value: Secret Habitat Totems associated with Sea Country	Possible (unspecified)	Possible (unspecified)
		Value: The existence of intangible cultural heritage including the Yinta (associated with Sea Country). <i>From Kariyarra Native Title documents it is clear that Yinta are significant cultural/spiritual sites, often a pool or water source but possibly a hill or other feature. These are, at least generally, associated with creation beings and are a core part of cultural rights to land in determining who can use or speak for an area.</i>	Possible (unspecified)	Possible (unspecified)
		Interest: Coastal landforms	No	Possible (unspecified)
		Interest: Coastal native vegetation	No	Possible (unspecified)
		Feature: Tangible cultural heritage (sites) associated with the coast/ocean.	No	Possible (unspecified)
		Value: Intangible cultural heritage associated with the coast/ocean.	Possible (unspecified)	Possible (unspecified)
		Interest: Shark Bay environment is unique and has the largest living organism in the world	No	No

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
Malgana Aboriginal Corporation ¹¹	Raised in context of general Scarborough Project activities	Feature: Stromatolites Interest: Shark Bay contains stromatolites and microbial mats which are amongst the oldest living in the world.	No	No
		Interest: Seagrass For Shark Bay Malgana Aboriginal Corporation stated that they had observed a nearly 25% loss of seagrass from a hypersaline discharge into the bay	No	No
Murujuga Aboriginal Corporation representing Ngarda-Ngarli people (Mardudhunera, Ngarluma, Wong-Goo-Tt-Oo, Yaburara and Yindjibarndi)	Raised in context of Nearshore Scarborough Project activities (MAC 2021 as cited in Woodside 2023)	Value: Mermaid Sound ecosystem health	No	Possible
		Feature: Whale Value: A whale thalu is an increase at a totemic site that brings whales into beach Value: Whales and other species of totemic importance need to be protected, including their populations, biodiversity, and migration patterns Value: Whales are culturally important species that migrate through Mermaid Sound. Humpback whales in particular.	Possible (whale) Possible (unspecified) Possible (whales) Possible (unspecified; other species) No (based on defined location)	Possible (whale) Possible (unspecified) Possible (whales) Possible (unspecified; other species) Possible
		Feature: Dolphins Value: There are cultural ceremonies associated with communicating with dolphins	Possible (dolphins) Possible (unspecified)	Possible (dolphins) Possible (unspecified)
		Feature: Dugongs Value: Are a food source associated with seagrasses near Gidley Island	Possible (dugongs) No (based on defined location)	Possible (dugongs) No (based on defined location)

¹¹ While Malgana is not a relevant person under regulation 25 of the Environment Regulations they have been included in this table as they provided feedback during consultation.

Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
		<p>Feature: Fish</p> <p>Value: There are thalu ceremonies associated with increasing fish stocks</p>	<p>Possible (fish)</p> <p>Possible (unspecified)</p>	<p>Possible (fish)</p> <p>Possible (unspecified)</p>
		<p>Feature: Sea snakes</p> <p>Specifically mentioned as culturally important species</p>	<p>Possible (sea snakes)</p>	<p>Possible (sea snakes)</p>
		<p>Feature: Flatback, green, hawksbill, loggerhead and leatherback turtles</p> <p>Turtles are culturally important species that moves through Mermaid Sound. Turtles are most often seen in shallower areas and where there are seagrasses</p> <p>Most beaches are nesting sites for turtles, including those on Gidley and Legendre Islands</p> <p>Value: The songline associated with the turtle comes from Fortescue to Withnell Bay. This song is sung by four or five tribes for day and night without consuming food or water</p>	<p>Possible (turtles)</p> <p>No (based on defined location)</p> <p>No (based on defined location)</p> <p>No (songline geographically restricted nearshore)</p>	<p>Possible (turtles)</p> <p>Possible</p> <p>Possible</p> <p>No (songline geographically restricted nearshore)</p>
		<p>Feature: Coral</p> <p>Fish are attracted to areas with coral</p> <p>Concerned about coral bleaching because corals are important. Beautiful colours. They also attract a lot of other things</p> <p>Fish carry coral spawn like bees pollinate flowers. If fish were looked after, the corals would get brighter and brighter (by transmitting nutrients and performing other ecosystem services, fish can be symbiotic with corals)</p> <p>Spawning events should be avoided (associated with full moon). Locations identified during consultation include Withnell Bay; Conzinc Bay; south west of Legendre Island</p>	<p>No</p>	<p>Possible</p> <p>No (based on defined location)</p>

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
		<p>Feature: Seagrass</p> <p>Seagrasses provide protection for animals.</p> <p>Locations identified during consultation include Conzinc Island; between Angel and Gidley Island.</p>	No	<p>Possible (Accumulated hydrocarbons above threshold concentrations ($\geq 100 \text{ g/m}^2$) with a low probability: Gidley Island)</p> <p>No (based on defined location)</p>
		<p>Value: Mangroves would have provided shelter, crabbing, digging for shellfish, could be turtle nurseries</p> <p>Locations identified during consultation include Conzinc Bay north end; Flying Foam Passage; Searipple Passage; north-east bay of West Lewis Island</p>	No	<p>Possible</p> <p>No (based on defined location)</p>
		<p>Interest: Macroalgal communities, which are important primary production sites, habitats, and food sources (not explicitly identified by elders)</p> <p>Interest: Subtidal soft-bottom communities, which support invertebrate diversity (not explicitly identified by elders)</p> <p>Interest: Intertidal sand and mudflat communities, which are important primary production sites, support invertebrate diversity and provide food for shorebirds (not explicitly identified by elders)</p> <p>Interest: Rocky shores, which are habitats for intertidal organisms and provide food for shorebirds (not explicitly identified by elders)</p>	<p>No</p> <p>Yes</p> <p>No</p> <p>No</p>	<p>Possible</p> <p>Yes</p> <p>Possible</p> <p>Possible</p>

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
		<p>Feature: Fish traps</p> <p>There are known fish traps in Conzinc Bay, and others would have or do exist in coastal areas of islands, such as Angel and Gidley Islands. People still use the Conzinc Bay fish traps regularly for catching mangrove jack, trevally and other fish.</p> <p>Value: Squidding (harvesting of squid from the ocean) around Conzinc Island</p>	<p>No</p> <p>No</p> <p>No</p>	<p>Possible (submerged)</p> <p>Possible (broader EMBA, Accumulated hydrocarbons above threshold concentrations ($\geq 100 \text{ g/m}^2$) with a low probability: Gidley Island)</p> <p>No Conzinc Bay (based on defined location)</p> <p>No Conzinc Bay (based on defined location)</p>
Nghanurra Thanardi Garrbu Aboriginal Corporation representing Baiyungu and Thalanyji people	<p>Raised specific to Petroleum Activities Program (see Appendix F: Consultation; Table 2)</p> <p>Raised in context of general Scarborough Project activities</p>	Interest: Whales - query regarding noise impacts, monitoring and operational responses to whale sightings	Possible (whales)	Possible (whales)
	<p>Raised in context of decommissioning activities</p>	Interest: Whale sharks – query regarding activity timing	Possible (whale sharks)	Possible (whale sharks)
		Interest: Marine parks – query regarding risks from activity in relation to decommissioning	Yes (Montebello AMP)	Yes
Ngarluma Aboriginal Corporation (NAC)	No values raised	-	-	-
Ngarluma Yindjibarndi Foundation Ltd (NYFL)	No values raised	-	-	-

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
Robe River Kuruma Aboriginal Corporation (RRKAC)	Raised in context of general Scarborough Project activities	Feature: Underwater heritage	No	Possible
Save Our Songlines, [Individual 4] and [Individual 3]	Raised specific to Petroleum Activities Program (see Appendix F: Consultation ; Table 2) Raised in context of general Scarborough Project activities	Feature: Songlines, dreaming and energy lines (unspecified)	Possible (unspecified)	Possible (unspecified)
		Interest: Murujuga Query of potential impacts to Murujuga rock art (emissions)	No	No
		Restricted access to Murujuga		
		Value: Offshore Island (Rosemary Island) Cultural sensitivities/ practices associated with island.	No	No
		Value: Turtles Rosemary Island identified as breeding ground for turtles	Possible (turtles)	Possible (turtles)
		Feature: Whales – including migratory patterns	Possible	Possible
		Interest: Turtles – including migration patterns	Possible	Possible
		Interest: Dugongs - unspecified	Possible	Possible
		Interest: Plankton - unspecified	Possible	Possible
		Interest: Seagrass - unspecified	No	Possible
	Interest: where saltwater and freshwater meet	No	Possible	
	Raised in Concise Statement and Affidavit ³ in context of Scarborough seismic activities	Value: Caring for Country [Individual 3] asserts she and [Individual 4] are holders of women's lore with cultural obligations to protect, preserve and promote the environment, animals and plants threatened by the Activity (specific to Seismic) [Individual 3] asserts the spiritual health and wellbeing of Murujuga and all the plants and animals present on Murujuga and connected to the songlines in and around Murujuga	Possible (unspecified)	Possible (unspecified)

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
		<p>Feature: Whales</p> <p>[Individual 3] asserts the following values:</p> <p>“Whales carry important songlines, the whale Dreaming, and connection between land and sea”</p> <p>"As the biggest animal on earth, the whale has the greatest heart connection to songlines, people and animals and carries the songlines around the ocean, connecting places."</p> <p>“Whale Dreaming story has a strong connection to the heart centre in each person, this story helps people to open up and to realise, understand and raise awareness of the environment and everything humans are connected to.”</p> <p>"In their own families, female whales have a caretaker or midwife role, and those who are connected to the Whale Dreaming and carry the women's lore also have obligations as caretakers of the earth."</p> <p>"The women's lore that [Individual 4] and [Individual 3] carry is the songline of the whale, which is important for sustaining the creation of all animals and humans."</p> <p>"[Individual 4] and [Individual 3] connect to the whales like this through their songlines, they sing to the whales, the whales feel that song and the connection through their hearts, regardless of the distance."</p> <p>"the whales tell [Individual 4] and [Individual 3] a story, and [Individual 4] and [Individual 3] are the people who feel and who are connected to that story. [Individual 4] and [Individual 3] have that feeling of connection inside them all the time, they live and breathe it, they are in and everything about it."</p> <p>"Because each animal uses songlines for migration, breeding and feeding, the disruption or distortion to the songlines causes the animals to become disoriented, confused or lost."</p>	<p>Possible (whales)</p> <p>Possible (songlines, unspecified)</p>	<p>Possible (whales)</p> <p>Possible (songlines, unspecified)</p>

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
		<p>Interest: Whales</p> <p>Interest: Pygmy Blue whales</p> <p>“Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to</p> <ul style="list-style-type: none"> ii. behavioural changes (leaving or avoiding the area where the Activity occurs) to turtles, pelagic fish (such as tuna and billfish), sharks, pygmy blue whales iii. whales' sonar communications systems, particularly between mothers and calves, from sound and vibrations emitted by the Activity v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon); and vi. vehicle collision and/or entanglement with marine fauna” 	Possible (whales)	Possible (whales)
		<p>Interest: Turtles</p> <p>"Other animals, such as turtles, dolphins, dugongs, and krill follow the whale's songlines, because they're all connected together - the whale creates a path for the other animals like 'grading a road'."</p> <p>“Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:</p> <ul style="list-style-type: none"> ii. behavioural changes (leaving or avoiding the area where the Activity occurs) to turtles, pelagic fish (such as tuna and billfish), sharks, pygmy blue whales v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon); and vi. vehicle collision and/or entanglement with marine fauna” 	Possible (turtles)	Possible (turtles)
		<p>Interest: Dugongs</p> <p>“Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:</p> <ul style="list-style-type: none"> v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)” 	Possible (dugong)	Possible (dugong)

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
		<p>Interest: Pelagic fish</p> <p>“Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:</p> <p>ii. behavioural changes (leaving or avoiding the area where the Activity occurs) to turtles, pelagic fish (such as tuna and billfish), sharks, pygmy blue whales”</p>	Possible (fish)	Possible (fish)
		<p>Interest: Sharks</p> <p>“Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:</p> <p>ii. behavioural changes (leaving or avoiding the area where the Activity occurs) to turtles, pelagic fish (such as tuna and billfish), sharks, pygmy blue whales</p> <p>v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)”</p>	Possible (sharks)	Possible (sharks)
		<p>Interest: Plankton</p> <p>“Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:</p> <p>i. chronic mortality to some marine organisms, including zooplankton</p>	Possible	Possible
		<p>Interest: Water quality</p> <p>“Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:</p> <p>iv. potential operational discharges associated with the presence of ships in the area, including potential impacts to water quality</p> <p>v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)</p>	Yes	Yes
		<p>Interest: Seabirds</p> <p>“Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:</p> <p>v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)</p>	Possible	Possible

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
		Interest: Where saltwater and freshwater meet "The places where the saltwater from the sea and the freshwater from the land connect are where the biggest energy lines ¹² are, and that connection is a core of creation relevant to a Dreaming story."	No	Possible
		Value: Rock Art "Rocks at Murujuga symbolise stories, the totems (the depicted artwork) - whether representing plants or animals - and tell a story of their history, and how long they've been there."	No	Possible (submerged)
		Value: Bungarra, Eagle, Kangaroo Identified totemic species	No	No
		Interest: Murujuga "When [Individual 4] and [Individual 3] and their people stand on Country they are connected to their songlines through the rocks. As holders of women's lore, [Individual 4] and [Individual 3] put healing energy into the rocks and use that to heal the songlines." [Individual 4] and [Individual 3] connect to their bloodline, old people and songlines through Country, including the rocks at Murujuga, which are encrypted with ancient stories that keep connection to the bloodline and songlines alive and well."	No	Possible
Wanparta Aboriginal Corporation	Raised generally	Feature: Water The importance of water was emphasised by the group	Yes	Yes
		Feature: Dreamtime stories through nearshore island There are Dreamtime stories through the nearshore island (Solitary Island/Jarrkunpungu)	No	Possible
	Raised in context of general Scarborough Project activities	Interest: Ocean Protection and management of marine life and healthy ocean plays a significant role in lore, culture and customs. Value: Connection to the ocean	Yes	Yes Possible

¹² Although [Individual 3], [Individual 4] and Save our Songlines referred to and described Energy Lines, these are understood to be the same as songlines and this document therefore refers to songlines

Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
		Value: Caring for the ocean	Possible (unlikely due to distance to Operational Area) Possible (unlikely due to distance to Operational Area)	Possible
		Value: Connection to Sea Country The Ngarla People have a deep spiritual connection to Sea Country	Possible (unspecified)	Possible (unspecified)
		Interest: Freshwater	No	No
		Value: Kestrel is a totemic species as depicted on the corporation's logo	No (onshore species)	No (onshore species)
		Value: Octopus is a totemic species as depicted on the corporation's logo	Possible	Possible
		Value: Bream is a totemic species as depicted on the corporation's logo	Possible	Possible
		Value: Sting ray is a totemic species as depicted on the corporation's logo	Possible	Possible
		Value: People are linked to the dreaming stories through the interconnecting islands	No	Possible
Wirrawandi Aboriginal Corporation representing Ngarda-Ngarli (Mardudhunera and Yaburara)	Raised in context of general Scarborough Project activities	Interest: Whales - query with regard to whale migration and timing of Project activities; impact of noise on whale communication	Possible	Possible
		Interest: Turtles - query with regard to turtle monitoring programs	Possible	Possible
		Interest: Underwater heritage – query with regard to where sites have been recently found	No	Possible
	Raised in context of decommissioning activities	Value: Rock Art – query whether air emissions from activities impacts rock art and controls to minimise potential impacts	No	No (air emissions impact to rock art) Possible (submerged rock art)
Yamatji Marlpa Aboriginal Corporation (YMAC)	No values raised	-	-	-

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Relevant First Nation Group/Individuals	Consultation context	Description of Value/Interest	Potential for overlap	
			Operational Area	EMBA
Yindjibarndi Aboriginal Corporation	No values raised	-	-	-
Yinggarda Aboriginal Corporation representing Yinggarda People.	Raised in context to Scarborough project activities.	Interest: Whales – query with regard to potential impacts to whale migration patterns and impacts from vessel collision	Possible	Possible
		Value: Shark Bay Mullet – important resource	No (coastal species)	No (coastal species)
		Interest: Turtle – general concern about management	No	Possible
		Interest: Dugong – raised in context of Shark Bay	No (geographically limited)	No (geographically limited)
		Interest: Seagrass being food source for Dugong	No	Possible

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4.9.4.3.2 Murujuga Aboriginal Corporation Cultural Values of Marine Ecosystems

Murujuga Aboriginal Corporation (MAC) was consulted during the development of the Scarborough Project (Nearshore Component) Dredging and Spoil Disposal Management Plan (DSDMP) which included Commonwealth activities for full activity context (e.g., trenching and spoil disposal; and borrow ground dredging and associated backfill) that are pertinent to this EP. As a part of the DSDMP consultation, MAC proactively engaged the Circle of Elders to identify places, areas and values of the marine environment that are of cultural importance. MAC prepared a report titled “Cultural Values of the Environment for Scarborough DSDMP” which identified values of the marine environment that are of cultural importance to MAC. This work was an outcome of consultation further described in Section 5. This work is not considered an ethnographic survey, as it did not employ ethnographic survey methodology or the participation of a qualified anthropologist or ethnographer.

No specific environmental values of cultural importance were identified within the export trunkline Project Area (KP32 to KP50). Rather, values were identified within Mermaid Sound, which is directly relevant for the EMBA and for specific values can be inferred within the PAA.

4.9.4.3.3 Further Information Regarding Buurabalayji Thalanyji Aboriginal Corporation’s Sea Country values

During consultation, BTAC, on behalf of the Thalanyji People, advised it has a cultural obligation to care for the environmental values of Sea Country (refer to Appendix F: Consultation)

In correspondence from 20 February 2023 relating to the Scarborough Project, BTAC advised that:

- BTAC seeks support from Woodside to enable BTAC to define and articulate its values on Sea Country in a manner that could be more clearly understood by the offshore sector, government, and the community. This would enable BTAC and Woodside to collaborate to develop effective management plans that can provide adequate protection to Sea Country values.
- BTAC seeks support from Woodside to obtain technical support to review the information and provide BTAC and its members with feedback on the project risks to Sea Country and help BTAC contemplate the potential management controls that could be developed to protect its values and interests.

These requests do not constitute a request for an ethnographic survey. Woodside has agreed to BTAC’s request, and the resulting offer of technical support is detailed in Appendix F: Consultation. BTAC’s Sea Country has been identified as relating to nearshore islands and in nearshore areas which are not relevant to this EP.

BTAC noted that this Sea Country extends “out to the vast islands off the coast of the Pilbara, including the Monte Bello Islands, Barrow Island, and the Mackerel Islands.” In the absence of further advice from BTAC, Woodside understands from this description that BTAC’s interests extend to the Montebello Marine Park Multiple Use Zone in the vicinity of the islands.

While an ethnographic survey has not been requested, a review of publicly available literature has been undertaken to seek clarity on the extent of Sea Country for Thalanyji people. This review identified a number of heritage research projects undertaken for the Montebello and Barrow Islands which acknowledge the support of BTAC (e.g., Manne and Veth 2015, Veth et al. 2017), though no information regarding Sea Country values, or the extent of Sea Country, were identified.

Publicly available heritage assessment reports elsewhere on Thalanyji Country tend to rely on established native title boundaries (e.g., Chisholm 2013) or draw on historic maps, particularly those compiled by Norman Tindale and published in 1947 (e.g., Hook et al. 2020).

An early 1940’s map by Tindale shows “Talaindji” (Thalanyji) Country as exclusively terrestrial and further west than areas typically recognised today as Thalanyji Country (Tindale 1940). This map also shows the Noala people as custodians of the Onslow area and defines Barrow and the

Montebello Islands as “Mardudunera” (Mardudhunera) Country—it is unclear from the map if the boundary of Mardudhunera is proposed to represent an extent of Sea Country, or merely note that these islands are part of Mardudhunera Country.

A further refined version of this map was produced in 1974 which shows “Talandji” in a location more closely aligned with contemporary understanding of Thalanyji Country and removes the apparent extent of Mardudhunera over Barrow and the Montebello Islands (Tindale 1947). This definition of Thalanyji Country is still confined to the mainland in this map.

A more contemporary attempt at mapping traditional country is shown in The AIATSIS Map of Indigenous Australia (Horton 1996). This map similarly confines Thalanyji Country to terrestrial areas west of Onslow and leaves Barrow and the Montebello Islands unmarked as an area with “[n]o published information available”. It is also noted that “[t]his map is based on data collected up to 1994 and is not intended to show precise areas or boundaries” (Horton 1996).

Collective assessments of Sea Country in the Pilbara (Lincoln and Hedge 2019, YMAC et al. 2010) were also found to rely on existing native title boundaries. It is noted in the Pilbara Sea Country Plan (YMAC et al. 2010) that:

Although some differences remain, between and among native title groups, there is now a general sense that most groups have coalesced into final forms that will, in future, be the groups that exercise rights and interests in their respective areas. many of these rights and interests will relate directly to native title. however, there is also a more broadly based appreciation of the need to accept and discharge responsibilities for land and marine management within native title areas regardless of whether native title per se is affected. (YMAC et al. 2010, emphasis added).

The office of the Registrar of Indigenous Corporations records four corporations using the name Thalanyji, specifically:

- Buurabalayji Thalanyji Aboriginal Corporation
- Buurabalayji Thalanyji Aboriginal Corporation RNTBC
- Onslow Thalanyji Aboriginal Corporation
- Wurrumalu Thalanyji Aboriginal Corporation.

The only currently operative organisation, and the only organisation with an identified website, is Buurabalayji Thalanyji Aboriginal Corporation RNTBC. This website states that “Thalanyji Country spreads out across the Ashburton River coastal plain south to Tubridji Point, then across to Yannarie River and upstream to Emu Creek, across the range hills of southwest Pilbara to Henry River and Cane River in the north.” (BTAC 2021) This description includes coastal areas but provides no description of the extent of Sea Country.

A search of the National Native Title Tribunal register of applications and determinations identified four historic Native Title claims with the name Thalanyji, specifically:

- Thalanyji People (WC1995/002)
- Thalanyji People #2 (WC1996/082)
- Thalanyji (WC1999/045)
- Thalanyji 2 (WC2010/004)

Most of these claims were dismissed, and Woodside makes no assessment of the merits of these claims.

The area of WC1995/002, as defined in the map forming Attachment 1 to the Native Title Application,¹³ does not include any areas of Sea Country.

WC1996/082 does not include a publicly available map on the National Native Title Tribunal website. The Native Title Application¹⁴ does describe the area covered by the claim, including "This country extends from the Tubridji Point on the coast south west of Onslow and tracking south to Yanarrie River." and "The area also includes the waters and associated islands between Tubridji point and Cane River. These islands were visited by Thalanyji People." The extent of this Sea Country from the coast is unclear, but would presumably include islands as distant as Airlie Island, approximately 30 km from the shore.

The area of WC1999/045, as defined in the map forming Attachment C to the Native Title Application,¹⁵ includes an area of water extending approximately 30 km from the mainland coast in encompassing a number of islands, including:

- Airlie Island
- Ashburton Island
- Bessieres Island
- Direction Island
- Flat Island
- Locker Island
- Round Island
- Serrurier Island
- Table Island
- Thevenard Island
- Tortoise Island
- the Twin Islands.

The area also includes the southern-most of the Mangrove Islands, but does not include the other Mangrove Islands.

The area of WC2010/004, as defined in the map forming Attachment C to the Native Title Application¹⁶ includes localised areas of sea up to approximately 5 km beyond the coast.

Woodside has developed a robust understanding of Thalanyji Sea Country cultural values and heritage features through publicly available information (Section 4.9.4.1) and consultation with BTAC under Regulation 25. Reasonable and practicable steps have been taken to identify cultural features and heritage values of Thalanyji people in the EMBA.

If further guidance from BTAC is received as part of ongoing consultation which changes Woodside's understanding of the extent of Thalanyji Sea Country, then, if applicable, Woodside's Management of Change and Management of Knowledge process with EPO 28 will be applied to manage potential impact to newly identified cultural values or features to ALARP and an acceptable level. This estimation does not limit the extent of consultation with BTAC or the features and values they are encouraged to identify and communicate.

¹³http://www.nntt.gov.au/searchRegApps/NativeTitleClaims/NTDA%20Extracts/WC1995_002/Attachment%20A-%20Thalanyji%20Map.pdf

¹⁴ http://www.nntt.gov.au/searchRegApps/NativeTitleClaims/NTDA%20Extracts/WC1996_082/SNTAExtract_WC1996_082.pdf

¹⁵http://www.nntt.gov.au/searchRegApps/NativeTitleClaims/NTDA%20Extracts/WC1999_045/1999_11_09%20Attachment%20B%20Map%20of%20Claim%20Area.pdf

¹⁶http://www.nntt.gov.au/searchRegApps/NativeTitleClaims/NTDA%20Extracts/WC2010_004/WC2010_004%20Map%20of%20Application%20Area.pdf

4.9.4.3.4 Summary of Cultural Features and Heritage Values

Woodside has developed a robust understanding of cultural features and heritage values relevant to the activity through examination of publicly available information, studies and consultation with relevant persons under Regulation 25.

Table 4-23 consolidates the cultural features and heritage values identified in Sections 4.9.4.1, 4.9.4.2 and 4.9.4.3 and confirms whether there is potential for these to exist within the PAA or EMBA. As previously described, topics which have been raised in the context of an interest linked to the natural environment are impact and risk assessed in Section 6.7 and 6.7.13.

As cultural features are physical elements of a place, these can generally be assessed for impacts; where a feature is avoided, it is not impacted. Heritage values relate less to what is significant and more to why something is significant; interaction between heritage values and the PAA can only be reliably informed by consultation with Traditional Custodians where they are willing to share the necessary knowledge. Assessment of heritage values beyond cultural features alone is addressed in Section 6.10 subject to these caveats.

Table 4-23: Summary of cultural features and heritage values

Identified cultural features and heritage values	Context	EP Source				Potential for overlap	
		Consultation Feedback	Indigenous Archaeological Heritage Assessment	Ethnographic Heritage Assessment	Desktop Literature Assessment	Operational Area	EMBA
Archaeological Heritage and Landscapes							
Coastal/island archaeological sites	Coastal archaeological sites include shell middens, artefact scatters, skeletal material/burial sites, camps, meeting places, hunting places and water sources.	✓	x	✓	✓	No	Possible (shoreline accumulation only)
Petroglyphs	Petroglyphs are a form of rock art. Petroglyphs are a prominent feature particularly at Murujuga where it is found on hard, volcanic rock.	✓	x	✓	✓	No	Possible (submerged)
Fish traps	Stone arrangements constructed in intertidal areas which fill with fish at high tide and trap them at low tide/	✓	✓	x	✓	No	Possible (submerged)
Submerged archaeological sites	The Ancient Landscape extends between 125m and 130m below current sea level. Ancient occupation of this area may have left traces through now submerged archaeological sites.	✓	x	x	✓	No	None identified; Possible (Unknown)
Rivers, waterholes, tidal channels and seeps	Water sources on the Ancient Landscape which may be culturally significant or archeologically prospective. Traditional knowledge retains knowledge of some water sources on the ancient landscape and some submerged waterholes are related to a Kangaroo songline.	x	✓	x	✓	No	Known to occur
Submerged calcarenite ridges/paleo beach barrier systems	Calcarenite ridges that have formed at former coastal sand dunes have the potential to encase and preserve artefacts from disturbance during inundation where these formed following human occupation.	x	✓	x	✓	Known to occur	Known to occur

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Identified cultural features and heritage values	Context	EP Source				Potential for overlap	
		Consultation Feedback	Indigenous Archaeological Heritage Assessment	Ethnographic Heritage Assessment	Desktop Literature Assessment	Operational Area	EMBA
Submerged hills	Hills on the Ancient Landscape which may be culturally significant or archeologically prospective. As sea level rose these hills would have become islands and eventually submerged.	x	✓	x	✓	No	Known to occur
Madeleine Shoals	Archaeologically prospective location on the submerged landscape, including igneous geology which has the potential to include rock art.	x	x	x	✓	No	Known to occur
Karst depressions/Ravines and valleys between submerged ridges	Natural depressions with the potential to contain artefacts displaced during inundation.	x	✓	x	✓	No	Possible
Intangible values							
Songlines	Ethnographic survey noted dreaming tracks from locations onshore and to islands outside of the EMBA but was not able to determine the routes of any dreaming tracks that may extend across the submerged landscape.	✓	x	✓	✓	Possible (unspecified)	Possible (unspecified)
Creation/dreaming sites, sacred sites and ancestral beings	Ethnographic survey noted some sites associated with creation/dreaming or ancestral beings are known on land outside the EMBA. Publicly available literature talks to creation/dreaming and ancestral beings, including water serpents, connected to or originating from the sea generally.	✓	x	✓	✓	Possible (unspecified)	Possible (unspecified)
Ceremonial sites	Places where ceremony (e.g. thalu ceremonies) are performed. All identified ceremonial sites are located onshore.	x	x	x	✓	No	Possible (unspecified)

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Identified cultural features and heritage values	Context	EP Source				Potential for overlap	
		Consultation Feedback	Indigenous Archaeological Heritage Assessment	Ethnographic Heritage Assessment	Desktop Literature Assessment	Operational Area	EMBA
Cultural obligations to care for Country	Cultural obligation to care for the environmental values of Sea Country. Exclusion of Traditional Custodians from Sea Country or decision-making processes may inhibit ability to care for Country.	✓	x	x	✓	Possible (unspecified)	Possible (unspecified)
Knowledge of Country/customary law and transfer of knowledge	The preservation and transmission of knowledge is dependent on the preservation of the environment generally. Exclusion of Traditional Custodians from Sea Country may inhibit the transfer of knowledge.	✓	x	✓	✓	Possible (unspecified)	Possible (unspecified)
Connection to Country	Connection to Country is described in publicly available literature as “important to the Traditional owners’ spirituality and religion”. Connection to Country may be damaged where people are displaced or disrupted (e.g. during colonisation) or where there is a loss of technical skills or environmental knowledge.	✓	x	x	✓	Possible (unspecified)	Possible (unspecified)
Access to Country	Limitations on Traditional Custodians accessing or enjoying areas of Sea Country.	✓	x	x	✓	Possible (unspecified)	No (No limitations on access beyond the Operational Area)
Kinship systems and totemic species	Traditional Custodians have connection to species through kinship and totemic systems. An individual may have obligation to care for or not consume a species to which they are kin.	✓	x	x	✓	Possible	Possible

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Identified cultural features and heritage values	Context	EP Source				Potential for overlap	
		Consultation Feedback	Indigenous Archaeological Heritage Assessment	Ethnographic Heritage Assessment	Desktop Literature Assessment	Operational Area	EMBA
Resource collection	Fishing, hunting, gathering of marine species including marine mammals, marine reptiles, fish and invertebrates.	✓	x	x	✓	Possible (unspecified)	Possible
Marine ecosystems and species							
Water quality	Interest only, raised as a natural environment interest.	✓	x	x	x	Yes	Yes
Marine species	Generally raised in consultation and literature.	✓	x	x	✓	Possible	Possible
Marine mammals: Whales	Generally raised in consultation. Thalu species of totemic importance. Linked to songlines and dreaming stories. Humpback whales in particular.	✓	x	x	x	Possible	Possible
Marine mammals: Dolphins	Cultural ceremonies associated with communicating with dolphins. Culturally important species.	✓	x	x	✓	Possible	Possible
Marine mammals: Dugongs	Culturally important species. Used as a resource.	✓	x	x	✓	Possible	Possible
Marine reptiles: Marine turtles	Culturally important species and migration. There are thalu ceremonies associated with turtles. Turtles and turtle eggs as a resource. Law run through the sea, including turtles.	✓	x	x	✓	Possible	Possible
Marine reptiles: Sea snakes	Culturally important species.	✓	x	x	x	Possible	Possible

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Identified cultural features and heritage values	Context	EP Source				Potential for overlap	
		Consultation Feedback	Indigenous Archaeological Heritage Assessment	Ethnographic Heritage Assessment	Desktop Literature Assessment	Operational Area	EMBA
Fish: Fish, sharks and rays	Culturally important species. Used as a resource. Law run through the sea, including fish. There are thalu ceremonies associated with increasing fish stocks. Fish, including bream and sting rays are totemic species. Fish, including sharks and rays raised as a natural environment interest.	✓	x	x	✓	Possible	Possible
Cephalopods: Squid and Octopus	Thalu species of totemic importance. Resource.	✓	x	x	✓	Possible	Possible
Seabirds	Culturally important species. Birds (including shags, seagulls and osprey) and bird eggs as a resource.	✓	x	x	✓	Possible	Possible
Plankton	Interest only, raised as a natural environment interest.	✓	x	x	x	Possible	Possible
Benthic habitats: Coral	Culturally important with regard to connection with fish. Coral spawning specifically raised.	✓	x	x	x	No	Possible
Benthic habitats: Seagrass	Culturally important species. Protection of animals.	✓	x	x	x	No	Possible
Benthic habitats: Macroalgal communities	Interest only, raised as a natural environment interest.	✓	x	x	x	No	Possible
Benthic habitats: Epifauna and infauna	Interest only, subtidal soft bottom communities raised as a natural environment interest.	✓	x	x	x	Yes	Yes

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Identified cultural features and heritage values	Context	EP Source				Potential for overlap	
		Consultation Feedback	Indigenous Archaeological Heritage Assessment	Ethnographic Heritage Assessment	Desktop Literature Assessment	Operational Area	EMBA
Shoreline habitats: Mangroves	Mangrove seeds as resource. Critical breeding ground for marine and terrestrial wildlife. Mangroves would have provided shelter, crabbing, digging for shellfish, could be turtle nurseries.	✓	x	x	✓	No	Possible
Shoreline habitats: Intertidal sand/mudflat communities	Interest only, raised as a natural environment interest.	✓	x	x	✓	No	Possible
Shoreline habitats: Rocky shores	Interest only, raised as a natural environment interest.	✓	x	x	x	No	Possible
Shorelines	Including coastal landform. Interest only, raised as a natural environment interest.	✓	x	x	✓	No	Possible
Marine Park/coastal reserves	Interest only.	✓	x	x	x	Yes	Yes

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4.9.4.4 Further Context: Archaeological Heritage

Assessment of the Operational Area has not identified archaeological sites within the Operational Area.

No coastal areas or islands exist within the Operational Area. Islands do exist within the EMBA boundary, however given the EMBA is based on various models of an unplanned marine diesel spill there is no anticipated impact pathway from this activity to onshore archaeological sites above highest astronomical tide (HAT). No archaeological sites have been identified beyond terrestrial or intertidal areas, with the exception of two sites at Murujuga in Cape Bruguieres channel and Flying Foam Passage (Benjamin et al. 2020; Benjamin et al 2023), which are outside of the EMBA. However, it is recognised that there is the potential for submerged archaeological sites on the Ancient Landscape which is overlapped by the EMBA.

Archaeological sites identified onshore with the potential to exist in intertidal or submerged locations include petroglyphs, fish traps and artefact scatters or burials contained within sand dunes. As archaeological sites, these features have archaeological value which relates to the preservation of their fabric (i.e. the tangible features) and their context (i.e. their location and relationship to other archaeological and natural features). Archaeological sites may also have intangible dimensions (ICOMOS, 2013) cultural value that exist in addition to their archaeological or scientific value and are assessed separately.

Certain landscapes have been identified as archaeologically prospective on the submerged Ancient Landscape, including:

- submerged water sources (rivers, waterholes, tidal channels and seeps) which have an increased likelihood of use or habitation as past generations used the associated resources (UWA 2021)
- submerged calcarenite ridges younger than human occupation of the continent which may have formed over and protected artefacts in-situ (Veth 2019)
- prominent landscape features (e.g. hills, particularly of igneous rock formations) that may have been foci for cultural activity (UWA 2021)
- karst depressions and other “catch points” where artefacts may accumulate following disturbances caused by inundation (UWA 2021, Nutley 2022, Nutley 2023a).

Madeleine Shoals has been specifically identified by MAC as a prospective due to its igneous rock formations which have the potential to contain petroglyphs.

4.9.4.5 Further Context: Intangible Cultural Heritage

Intangible cultural heritage has been identified through consultation with First Nations people as culturally important (refer to Section 4.9.4.3). Cultural knowledge, as expressed through songlines, dreaming, dance and other cultural practices, can be associated with tangible objects and physical sites that are culturally important to First Nations people (Ardler 2021; Bursill et al. 2007). Intangible cultural heritage can also be embodied in the practices, representations, expressions, knowledge, uses and skills associated with physical sites (UNESCO 2003). As a result, physical features may have intangible dimensions (ICOMOS 2013).

In terms of identified cultural features and heritage values related to intangible values summarised in Table 4-23, see below for some additional context:

Songlines: Oral Songlines are often described by First Nations people as the law of the land and make up part of the Dreaming (Neale and Kelly 2020:30). Songlines are viewed in Western academia as a framework for relating people to land and consist of a series of invisible, interconnected routes across the landscape that mark significant sites for First Nations people (Higgins 2021:723). Songlines demonstrate First Nations peoples’ strong connections to land by revealing sacred knowledge that is place-specific (Roberts 2023:5). The land’s physical features are instrumental in

maintaining songlines because this is how ancestral spirits journeyed through, and interacted with, the physical landscape leaving sacred knowledge behind. The interconnection between the physical and spiritual is where songlines become intrinsically tied to significant places across Country. As a result, geographical landforms are recorded within songlines and become sacred places. Such landforms can include inter alia: rocks, mountains, rivers, caves and hills (Higgins 2021:724). Songlines can become lost, fragmented or broken when there is a loss of Country or forced removal from Country (Neale and Kelly 2020:30). Physical sites that have been identified as comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge.

In Australia, songlines can stretch thousands of kilometres, making up a complex and organic network of stories containing cultural knowledge of First Nations communities across the land (Neale and Kelly 2020:35). Songlines can also extend out to Sea Country and contain cultural knowledge that is tied to geographic features, atmospheric phenomena and marine plants and animals. Often songlines containing references to a seascape or Sea Country make mention of mythical events occurring around marine life, fishing areas, submerged rocks or coral. Songlines that embody seascapes can reflect how a group may relate to, or value, Sea Country—for example connections to nearby islands that they once inhabited in their songlines (Smyth and Isherwood 2016:307). Songlines can also be used as proof of long-standing connection to land and support a legal entitlement to land rights (Higgins 2021:74). Examples where songlines contain strong references to Sea Country are more common in Pacific Islander and Torres Strait Islander communities, who often refer to seascapes and skylines in their songlines in order to communicate sacred knowledge that assists in safe navigation of the ocean (Neale and Kelly 2020:83-84). The routes of any songlines in the EMBA have not been provided by Traditional Custodians through consultation relevant to this EP.

Creation/dreaming sites, sacred sites and ancestral beings: The sources located by Woodside with detailed descriptions of the location of ancestral beings or creation/dreaming/sacred sites placed these on land or within inland water sources such as rivers or pools. Some ancestral beings are noted to live within or originate from the sea generally, and some creation stories talk to the creation of features from or in the sea. Additionally, every place on shore or at sea is generally assumed to have been created on some level in First Nations' cosmology.

Cultural obligations to care for Country: Caring for Country collectively refers to the cultural obligations of individuals and groups, as well as rituals and ceremonies directed to the physical and spiritual health of the environment. In the literature reviewed by Woodside, caring for Country was noted to include, but is not limited to, maintenance of the physical environment and ecosystem. It may also have cultural, spiritual and ritual dimensions such as caring for ancestral beings or ensuring cultural safety. Thalu are places where what are known as "increase ceremonies" are performed to enhance or maintain populations of plants, animals or phenomena. All mentions of active ceremonial sites were confined to onshore locations, though the values may extend offshore where e.g., a thalu relates to marine species populations.

Knowledge of Country/customary law and transfer of knowledge: Knowledge of and familiarity with the features of Sea Country is itself a value. The inherent potential for restricted or secret knowledge makes this difficult to assess even through consultation with Traditional Custodians. However, aspects such as limitations on access to sites or disruption/relocation of First Nations communities may have implications for the preservation of First Nations knowledge. Further, connection to Country may be damaged where people are displaced or disrupted (e.g., during colonisation) or where there is a loss of technical skills or environmental knowledge (McDonald and Phillips, 2021). Transfer of knowledge includes continuing traditional practices to pass on practical skills. This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO 2003).

Connection to Country: Describes the multi-faceted relationship between First nations people and the landscape, which is envisioned as having personhood and spirit. It is also an aspect of personal

identity for many First Nations people. In the case of Sea Country this can mean identifying as a Saltwater person, where “essence of being a 'Saltwater' person is ontological... it is about how people relate spiritually to the sea and engage with spiritual forces that created it, the marine flora and fauna and people” (McDonald and Phillips, 2021).

Access to Country, including Sea Country: Access is necessary for the continuation of other values including caring for Country and the transfer of traditional knowledge. Being on Country can be an important way of expressing or maintaining connection to Country (Australian Indigenous HealthInfoNet n.d.). Access is also a value in its own right, as a continuation of traditional Sea Country access and use.

Kinship systems and totemic species: Individuals may have kinship to specific species (Smyth 2008, Juluwarlu 2004) and/or a responsibility to care for species (Muller 2008). Kinship arises from totemic associations within First Nations “skin group” systems. It is forbidden for an individual to kill or eat a species who is from the same “skin group” (Juluwarlu 2004). They may also have certain obligations linked to the discussion of caring for Country below. It is assumed that marine species may have kinship/totemic relationships to Traditional Custodians, but it is understood that these relationships do not prohibit people outside of that “skin group” from hunting or eating that same species (Juluwarlu 2004).

Resource collection: A number of marine species are identified through consultation and literature as important resources, particularly as food sources. In addition to their immediate value as sustenance, the gathering and preparation of these resources is informed by cultural knowledge, and an inability to use these resources may result in a loss of ability to transfer that knowledge to future generations.

4.9.4.6 Further Context: Marine Ecosystems and Species

First Nations people have raised through consultation that they have a general interest in environmental management and ecosystem health (i.e., natural environment interest), where a group/individual was seeking further information about potential impacts and risks from the Petroleum Activities Program on marine species and benthic communities in the Operational Area and EMBA. This includes marine mammals, marine reptiles, fish, seabirds, plankton, benthic and shoreline habitats and marine parks, which are described in context of their distribution and populations in Section 4.5 and 4.6.

In terms of identified cultural features and heritage values related to marine ecosystems and species summarised in Table 4-23, see below for some additional context:

Marine mammals: Whales, and in particular humpback whales, have been identified through consultation with First Nations people as culturally important species, with totemic importance including their populations, biodiversity, and migration patterns. Cultural ceremonies associated with communicating with dolphins have also been raised by MAC through consultation and dugongs predominantly as a resource. Details pertaining to whales, dugongs and dolphins, their distribution, migration patterns and populations are described in Section 4.6.3.

Marine reptiles: Turtles and sea snakes have been identified through consultation with First Nations people as culturally important species, with turtles identified as a resource. First Nations people that identify marine reptiles as species of totemic importance or integral to songlines may place high cultural value on their protection. No marine reptiles-related songlines have been identified as per Section 4.9.4.3.4 that have the potential to interact with the PAA or EMBA. Note the only specified songline related to marine reptiles (turtles) was shared by MAC, and was geographically restricted from Fortescue to Withnell Bay, in Mermaid Sound (MAC 2021). Cultural knowledge of turtles at a population level (turtle migration, behaviour and the related marine environment) may all be important in ensuring the continuation of cultural functions and activities that remain valuable to First Nations people (Fijn 2021:47; Delisle et al.2018). Details pertaining to marine reptiles, their distribution, and populations are described in Section 4.6.2.

Fish and Cephalopods: Fish and squid have been identified through consultation with First Nations people as a culturally important species, with fish generally being identified as a resource. First Nations may identify cultural values associated with fish species as important to maintaining both tangible (physical cultural sites) and intangible (cultural knowledge) cultural heritage. Tangible cultural heritage associated with fish can include important cultural sites such as midden sites, fish traps and thalu sites. The octopus is an important totem to Ngarla People and features in the creation story of Solitary Island. There are “increase ceremonies/rituals” for species of squid and octopus to enhance or maintain populations. Thalu are places where these “increase ceremonies” are performed. Details pertaining to fish and cephalopods are described in Section 4.6.1.

Seabirds: Seabirds, and in particular shags, have been identified through literature as a culturally significant species (Malgana Land and Sea Management et al. (2021), as well as a resource (seabird eggs; Smyth 2007). Details pertaining to seabirds and migratory shorebirds are described in Section 4.6.4.

Benthic habitats: Through consultation, First Nations groups identified benthic habitats as valuable for their ecological values, including corals attracting fish and seagrass providing shelters for fauna, as well as an important resource for dugongs. Additionally, coral is valued by MAC for its aesthetic values. Details pertaining to benthic habitats and communities, including their distribution, are described in Section 4.5.

Shoreline habitats: Through consultation, First Nations groups identified shoreline habitats as valuable for their ecological values, including mangroves for providing shelter to marine invertebrates, which are identified resources, and potential nursery for turtles. Literature also notes that mangroves are also valued for the flora and fauna they are associated with and support (Commonwealth of Australia 2002) and Smyth (2007) reports that mangrove seeds are used as a resource by Ngarda-Ngarli. Details pertaining to shoreline and coastal habitats, including their distribution, are described in Section 4.5.

4.9.5 Murujuga Cultural Landscape

Murujuga is a significant cultural landscape rich with heritage values, included on Australia’s National Heritage list and World Heritage tentative list. It contains one of the largest, densest and most diverse collections of rock art in the world, estimated to contain over a million engravings (petroglyphs) covering a broad range of styles and subjects. The landscape also contains quarries, middens, fish traps, rock shelters, ceremonial sites, artefact scatters, grinding patches and stone arrangements that evidence tens of thousands of years of human occupation. These places are linked through the stories, knowledge and customs that are still held by Traditional Custodians and have significance beyond their archaeological value.

This Cultural Landscape has global significance and is on the UNESCO World Heritage Tentative List. As stated on the UNESCO World Heritage website¹⁷:

The Traditional Custodians of Murujuga, the Ngarluma, Yindjibarndi, Yaburara, Mardudhunera and Wong-Goo-Tt-Oo groups, collectively referred to as Ngurra-ra Ngarli, have taken the lead in proposing the inclusion of the Murujuga Cultural Landscape on Australia’s World Heritage Tentative List. Ngurra-ra Ngarli, represented by the Murujuga Aboriginal Corporation, have prepared this Tentative List Submission in partnership with the Western Australian Government and with the support of the Australian Government.

Murujuga, the Aboriginal traditional name for the Dampier Archipelago and surrounds, including the Burrup Peninsula, is located in the Pilbara region of Western Australia. When the Ngurra-ra Ngarli talk about Murujuga, they talk about Land and Sea Country, which consists of a narrow peninsula of land extending approximately 22 kilometres from the mainland, a group of 42 islands, islets and

¹⁷ <https://whc.unesco.org/en/tentativelists/6445/>

rocks and the surrounding sea up to 40 kilometres from the port of Dampier (Murujuga Aboriginal Corporation 2016). With more than one million images in an area of more than 37,000 hectares, Murujuga is home to one of the most significant and diverse collections of petroglyphs in the world which documents the transition of an arid maritime cultural landscape through time (McDonald 2015, Mulvaney 2015, McDonald et al. 2018). Murujuga has the densest known concentration of hunter-gatherer petroglyphs anywhere in the world (Jo McDonald Cultural Heritage Management 2011, Australian Heritage Council 2012, Mulvaney 2015).

For the Aboriginal people of the Pilbara region, including the Ngurra-ra Ngarli, the petroglyphs are the work of the Marrga, the ancestral creator beings. They are a permanent reminder of Traditional Lore and retain their spiritual power. On Murujuga, the petroglyphs are an inherited and ongoing responsibility of the Ngurra-ra Ngarli (Jo McDonald Cultural Heritage Management 2011). The songs and mythologies for many of the images, such as Minyuburru (Seven Sisters), the fruit bat and Archaic Face, have important meaning across the whole of the Pilbara region and are central to Ngurra-ra Ngarli culture.

Archaic Faces have a widespread distribution throughout the arid zone of Australia and include a locally developed form on Murujuga (McDonald 2005, Mulvaney 2010, Veth et al. 2011). The Archaic Faces of Murujuga are a permanent reminder of how Traditional Lore should be followed. The presence of the Archaic Faces across the Pilbara region and into the Western Desert demonstrates the importance of the deep time shared cultural practices, including through the transfer of songs and mythologies between different language groups over thousands of kilometres.

“Some of these carvings are our Lore and Culture. The Lore, it goes from here, right to Uluru, from Uluru into the desert and back again to the West. That’s including the Kimberley and Northern Territory area. It’s still going strong”.

Source: Jakari Togo (Geoffrey Togo), Senior Cultural Ranger (deceased) 2013. Murujuga Cultural Heritage Management Plan (Murujuga Aboriginal Corporation 2016)

There is evidence that suggests that the Ngurra-ra Ngarli first started living and using this part of the Pilbara coastal plain around 50,000 years ago, when the coastline was understood to be about 100 kilometres away. At that time Murujuga is understood to have been wetter and warmer than it is now. The archaeological record of the coastal plain at this time reveals a faunal assemblage no longer found in this part of Australia, such as nail-tailed wallabies and crocodiles. Murujuga’s artists recorded this group of animals in the engraving assemblage. During the last ice age (between 30,000 and 18,000 years ago), when the coastline was understood to be 160 kilometres away, Ngurra-ra Ngarli are understood to have lived in the Murujuga Ranges (McDonald et al. 2018) as well as other desert refugia. Evidence of Ngurra-ra Ngarli living in this landscape is seen in a number of petroglyphs of animals that are now extinct, such as thylacines (Tasmanian Tiger) and a fat-tailed species of kangaroo (Brown 2018; Mulvaney 2013) which are distributed widely across the Pilbara region and into the sandy deserts. More recent petroglyphs depict fish, turtles, dugong and small marsupials that now live on the islands (McDonald 2015). The variations in petroglyphs and archaeological evidence demonstrate how Ngurra-ra Ngarli are understood to have adapted to the changing environments wrought by sea level rise (McDonald and Berry 2016).

The estimated more than one million petroglyphs of Murujuga demonstrate an extraordinary diversity of style, theme, mode of production and aesthetic repertoire. This art province is an inscribed landscape complete with other archaeological components, such as stone structures, middens and quarries, and provides a social context and means for interpreting the complexity of the petroglyphs (McDonald and Veth 2009).

The many stone features of Murujuga include standing stones, fish traps, stone arrangements, hunting hides and domestic structures. Some standing stones are thalu sites, places where ceremonies are carried out to increase and manage the social and economic benefits of natural resources (Daniel 1990). On Murujuga, stone feature sites range from single monoliths through to

extensive alignments comprising at least three or four hundred standing stones (Vinnicombe 2002). Thalu sites are permanent reminders of the Traditional Lore.

Murujuga is sacred to Ngurra-ra Ngarli, it is a place where everything is connected, through the Ancestral Beings – the land, the sky, the sea, the plants, the animals, the Lore and the spiritual world. This is the belief system that underlies life on Murujuga today (Murujuga Aboriginal Corporation 2016).

National Heritage Place – Dampier Archipelago

The Dampier Archipelago, including Murujuga, was included in the National Heritage List in 2007. Values listed against National Heritage criteria in the gazettal notice include:

- Engravings of a wide range of terrestrial, avian and marine fauna. These provide an “outstanding visual record of the course of Australia’s cultural history through the Aboriginal responses to the rise of sea levels at the end of the last Ice Age”
- Engraved “archaic faces” which demonstrate the long contact between Aboriginal societies on the Dampier Archipelago and inland arid Australia
- Diversity in representation of the human form in engravings, including depictions of groups of people “engaged in both mundane and sacred activities”
- Standing stones, stone pits and circular stone arrangements associated with various uses
- Ability to link research on archaeological remains (middens, grinding patches, quarries) and associated rock engravings to “contribute to an understanding of the cultural and economic meaning”

Further detail of these values can be found in the publicly available Gazettal¹⁸.

Murujuga National Park Management Plan

Parts of the Burrup Peninsula (4,913 hectares which is approximately 44% of the Burrup Peninsula) are owned by the Murujuga Aboriginal Corporation, leased back to the Western Australian Government and is jointly managed with DBCA as a National Park¹⁹ (DBCA, 2024). The Park and some adjacent areas is managed under the Murujuga National Park management plan 78 (2013, as amended 2023)). The Management Plan created by Ngarda-Ngarli and their joint management partners seeks to ensure the protection of the area and to revive Ngarda-Ngarli knowledge, associations and responsibility. Table 4-24: Murujuga National Park Management Plan objectives and applicability to Woodside. Table 4-24 lists the Plans main objectives and how these are applicable to Woodside, as well as the mechanisms under which Woodside implements requirements of the Plan.

The Plan acknowledges the coexistence of Woodside production facilities and the Park, identifying its objective ‘To promote effective, integrated and cooperative management between Murujuga National Park and adjacent land managers’ (DBCA, 2013, and amendment DBCA & MAC 2023).

In 2007, the Australian Government signed a Conservation Agreement with Woodside Energy Ltd to protect and research the National Heritage values of the Dampier Archipelago. In July 2017, Woodside signed the ‘Ngajarli (Deep Gorge) Joint Statement’ reaffirming the cooperative commitments made under each of the Conservation Agreements.

It is under the Conservation Agreement that Woodside provides ongoing funding to continue to support research into, and monitoring of the National heritage values of the Park so that activities are carried out in a manner that is consistent with the Murujuga National Park Management Plan 78 (2013). Further protections and management practices have been integrated into Woodside’s Cultural Heritage Management Plans and

¹⁸ <https://www.dcceew.gov.au/sites/default/files/env/pages/d53ee213-2f1e-481e-b0f6-85d861a52de2/files/10572701.pdf>

¹⁹ <https://www.dbca.wa.gov.au/management/plans/murujuga-national-park>

engagement protocols. Outcomes of funded programmes include processes to identify sites with National Heritage values, present and transmit information about the National Heritage values, and manage the National Heritage values so that they are conserved for future generations.

Table 4-24: Murujuga National Park Management Plan objectives and applicability to Woodside

Murujuga National Park Management Plan Objectives	Applicability to Woodside	Demonstration of meeting objectives
Murujuga National Park will be managed to the highest standards that meet the expectations of the Australian community for protection of cultural, heritage and natural values.	Not Applicable	NA
Cultural, heritage and natural values will be conserved, protected and promoted.	Applicable	<ul style="list-style-type: none"> • Conservation Agreement • Deep Gorge Joint Statement
Ngarda-ngarli will meet their obligations to country and satisfy their people's aspirations for benefits from land ownership.	Not Applicable	NA
Members of MPC will together make shared, informed, consistent, transparent and accountable decisions.	Not Applicable	NA

World Heritage Nomination

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) “seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity” via the World Heritage List, established under the World Heritage Convention 1972 (UNESCO 2024). The Murujuga Cultural Landscape was nominated to the UNESCO Tentative World Heritage List by the Federal Department of the Environment and Energy in 2020. Inscription on the World Heritage List means that Murujuga’s unique cultural, spiritual and archaeological values would be internationally recognised at the highest level.

As stated by the State Department of Biodiversity, Conservation and Attractions, “World Heritage Listing also brings a commitment at local, state and national levels to protect and manage the property for present and future generations.” World Heritage listing and industry can occur in parallel, as long as there are no significant impacts on World Heritage values.

As required under the World Heritage framework, the tentative World Heritage Listing of the Murujuga Cultural Landscape submission justifies its Outstanding Universal Values by meeting two of the possible ten selection criteria:

- *To represent a masterpiece of human creative genius*, with “more than one million images in an area of more than 27,000 hectares, the Murujuga Cultural Landscape has one of the densest known concentration of petroglyphs anywhere in the world,” and for the content, age and significance of the petroglyphs
- *To bear a unique or at least exceptional testimony to a cultural tradition or to a civilisation which is living or which has disappeared*, through the unbroken connection of the Ngarda-Ngarli people to Murujuga “since the world was soft and Ancestral Beings moved over the earth,” reflecting both deep-time history and ongoing critical cultural significance.

Further submissions on how the Murujuga Cultural Landscape meets World Heritage criteria can be found on the publicly available UNESCO World Heritage Tentative Listing²⁰.

Current Condition of Murujuga Cultural Landscape

The current condition of the Murujuga Cultural Landscape has been assessed from a number of publicly available sources.

The World Heritage Tentative List Submission for Murujuga Cultural Landscape (MAC, DBCA, DEE 2020) notes, with regards to the Statements of Integrity and/or Authenticity:

“Aboriginal cultural landscapes are living landscapes that change as time progresses, where oral tradition is the canon of proof and where changing practices of embodied experience with landscapes grow from generation to generation (Andrews and Buggey 2008).

In the context of Aboriginal cultural landscapes, any test of authenticity, must recognise, expect, and endorse changes (Andrews and Buggey 2008). The archaeological and anthropological evidence for Murujuga is well preserved, with a high degree of authenticity. The exceptionally well-preserved cultural values of Murujuga can be found across an area of more than 37,000 hectares, comprising the majority of the Burrup Peninsula, as well as the surrounding islands of the Dampier Archipelago...

The petroglyphs of Murujuga have been made on the exceptionally hard, dark volcanic rock using stone tool technology. Methods of production included pecking, abrasion, incision and bas-relief. When first produced the very pale grey petroglyphs would have contrasted starkly with the dark red-brown cortex of the rock. With subsequent patination and weathering, this contrast gradually reduces...

Murujuga has a high level of integrity and received enhanced protection and management following its National Heritage listing in 2007. A detailed land-use impact study of Murujuga documented that all 40 islands included in the Dampier Archipelago (including Burrup Peninsula) National Heritage place and approximately 85 per cent of the Burrup Peninsula, retain extremely high integrity (McDonald and Veth 2006a), and contain all the attributes that constitute the potential Outstanding Universal Value of the place...

Within the National Heritage listed area, the petroglyphs are whole and intact (Jo McDonald Cultural Heritage Management 2009, 2011). Although the entirety of Murujuga has not been surveyed and recorded, there are thousands of known sites which demonstrate the potential Outstanding Universal Value of the Murujuga Cultural Landscape...

While industrial development visually compromises some areas of the southern section of the Burrup Peninsula, the topography, with its deeply dissected gorges, valleys and scree slopes, means that a large portion of Murujuga, including the vast majority of its islands retain high visual integrity (Jo McDonald Cultural Heritage Management 2011, Australian Heritage Council 2012). In summary, the Murujuga Cultural Landscape is an intact and representative example of one of the most significant concentrations of human artistic creativity in the world, which survives through the continuity of Ngurra-ra Ngarli cultural and social practices and active management.”

The Report “The Potential Outstanding Universal Value of the Dampier Archipelago Site and Threats to that Site - A report by the Australian Heritage Council to the Minister for Sustainability, Environment, Water, Population and Communities” (Australian Heritage Council 2012) found that:

“It is clear that the undisturbed area within the boundaries of the National Heritage Listed place is complete and whole, notwithstanding the proximity of industry”

²⁰ <https://whc.unesco.org/en/tentativelists/6445/>

The Australian Heritage Database listing for the Nationally Heritage Listed Damper Archipelago (including Burrup Peninsula) states:

“Condition: Parts of the area, particularly the Burrup Peninsula, East Intercourse Island and Mid East Intercourse Island, have been subject to industrial development and other impacts such as the construction of towns and work camps. A land use impact assessment, undertaken using aerial photographs from August 2004, estimates that high levels of impact have occurred on 1,643 hectares (or 16.4 square kilometres) on the Burrup Peninsula (McDonald and Veth 2006). A high level of impact in these areas on the Burrup Peninsula has resulted in the destruction of archaeological material and in some cases the relocation of engravings and other stone features. Despite this, the natural and cultural heritage in Dampier Archipelago and its surrounding waters is in good condition” (DCCEEW 2007).

Research to date on the impacts of industrial emissions on rock art has not been conclusive and is summarised in section 4.9.6.

4.9.6 Summary of Existing Research on Onshore Industrial Emissions

The presence of industry on the Burrup Peninsula has been the subject of topics and issues raised by some Relevant Persons during consultation. The topics and issues have centred around emissions associated with industrial activity leading to an accelerated weathering of rocks on which rock art is present which may reduce the visibility or destroy the rock art. This is based on a hypothesis that deposition of compounds such as NO_x, SO_x and ammonia (NH₃) from anthropogenic industrial sources have the potential to increase the acidity of the rock surface through chemical and/or biological processes and that acidic conditions may then accelerate the weathering of rock patina, eroding or affecting the contrast of the rock art. There have been several independent studies and rock art monitoring initiatives since the mid-2000s, none of which have conclusively demonstrated a causal link between degradation of rock art and industrial activity. There are therefore also no applicable environmental air quality standards or guidelines available that can be applied to engraved rock art (Government of Western Australia, 2023).

Nevertheless, Relevant Persons have raised through consultation (Appendix F: Consultation) the possibility that emissions from the processing of LNG onshore at Murujuga may have an impact on the preservation of rock art. While these onshore emissions are not within the scope of the PAP, they are assessed in this EP as potential indirect impacts (Section 6.7.7). Research to date on the impacts of industrial emissions on rock art has not been conclusive, and is summarised in this section.

Further research is being undertaken by the Murujuga Rock Art Monitoring Program (MRAMP), run by the Murujuga Aboriginal Corporation and Western Australian Department of Water and Environmental Regulation (DWER). MRAMP is described as “A best practice monitoring and analysis program” by the Western Australian Government which “will provide reliable information on changes and trends in the condition of the rock art and whether the rock art is showing signs of accelerated change... The results from these studies will guide management and protection of the rock art” (Government of Western Australia, 2023). MRAMP will provide the necessary certainty to guide management and protection of the rock art.

In the absence of scientific certainty on the level of emissions which theoretically may affect rock art, Pluto LNG Plant (PLP) where the majority of Scarborough’s gas is planned to be processed is applying best available practicable and efficient technologies to minimise and monitor air emissions from the plant.

It is a condition of the existing approvals for PLP (MS 757) that the proponent of PLP produce a “Front End Engineering Design Report demonstrating that the proposed works adopt best practice pollution control measures to minimise emissions from the plant”. An update of the Best Practice Air Emissions Report was prepared for the operation of a second LNG train at PLP and was submitted in July 2019 to the EPA for assessment (Woodside, 2019).

PLP's publicly available Air Quality Management Plan has been reviewed and approved by the Western Australian Environment Protection Authority as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant (Woodside, 2019a). This included independent peer review assessment which concluded that the design of Pluto Train 2 is consistent with best practice in the context of air emissions control for LNG plants and the minimisation of greenhouse gas emissions (Woodside 2019a).

4.9.6.1 Research, Monitoring and Publications

In 2002, Bednarik speculated the existence of several possible pathways for industrial emissions to impact rock art, including acidification of rain and promotion of microbial activity. Bednarik suggested there was colour change in the rock surfaces. Bednarik's speculation led to further studies detailed in this section.

In 2002, the Western Australian Government established the Burrup Rock Art Monitoring Management Committee (BRAMMC) to assess the impacts of industrial emissions on the rock art of Murujuga. Research conducted by the BRAMMC included measurements of colour change as well as air quality, microclimate, dust deposition, mineral spectrometry, microbiological analyses, air dispersion modelling, and laboratory simulations of chemical impacts at contemporary, predicted and 10-times predicted pollutant estimates.

During the course of the BRAMMC studies, several further publications were produced including:

- MacLeod 2005, which found that acidity of rockfaces on Murujuga is higher than samples kept in museum conditions. The paper does not demonstrate that the museum samples, which have been subject to decades of museum preservation conditions, are representative of the natural pH of Murujuga's rocks nor does it draw any conclusions on the impacts of acidity on rock art preservation.
- Bednarik 2006 and 2007a were editorials, which did not include any original research.
- Bednarik 2007b argued that industrial emissions were impacting rock art but provided no evidence beyond analogy to bird droppings and expert advice that the absence of rock patina near trees was not the result of any known process caused by plants. The data provided by Bednarik is not sufficient to demonstrate that industrial emissions have negative impacts on the rock art but did warrant further study (which was already underway at that time).

In 2009, the BRAMMC reviewed the results of studies conducted under their program and concluded that "there is no scientific evidence to indicate that there is any measurable impact of emissions on the rate of deterioration of the Aboriginal rock art in the Burrup" and recommended that a technical working group be established to continue long-term monitoring.

In 2010, the Burrup Rock Art Technical Working Group (BRATWG) was established. Under the BRATWG the CSIRO continued to monitor potential colour change on the rock art (Markley et al 2015). In 2016, an unpublished paper by Black and Diffey concluded, contrary to CSIRO analysis at the time, that colour change was detected in the CSIRO data but that "a cause for the colour changes cannot be properly determined" and "the colour changes at the southern [non-control] sites are not readily explained by the concentrations of NO_x and SO_x compounds in the air."

These criticisms of the statistical methods used by CSIRO prompted the Department of Environment Regulation to commission Data Analysis Australia (DAA) to review the CSIRO research. The DAA report found that "Superficially our analyses and those of Black and Diffey suggest that some changes may have taken place, but... we have substantial doubts about the reliability of the data and hence any conclusions drawn" and, in relation to the conclusions of Black and Diffey "it would not be appropriate for the Draft paper to be published in its current form – the findings are based on highly doubtful data rendering any discussion of statistical significance moot." The final CSIRO report includes a reassessment using more robust methods informed by the DAA report. The result of this analysis was "not fully conclusive" (Duffey et al 2017).

In 2016, the BRATWG commissioned an extreme condition weathering study to investigate the effects of different concentrations of acids on weathered rock surfaces. This study found that the dissolution of chemicals began at lower pH levels than previously estimated (pH 3 for aluminium, manganese and iron), but was recognised as a preliminary study and did not provide definitive results (Ramanaidou et al 2017). These results cannot be relied on as a meaningful threshold for determining whether rock art is being impacted by emissions.

Since the 2016, BRATWG extreme weathering study, several additional papers have been produced, including:

- Black et al 2017a provides a review of the conclusions of earlier studies into emissions impacts by the CSIRO, specifically those undertaken with regards to the fumigation of rock samples with acid gasses, emersion of iron-rich rocks in acids, air pollution modelling and colour change. This review concluded that a number of errors and inaccuracies prevent any meaningful conclusion being drawn from the CSIRO data. This review did not demonstrate impacts to rock art from industrial emissions.
- Black et al 2017b provides a theoretical evaluation of MacLeod 2005 research. It provides no data that links industrial air emissions or subsequent deposition to changes in pH on Murujuga rock surfaces. There are practical limitations that prevent the MacLeod data from being adapted to the paper's purpose, including variation in sample dilution and the arbitrary exclusion of data.
- Black et al 2018 speculates the existence of several possible impact pathways, including acidification of rain and promotion of microbial activity. The paper recognises, however, that "There is no proof yet that the patina on Murujuga rocks is dissolving" and asserts that "there has not been credible research to determine" whether rock art is being degraded. In drawing conclusions regarding changes in acidity this paper assumes, without evidence, that geological samples which have been subject to decades of preservation in a museum are representative of the natural pH of Murujuga's rocks. The key conclusions of this paper are that further, more robust research is required, and that the precautionary principle should be applied in the interim.
- Gleeson et al 2018 primarily discusses microbial organisms that may be responsible for the formation of rock varnish. The paper briefly speculates on the possible impacts of industrial emissions but does not purport to provide any evidence of impacts to Murujuga's rock art.
- In 2019 the Department of Water and Environmental Regulation (DWER) produced the Murujuga Rock Art Strategy (MRAS), which built on the research to that date, and according to DWER will establish a world's best practice program to monitor, evaluate and report on factors that could affect the condition of rock art. This will be undertaken in consultation with a team of national and international experts in relevant disciplines and funded by industry including from Woodside. Research by this program is led by MAC and DWER so that results are independent from industry influence.
- CBG Solutions 2020 repurposes previous pH records from 2003 and 2004 (as a baseline) and data collected between 2017 and 2019 to assess changes in acidity on rock surfaces. The report repurposes historical and inconsistent pH data and acknowledges a number of resulting statistical issues which "makes determination of long-term pH changes problematic." The report states that "There appears to be no detrimental (acidification) impact that can be statistically supported regarding proximity to either the NW Gas plant or to the Pluto plant" and "Owing to the many variables that determine the surface pH of the Burrup rocks and the significant impact of periodic cyclonic heavy rain and the lack of historic data on all the tested sites, it is not possible to claim that there is sufficient evidence for the statement that there is a continuing increase in acidity across Murujuga since measurements commenced in 2003."
- Dorn 2020 discusses competing theories of desert varnish growth and how chemical changes to desert varnish result from human sources, such as lead concentration following the addition of lead to petrol. The chapter predominantly focusses on North America, but

uncritically restates the conclusions of Black et al 2017b. Only one other example in the paper, regarding an apparent change in varnish texture from near Los Angeles, appears to have even tangential relevance to industry on Murujuga. Acid fog is proposed as one *possible* cause, but this suggestion is not supported by any provided data and is based on examinations from an area with significantly higher acid gas concentration than Murujuga experiences.

- MacLeod 2020 provided results of a study commissioned by Yara Pilbara Nitrates. This report observes a variability of the relationship between colour difference and pH, with colour difference diminishing with increasing pH at some points, and diminishing with decreasing pH at other points although the final sentence of the report claims “There is unequivocal evidence that the changes in colour contrast are affected by the changes in the mean and in the minimum pH observed on the rock art sites at the reference positions.” At several points this report notes that rainfall events—particularly cyclonic events—appear to substantially reduce the acidity. The executive summary states that “There is a clear link between the minimum pH and the amount of sulphate on the rock surfaces, *which indicates some of the sulphate comes from anthropogenic sources*” (emphasis added) though the report does not articulate how a link between pH and sulphate contributes to an understanding of sulphate origin. MacLeod (2020) comments in relation to the two sites that are closest to Pluto LNG Plant and Karratha Gas Plant that the observed low sulphate concentrations “strongly supports that these exhaust sources are not resulting in any significant SO_x deposition on the rock surfaces.”
- MacLeod 2021 provides an update to this previous work which found that pH had increased during the study period but pH changes were affected by microclimate at each site including seasonal variations, microbial activity, and localised rainfall events. Any relationship between anthropogenic NO_x and SO_x emissions and acidity was not established and “Just as the mechanisms of adsorption of NO_x and SO_x onto the moistened rock surfaces are yet to be unequivocally established, the presence of a direct relationship between the concentration of sulphate in the wash solutions with the underlying acidity can be regarded as a de-facto correlation.” Once again, the report states that “There is unequivocal evidence that the changes in colour contrast are affected by the changes in the mean and in the minimum pH observed on the rock art sites at the reference positions.”
- Also in 2021, MacLeod and Fish (2021) published results of the studies commissioned by Yara Pilbara Nitrates, including that “there is presently no adverse impact on the rock engravings from industrial pollution owing to a lower NO_x level than when the studies commenced 14 years ago”. This conclusion was critiqued by Smith et al 2022a, who correctly noted that this conclusion is based on limited data and makes a number of key assumptions without adequate peer-reviewed research.
- Gagan et al 2022 is an investigation of anthropogenic air-borne sulphur on rock art on limestone substrate in Sulawesi, Indonesia. This is not comparable to the Murujuga petroglyphs as the Murujuga petroglyphs are not on a limestone substrate. The research notes that “the bulk of the damage was present before 1950 CE” for example due to biomass burning ~3,500 years ago; current threats include “vandalism and sulphur emissions from diesel-powered traffic and cement-based infrastructure”; and that “the rate of rock art loss may be on the decline.”
- Smith et al 2022a is a review of the Fish and McLeod report; the review does not contain original research and therefore does not further the existing scientific understanding of the subject. Claims that Smith et al 2022a demonstrate that emissions from industry are impacting rock art are incorrect.
- Smith et al 2022b does provide evidence of impacts to rock art and attributes these to three sources: mechanical removal and damage, chemical emissions and unsympathetic human presence. Evidence of the first and third of these is apparent and easily demonstrated from the photographic record, yet the paper itself notes that the use of photographic records to

assess chemical impacts through colour change are subject to considerable errors including distortion and degradation of early photographs, variable lighting conditions and other factors. The researchers do note that several petroglyphs (numbered 2, 5, 6, 9, 16, 17, 21, 22 and 24) appear to have lightened over time in line with a hypothesis that emissions have played a role in this, while one petroglyph (1) appears to have darkened and at least 13 do not demonstrate any change, including several in close proximity to industry. The paper appropriately notes that further research is required to determine the causes of these perceived changes.

- Neumann et al 2022 is an important proof-of-concept for analytical techniques, but is clear in its conclusion that:

Although our data clearly demonstrate that acidic rain has measurable effects on the varnish surface, including its colour and increased dissolution of Fe and Mn compounds, it should be stressed here that this does not necessarily mean that natural weathering of the petroglyphs is accelerated by anthropogenic pollution.

- Ruffolo et al 2023 review the formation of “black crusts”, accumulation of materials on the surface of stone buildings, in highly polluted urban environments, and intervention strategies to mitigate damage to built heritage from black crusts. The study notes “the research outcomes have established some correlations between black crusts and the surrounding air pollution, leading to them being considered as a “record” and also a “passive sampler” of past pollution patterns. However, in this case, there is not yet a well-defined procedure to obtain accurate and unambiguous information.” This paper does not provide new science applicable to the Murujuga petroglyphs due to its focus on built heritage and urban pollution.

In 2019, DWER released the Murujuga Rock Art Strategy (MRAS), “A monitoring, analysis and decision-making framework to protect Aboriginal rock art located on Murujuga (the Dampier Archipelago and Burrup Peninsula)” (DWER, 2019). The MRAS notes “This strategy builds on the previous work on Murujuga to deliver a scientifically rigorous approach to monitoring, analysis and management that will provide an appropriate level of protection to the rock art. It describes a risk-based approach for the management of impacts to the rock art that is consistent with the State Government’s responsibilities under the Environmental Protection Act 1986 (EP Act) and provides the monitoring and analysis to determine whether accelerated change is occurring to the petroglyphs” (DWER 2019).

In regards to previous scientific studies and monitoring, the MRAS states “In 2002, the Western Australian Government established the Burrup Rock Art Monitoring Management Committee (BRAMMC) in response to concerns about possible adverse impacts on the rock art from industrial air emissions...In 2009, after reviewing the information from these studies and the comments from the international peer reviewers, BRAMMC concluded there was no scientific evidence of any measurable impact of industrial emissions on the rate of deterioration of the Burrup rock art. BRAMMC recommended that no environmental management measures specifically to protect the rock art from air pollution were necessary at that time. BRAMMC recommended that colour contrast and spectral mineralogy monitoring be continued on an annual basis for 10 years and be reviewed after five years; and that a technical working group be established to consider the results of monitoring and other studies. BRAMMC also recommended that the monitoring of ambient air quality and rock microbiology be suspended and only recommenced if warranted by a major increase in emissions or if evidence became available indicating further monitoring was required.

The Burrup Rock Art Technical Working Group (BRATWG) was established to oversee the colour contrast and spectral mineralogy monitoring program and other studies between September 2010 and June 2016. The then Department of Environment Regulation (DER) managed the monitoring program from the expiry of BRATWG’s tenure in June 2016 until the formation of DWER on 1 July 2017” (DWER 2019).

Outcomes of both the BRAMMC and the BRATWG have been discussed above.

The MRAS states that “The successful implementation of the management framework to protect the rock art from anthropogenic emissions will require...a monitoring program that is appropriately designed and implemented to take the necessary measurements, to analyse the data and to report on the integrity or condition of the rock art and change in that condition” (DWER 2019). As described in the MRAS “The Western Australian Government in partnership with MAC and in consultation with international and national experts in relevant disciplines and the Murujuga Rock Art Stakeholder Reference Group, will develop and implement a revised long-term Murujuga Rock Art Monitoring Program” (DWER 2019).

In December 2023, the first interim report of MRAMP was published. An accompanying summary report notes that “Data collected in the first year of observation do not permit any firm conclusions to be drawn about trends in rock surface condition and any relationship to air quality over time” (Government of Western Australia 2023). However, several techniques were considered promising for future analysis, including spectral measurement of rock art condition, geological studies and mineralogical studies. Though requiring more data to draw any conclusions, the report and summary both note that the correlation observed between acid-producing emissions and pH were the *inverse* of predictions if these gases were causing acidification of rock surfaces (that is, higher concentrations of these gases were associated with *less* acidic rock surfaces). Woodside does not consider these results to be definitive and recognises that further work by MRAMP is required. Final results by MRAMP are scheduled for December 2025, just prior to the earliest commencement date for the Petroleum Activities Program (Section 3.4), with interim Environmental Quality Criteria anticipated to be published in the preceding years. This will provide the necessary certainty to guide management and protection of the rock art for industry on Murujuga.

Produced subsequent to these interim results, Smith 2024 provides the results of laboratory studies on Murujuga rock samples. The methodology for these experiments is not provided. The reported results are that particles of weathering rind begin to detach from the rock samples when the pH of rocks reach 6 or lower—significantly higher than, for example, suggested in Ramanaidou et al 2017. This report also reinterprets results from the MRAMP program (although excluding results from the first campaign of this work from consideration). This reinterpretation requires cautious consideration, noting the MRAMP interim report’s caveats that the available data is insufficient for drawing meaningful conclusions. The conclusions of Smith 2024 state that “The rock surfaces of Murujuga have become increasingly acidic *due to the nitric and sulphuric dusts emitted by industry in the area.*” (emphasis added). This causal link is not supported in the report by reference to any other study, and as the report does not provide a clearly stated methodology it is unclear that this is supported by the laboratory work performed. A correlation may, perhaps, be implied by reference to historic trends reported in reports discussed elsewhere in this section, which have noted methodological issues. Smith 2024 also fails to address, in its reinterpretation of MRAMP data, the preliminary observation that higher levels of acid-producing emissions were found to correlate with less acidic rock surfaces.

Woodside is also aware of a draft paper, Black 2024, which reiterates previous conclusions drawn by Mr Black but does not provide new science regarding Murujuga’s rock art. The paper summarises some of the scientific literature addressing rock art on Murujuga and other locations around the world described above.

On 1 July 2024, a Statutory Declaration by Mr Nigel Carney, formerly employed by Murujuga Aboriginal Corporation as Coordinator of the Murujuga Rock Art Strategy and the Monitoring Program (MRAMP) was tabled in the Australian Senate by Senator Lidia Thorpe which alleges that:

- Calibre Ventures Pty Ltd, a third-party private contractor “was in effect managing the MRAMP” (paragraph 10), and
- the partnership between MAC and DWER (as it stood in 2023) required “significant changes in the existing management structure, due largely to conflict of interest and related issues”, (paragraph 11) and

- people in leadership positions at MAC have attempted to unduly influence the outcome of MRAMP (paragraphs 4-5, 24-25 and 34).

Mr Carney also claimed to record “multiple scientific flaws” (paragraph 13) and “numerous deficiencies” (paragraph 17) with MRAMP, though the nature of these issues is not provided. No such errors are apparent from the MRAMP first interim report, which has been subject to independent peer review (Government of Western Australia 2024).

The CEO of MAC provided comments to media in response to the tabled documents, stating “The claims made in the tabled documents do not stand up to scrutiny,..The Murujuga rock art monitoring program is a strong, best-practice program that has been designed with international experts to examine the impact of industrial emissions on Murujuga’s petroglyphs” (WA Today, 6 June 2024, article entitled “Leaked letter reveals internal concerns about science on Australia’s next world heritage site by Hamish Hastie and Peter Milne, 2024)

The Government of Western Australia maintains that the MRAMP is a “best practice monitoring and analysis program” which “will provide reliable information on changes and trends in the condition of the rock art and whether the rock art is showing signs of accelerated change” (Government of Western Australia 2024). As a basic principle of managing First Nations cultural heritage, and as reflected in Woodside’s First Nations Communities Policy (Woodside, 2022), the involvement of MAC as representatives of Traditional Custodians in this project is also important to ensuring that the broader values of Murujuga are appropriately managed. Further results from the MRAMP are expected periodically until its conclusion in 2025, and relevant findings will be managed through Woodside’s Management of Change process.

4.9.7 Historic Sites of Significance

There are no known sites of historic heritage of significance within the PAA. Appendix D: Aboriginal Cultural Heritage Inquiry System Searches describes cultural heritage sites within the EMBA.

4.9.8 Underwater Heritage

A search of the Australasian Underwater Cultural Heritage Database, which records all known Maritime Cultural Heritage (shipwrecks, aircraft, relics and other underwater cultural heritage) in Australian waters revealed 14 shipwrecks located within the EMBA (Figure 4-18). The Curlew, Marietta, Vianen, Wild Wave, and Trial wrecks are classified as a historic shipwrecks under the

Underwater Cultural Heritage Act 2018 and a Protected Place under the EPBC Act and listed in Table 4-25: Recorded shipwrecks within EMBA

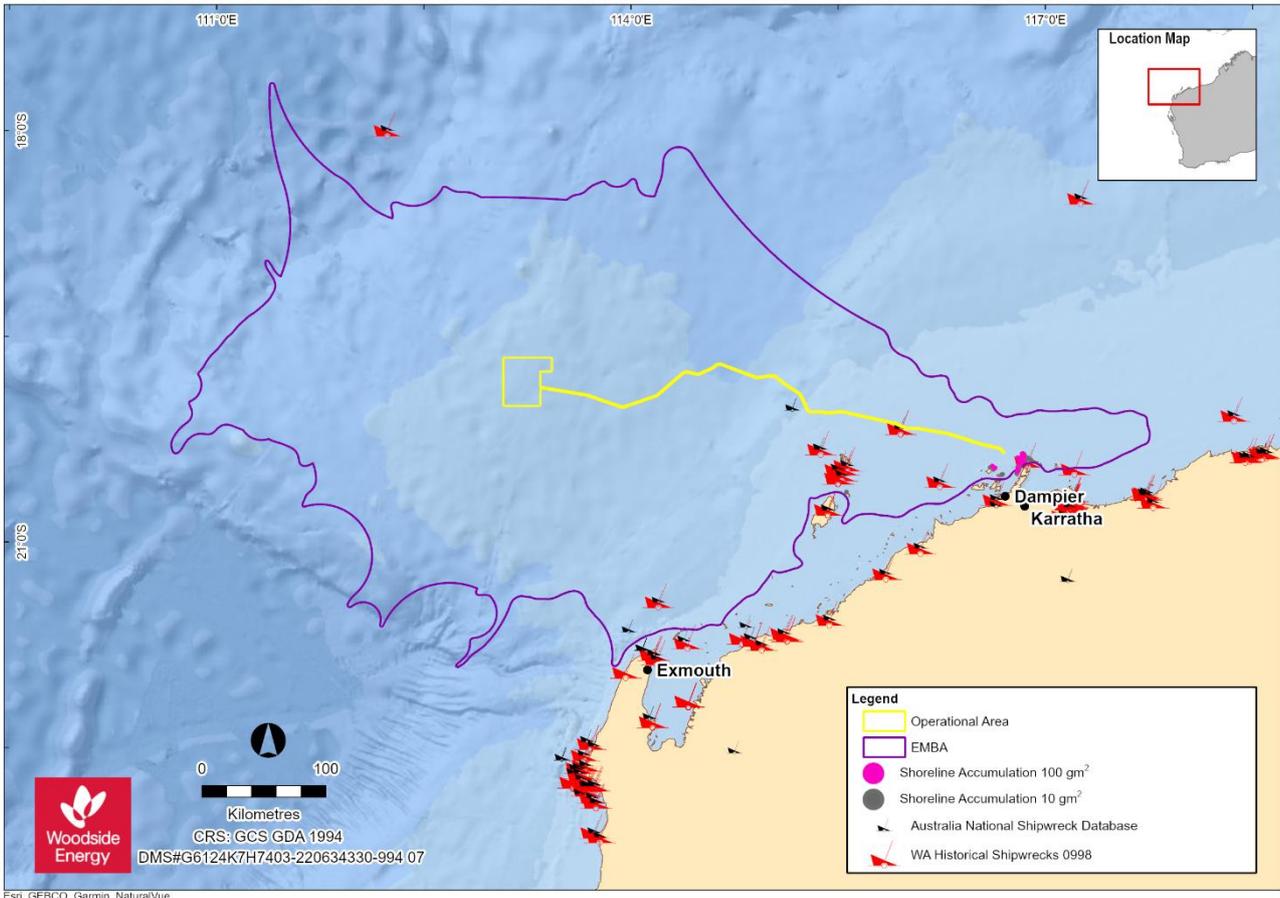


Figure 4-18: Petroleum Activities Area and environment that may be affected in relation to State and Commonwealth shipwrecks

Table 4-25: Recorded shipwrecks within EMBA

Vessel Name	Year Wrecked	Wreck Location	Latitude	Longitude	Distance from PAA
McCormack	1989	North east tip of Eaglehawk Island	20.14 ° S	115.95° E	0.15 km north of Trunkline Operational Area
McDermott Derrick Barge No 20	1989	North east tip of Eaglehawk Island	20.14 ° S	115.95° E	0.15 km north of Trunkline Operational Area
Vianen	1682	Barrow Island Area	20.0°S	115.17°E	8 km south of Trunkline Operational Area
Wild Wave (China)	1873	Montebello Island	20.0°S	115.17°E	8 km south of Trunkline Operational Area
Marietta	1905	Montebello Islands	20.0°S	115.17°E	8 km south of Trunkline Operational Area

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Vessel Name	Year Wrecked	Wreck Location	Latitude	Longitude	Distance from PAA
Curlew	1911	At Onslow, Montebellos Group	20.0°S	115.17°E	8 km south of Trunkline Operational Area
Zelma	1990	Dampier Archipelago	20.38 ° S	116.87° E	18 km east of Trunkline Operational Area (State Waters end)
Tanami	N/A	WA - North West (Montebellos Area)	20.28 ° S	115.37° E	24 km south of Trunkline Operational Area
Trial	1622	WA - North West (Montebellos Area)	20.29 ° S	115.38° E	24 km south of Trunkline Operational Area
Dampier	N/A	Enderby Island, Dampier Archipelago	20.52 ° S	116.23° E	34 km south of Trunkline Operational Area (State Waters end)
Plym HMS	1952	WA - North West (Montebellos Area)	20.40 ° S	115.57° E	36 km south of Trunkline Operational Area
Tropic Queen	1975	WA - North West (Montebellos Area)	20.43 ° S	115.51° E	41 km south of Trunkline Operational Area
Parks Lugger	N/A	WA - North West (Montebellos Area)	20.48 ° S	115.53° E	45 km south of Trunkline Operational Area
Lady Ann	1982	WA - North West (NW Cape)	20.40 ° S	114.20° E	154 km south of Trunkline Operational Area (FPU end)

4.9.9 World, National and Commonwealth Heritage Listed Places

No listed world, national or commonwealth heritage places overlap the PAA. World, National and Commonwealth heritage places within the EMBA are identified in Table 4-26. Section 11 of the Appendix L: Woodside Master Existing Environment outline the natural values and sensitivities of protected places and other sensitive areas in the PAA and EMBA.

Table 4-26: World Heritage Properties and National/Commonwealth Heritage Listed Places within the environment that may be affected

Listed Place	Distance and Direction from Listed Place to PAA (km)
World Heritage Properties	
Ningaloo Coast	178 km south of Trunkline Operational Area (FPU end)
Murujuga Cultural Landscape (tentative list)	8km south of Trunkline Operational Area
National Heritage Places	
Ningaloo Coast (natural)	178 km south of Trunkline Operational Area (FPU end)
Barrow Island and the Montebello-Barrow Islands Marine Conservation Reserves	25 km south-east of Trunkline Operational Area (State Waters)
Dampier Archipelago (including Burrup Peninsula)	8 km south of Trunkline Operational Area
Commonwealth Heritage Places	
Ningaloo Marine Area – Commonwealth Waters	181 km south of Trunkline Operational Area (FPU end)

4.10 Socio-economic Environment

4.10.1 Commercial Fisheries

A number of Commonwealth and State fishery management areas are located within the PAA and EMBA. The Annual Fishery Status Reports published by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) were used to identify whether Commonwealth managed fisheries have fished within the PAA and EMBA in the last five years. FishCube data were also requested from the WA Department of Primary Industries and Regional Development (DPIRD) for the most recently available five-year period of fishery catch and effort data (2018-2022) to analyse the potential for interaction of fisheries with the PAA. Data was reviewed from the last 5 years as a subset of past fishing effort. This was deemed an appropriate period to represent potential future fishing effort for a period of approximately five years following acceptance of this EP. In addition, any impacts to fish are expected to be temporary in nature (See Section 6.7 and Section 6.7.13) and therefore not extending beyond the life of the EP.

Table 4-27 provides an assessment of the potential interaction and provides further detail on the fisheries that have been identified through desktop assessment and consultation (Section 5). Two Commonwealth managed, and twelve State managed fisheries (in addition to charter operators) were identified as having a potential to interact with the Petroleum Activities Program, within the PAA (see Table 4-27, Figure 4-19 to Figure 4-22).

Table 4-27: Commonwealth and State commercial fisheries overlapping the Petroleum Activities Area and environment that may be affected, and the potential for interaction during the Petroleum Activities Program

Fishery	Potential for interaction		
	PAA ²¹	EMBA ¹³	Description ²²
Commonwealth Managed Fisheries			
North West Slope Trawl Fishery	✓	✓	The North West Slope Trawl Fishery management area overlaps the PAA and the EMBA. The fishery is predominantly a scampi fishery using demersal trawl gear in water depths > 200 m. While targeting scampi, finfish and squid are also retained. The number of vessels active in the fishery since 2005-06 ranges between one and six. Fishing effort in 60 NM graticular reporting blocks overlapping the EMBA and PAA (trunkline operational area) has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur in the PAA and EMBA.
Southern Bluefin Tuna Fishery	✘	✘	The Southern Bluefin Tuna Fishery management area overlaps the PAA and the EMBA. The Southern Bluefin Tuna Fishery spans the Australian Fishing Zone, however since 1992, the majority of Australian catch has concentrated in south-eastern Australia. No activity within the fishery has occurred in the PAA or EMBA within the last five years. Accordingly, Woodside considers there to be no potential for interaction with this fishery and the Petroleum Activities Program.
Western Deepwater Trawl Fishery	✓	✓	The Western Deepwater Trawl Fishery management area overlaps the PAA and the EMBA. The fishery targets finfish and deepwater bugs using demersal trawl gear. Effort is concentrated between Shark Bay and Cape Range. Fishing effort in 60 NM graticular reporting blocks overlapping the PAA (trunkline operational area) and EMBA has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur in the PAA and EMBA.
Western Skipjack Fishery	✘	✘	The Western Skipjack Fishery management area overlaps the PAA and the EMBA. The Western Skipjack Tuna Fishery encompasses the entire Australian Exclusive Economic Zone (EEZ). Collectively with the Eastern Skipjack Tuna Fishery (which targets the east coast stock of skipjack tuna) these fisheries form the Skipjack Tuna Fishery. The fishery targets western skipjack tuna (<i>Katsuwonus pelamis</i>) and primarily employs Purse seine fishing methods (about 98%), with some minor pole-and-line fishing.

²¹ Green highlights in these columns denotes overlap between the PAA with the fishery management area. Ticks or crosses indicate the potential for interaction.

²² All descriptions derived from Patterson et al., (2023), Newman et al. (2023), and catch data available from DPIRD and the Australian Bureau of Agricultural and Resource Economics and Sciences unless otherwise cited.

			The Fishery is not currently active and no fishing has been recorded since the 2008–2009 fishing season as a result of the natural variability of skipjack tuna stocks in Australian waters and low unit price for this species. Accordingly, Woodside considers there to be no potential for interaction with this fishery and the Petroleum Activities Program.
Western Tuna and Billfish Fishery	x	x	The Western Tuna and Billfish Fishery management area spans the Australian Fishing Zone west of Victoria and the Torres Strait and overlaps the PAA and the EMBA. The fishery targets marlin, swordfish, and tuna (<i>Thunnus</i> spp.) using pelagic longlines. Effort in recent years is concentrated off the west and south coasts of Western Australia, between Geraldton and Albany. No activity within the fishery has been recorded within the EMBA within the last five years. Accordingly, Woodside considers there to be no potential for interaction with this fishery and the Petroleum Activities Program.
State Managed Fisheries			
Abalone Managed Fishery	x	x	The Abalone Managed Fishery management area overlaps the PAA and EMBA. The fishery is diver-based and targets greenlip, blacklip, and Roe's abalone in relatively shallow coastal waters (< 30 m). The species targeted by the fishery are temperate or subtropical. No activity within the fishery has been recorded within the EMBA within the last five years. Accordingly, Woodside considers there to be no potential for interaction with this fishery and the Petroleum Activities Program.
Exmouth Gulf Prawn Managed Fishery	x	✓	The Exmouth Gulf Prawn Managed Fishery management area overlaps the EMBA. The fishery uses demersal trawl gear to target several prawn species within Exmouth Gulf. Fishing effort in 10 NM graticular reporting blocks overlapping the EMBA (but not the PAA) has been recorded within the last five years. Accordingly, Woodside considers there to be potential for interaction with this fishery within the EMBA.
Hermit Crab Managed Fishery	x	x	The Land Hermit Crab Managed Fishery management area overlaps the EMBA where shoreline contact is predicted. FishCube reported no fishing effort within the EMBA where shoreline contact has been modelled. Woodside considers there to be no potential for interaction with this fishery and the Petroleum Activities Program.
Mackerel Managed Fishery	✓	✓	The Mackerel Managed Fishery management area overlaps the PAA and the EMBA. The fishery is managed within three areas - Kimberley (Area 1), Pilbara (Area 2), and Gascoyne and West Coast (Area 3). The fishery targets mackerel (primarily Spanish mackerel) using surface trolled gear. Most landings are in the Kimberley (Area 1), beyond the EMBA. Fishing effort in 10 NM graticular reporting blocks overlapping PAA (trunkline operational area) and EMBA has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the PAA and the EMBA.

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Marine Aquarium Fish Managed Fishery	✓	✓	The Marine Aquarium Fish Managed Fishery management area overlaps the PAA and EMBA. The fishery occurs state-wide and is primarily diver-based in shallow coastal waters (< 30 m). The fishery targets species for the aquarium trade. Fishing effort in 10 NM graticular reporting blocks overlapping the PAA (trunkline operational area) and EMBA has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the PAA and the EMBA.
Nickol Bay Prawn Managed Fishery ²³	x	✓	The Nickol Bay Prawn Managed Fishery management area overlaps the PAA and EMBA. The fishery uses demersal trawl gear to target several prawn species in Nickol Bay. Fishing effort in 10 NM graticular reporting blocks overlapping the EMBA (but not the PAA) has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.
North Coast Shark Fishery	x	x	The WA North Coast Shark Fishery management boundary includes waters between 114°06'E (approximately Onslow) to 123°45'E (Eighty Mile Beach) and extends to approximately the 200 m isobath. In 2008, the WA North Coast Shark Fishery's Wildlife Trade Operation approval under the EPBC Act was revoked because a formal management plan had not been finalised (Patterson et al., 2019). Therefore, no vessels are active in the fishery. While there is an overlap with the WA North Coast Shark Fishery management area, Woodside considers there to be no potential for interaction with fishers within the Operational Area.
Onslow Prawn Managed Fishery	x	✓	The Onslow Prawn Managed Fishery overlaps the PAA and EMBA. The fishery uses demersal trawl gear to target several prawn species in coastal waters off Onslow. Fishing effort in 10 NM graticular reporting blocks overlapping the EMBA (but not the PAA) has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur in the EMBA.
Pearl Oyster Managed Fishery	x	x	The Pearl Oyster Managed Fishery management area overlaps the PAA and EMBA (specifically Zone 1 of the fishery). The fishery is diver-based and typically restricted to relatively shallow coastal waters (< 30 m). Most fishing effort occurs off the Kimberley coast around Broome. No fishing activity has occurred within the EMBA within the last five years. Accordingly, Woodside considers there to be no potential for interaction with this fishery and the Petroleum Activities Program.
Pilbara Crab Managed Fishery	✓	✓	The Pilbara Crab Managed Fishery management area overlaps the PAA and the EMBA. The fishery targets blue swimmer crabs in coastal waters using baited pots. Fishing effort in 10 NM graticular reporting blocks overlapping the EMBA and PAA (trunkline operational area) has been recorded within the last five years.

²³ Nickol Bay Prawn Managed Fishery has a 10nm CAES block showing fishing effort from up to 3 vessels in the 2017-18 season overlapping the PAA. However, as the fishery management area does not overlap the PAA, it is inferred that fishing activities may occur adjacent but not within the PAA boundary.

			Accordingly, Woodside considers it a possibility that interaction with the fishery may occur in the PAA and EMBA.
Pilbara Fish Trawl (Interim) Managed Fishery	✓	✓	The Pilbara Fish Trawl (Interim) Managed Fishery management area overlaps the PAA and the EMBA. The fishery uses demersal trawl gear to target finfish in continental shelf waters (typically < 150 m). Fishing effort in 60 NM graticular reporting blocks overlapping the EMBA and PAA (trunkline operational area) has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the PAA and EMBA.
Pilbara Line Fishery	✓	✓	The Pilbara Line Fishery management area overlaps the PAA and EMBA. The fishery uses baited lines to target finfish in continental shelf waters (typically < 150 m). Fishing effort in 60 NM graticular reporting blocks overlapping the EMBA and PAA (trunkline operational area) has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the PAA and the EMBA.
Pilbara Trap Managed Fishery	✓	✓	The Pilbara Trap Managed Fishery management area overlaps the PAA and the EMBA. The fishery uses baited traps to target finfish in continental shelf waters (typically < 150 m). Fishing effort in 60 NM graticular reporting blocks overlapping the EMBA and PAA (trunkline operational area) has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the PAA and the EMBA.
South West Coast Salmon Managed Fishery	x	x	The South West Coast Salmon Fishery management area overlaps the PAA and EMBA. No fishing effort has been recorded in the PAA or EMBA in the last five years. The target species is temperate and does not occur within the EMBA. Accordingly, Woodside considers there to be no potential for interaction with this fishery and the Petroleum Activities Program.
Specimen Shell Managed Fishery	✓	✓	The Specimen Shell Managed Fishery management area overlaps the PAA and the EMBA. The fishery occurs state-wide and is primarily diver-based in shallow coastal waters (< 30 m). Fishing effort in 10 NM graticular reporting blocks overlapping the EMBA and PAA (trunkline operational area) has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the PAA and the EMBA.
West Coast Deep Sea Crustacean Managed Fishery	✓	✓	The West Coast Deep Sea Crustacean Managed Fishery management area overlaps the PAA and EMBA. The fishery targets several species of crab using baited pots, with fishing effort concentrated between 500 m and 800 m water depth. Effort is concentrated off the Shark Bay coast. Fishing effort in 10 NM graticular reporting blocks overlapping the EMBA (but not the PAA) has been recorded within the last five years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur in the EMBA.

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West Coast Rock Lobster Fishery	x	x	<p>The Western Rock Lobster Fishery management area overlaps the EMBA, but not the PAA. The fishery uses baited pots to target western rock lobster in continental shelf waters. No fishing effort has been recorded within the EMBA or PAA in the last five years.</p> <p>Accordingly, Woodside considers there to be no potential for interaction with this fishery and the Petroleum Activities Program.</p>
Western Australian Sea Cucumber Fishery	x	✓	<p>The Western Australian Sea Cucumber Fishery is permitted to fish throughout WA waters. The fishery is diver- and wader-based and typically restricted to shallow coastal waters (< 30 m). Fishing effort in 10 NM graticular reporting blocks overlapping the EMBA (but not the PAA) has been recorded within the last five years.</p> <p>Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.</p>
Charter based commercial operators			
Tour Operators	✓	✓	<p>Fishing Tour Operators are permitted to operate across WA state waters and are required to report monthly logbook records of client fish catches. FishCube data reports fishing effort within 10 NM graticular reporting blocks the EMBA and PAA (trunkline operational area).</p> <p>Accordingly, Woodside considers it a possibility that interactions with tour operators will occur in both the PAA and EMBA.</p>

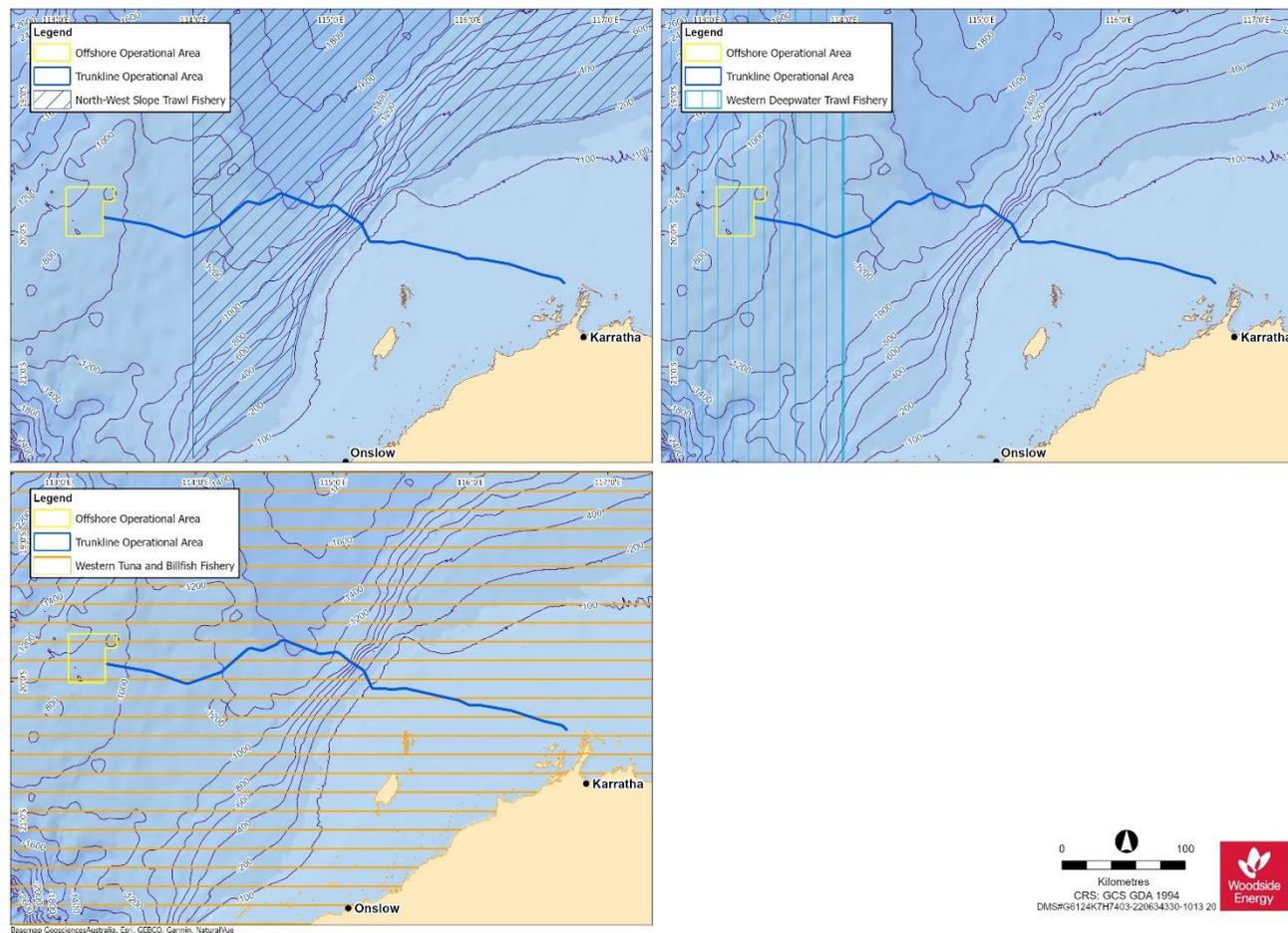


Figure 4-19: Commercial Commonwealth fisheries overlapping the Petroleum Activities Area and environment that may be affected with a potential for interaction with the Petroleum Activities Program

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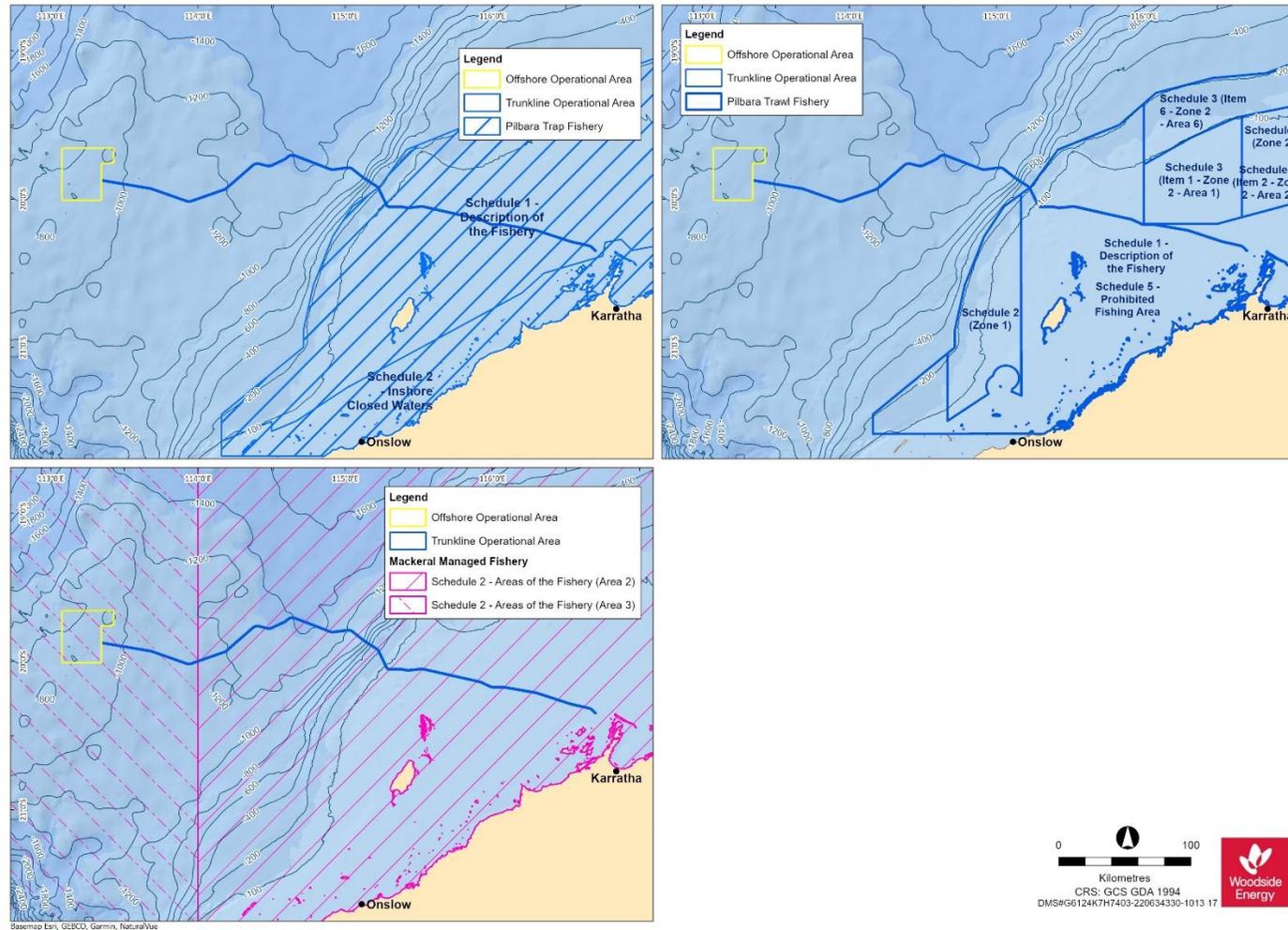


Figure 4-20: Commercial State fisheries overlapping the Petroleum Activities Area and environment that may be affected with a potential for interaction with the Petroleum Activities Program (Pilbara Trap, Pilbara Trawl and Mackerel Managed Fisheries)

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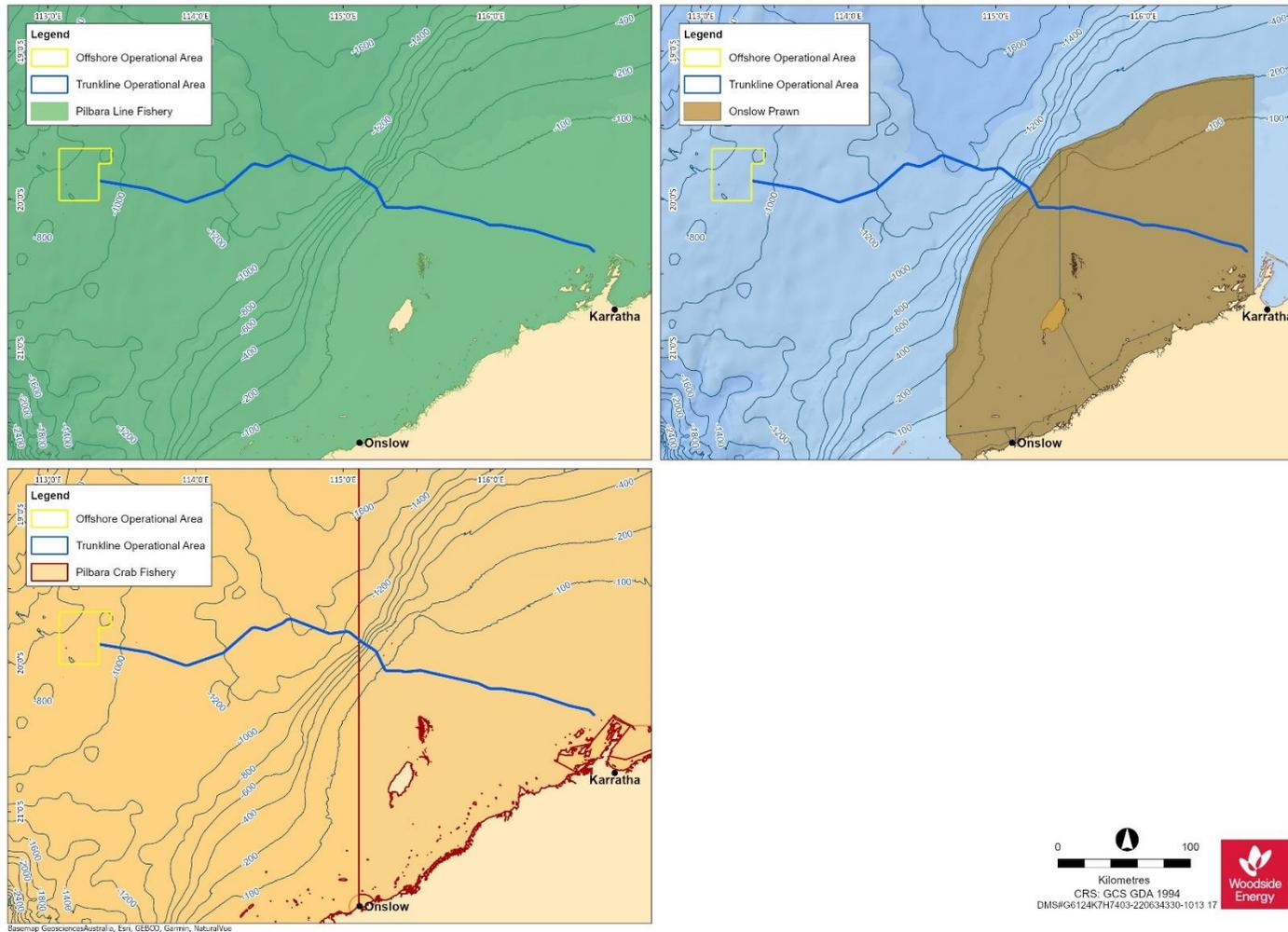


Figure 4-21: Commercial State Fisheries overlapping the Petroleum Activities Area and environment that may be affected with a potential for Interaction with the Petroleum Activities Program (Pilbara Line, Onslow Prawn and Pilbara Crab Fisheries)

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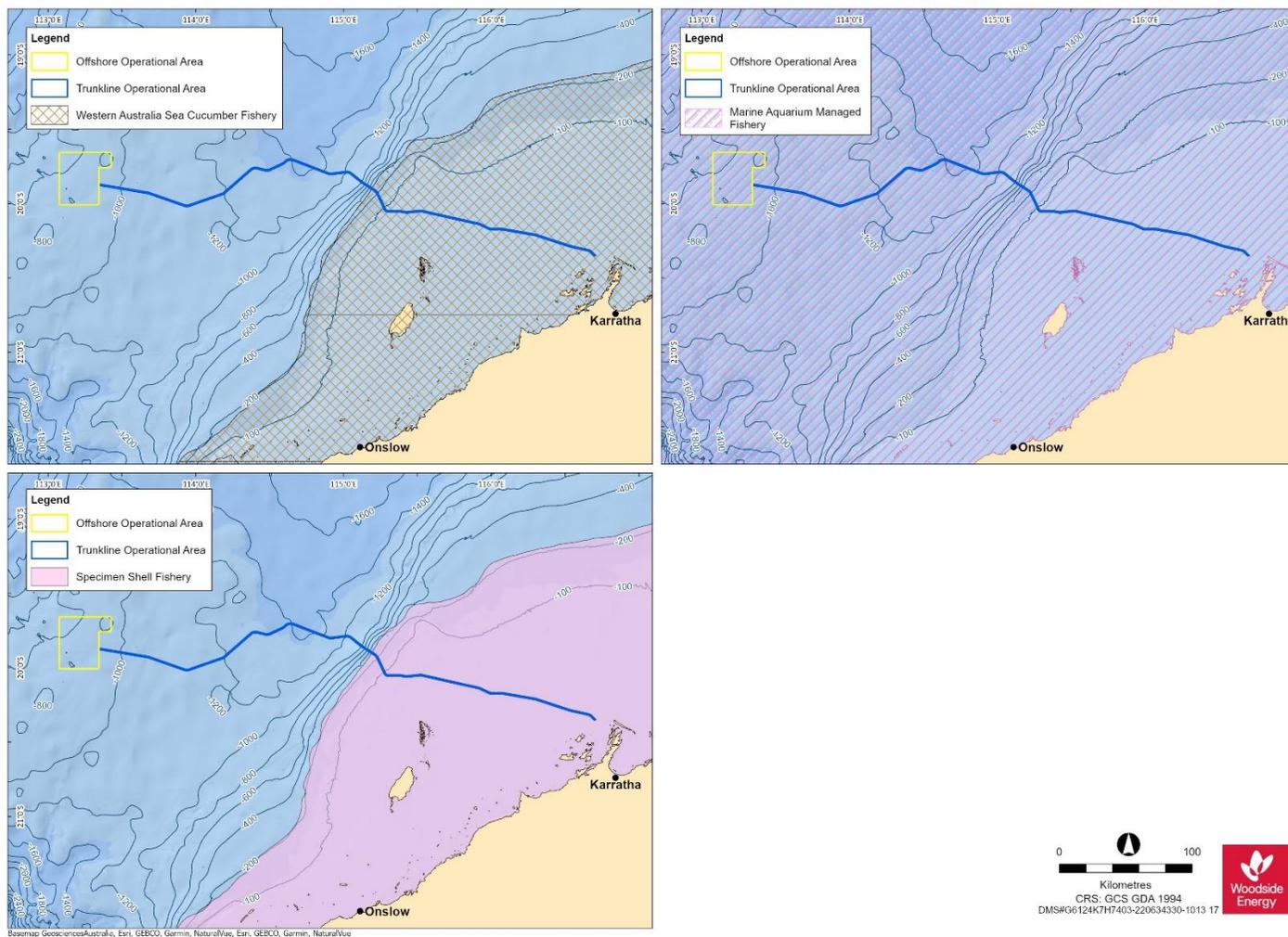


Figure 4-22: Commercial State fisheries overlapping the Petroleum Activities Area and environment that may be affected with a potential for interaction with the Petroleum Activities Program (Western Australia Sea Cucumber, Marine Aquarium Managed and Specimen Shell Fisheries)

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4.10.2 Traditional Fisheries

There are no traditional or customary fisheries within the PAA, as these are typically restricted to shallow coastal waters and/or areas with structures such as reefs. However, it is recognised that the Dampier Archipelago, Barrow Island, Montebello Islands, Exmouth, Ningaloo Reef and the adjacent foreshores have a known history of fishing when areas were occupied (as from historical records).

Areas that are covered by registered native title claims are likely to practice Aboriginal fishing techniques at various sections of the WA coastline (see Section 4.9.3).

4.10.3 Tourism and Recreation

The Offshore Operational Area is located far from most tourism activities in the NWMR. However, the Trunkline Operational Area is in the vicinity of the Dampier Archipelago where tourism activities occur. Recreational fishing in the North West Shelf Province is mainly concentrated around the coastal waters and islands (including Ningaloo Marine Park, North West Cape area, the Montebello Islands, and other islands and reefs in the region) (DoF, 2011). It has grown substantially with the expanding regional centres and increasing residential and fly in/fly out work force, particularly in the Pilbara region. Occasional recreational fishing occurs at Rankin Bank and Glomar Shoals (located about 114 km north-west and 84 km north of the Trunkline Operational Area, respectively). The Montebello Islands (approximately 32 km from the Trunkline Operational Area) are the next closest location for tourism, with some charter boat operators taking visitors to these remote islands. Charter based commercial operators are active within the PAA and EMBA, as shown in Table 4-27.

Dolphin and turtle watching tours may occur near the Dampier Archipelago within the EMBA. Cruise ships operate within the EMBA. Dive sites are located in a number of locations within the EMBA including Montebello Islands, and Rowley Shoals.

It is acknowledged that there are growing tourism and recreational sectors in WA. These sectors have expanded in area over the last couple of decades. Potential for growth and further expansion in tourism and recreational activities in the Pilbara and Gascoyne regions is recognised, particularly with the development of regional centres and a workforce associated with the resources sector (Gascoyne Development Commission, 2012).

4.10.4 Commercial Shipping

The Australian Maritime Safety Authority (AMSA) has introduced a network of marine fairways across the NWMR off WA to reduce the risk of vessel collisions with offshore infrastructure. Whilst none of these fairways intercept the Offshore Operations Area, a number of the fairways intersect with the Trunkline Operational Area (Figure 4-23).

Commercial shipping traffic is high within the NWMR, with vessel activities including commercial fisheries, tourism such as cruises, international shipping and oil and gas operations. There are 12 ports adjacent to the NWMR, including the major ports of Dampier, Port Hedland and Broome, which are operated by their respective port authorities. The State waters adjacent to the easternmost point of the Trunkline Operational Area falls within the boundaries of the Pilbara Ports Authority, within which the ports of Dampier and Port Hedland lie. Vessel tracking data suggest shipping is concentrated to the east of the Trunkline Operational Area where increased vessel traffic will be associated with ports servicing the resource industry at Barrow Island, Onslow and Dampier as detailed in Section 12.5 of Appendix L: Woodside Master Existing Environment.

The Port of Dampier overlaps the EMBA through the Dampier Archipelago and is a major industrial port in the north-west of WA. It is currently one of the world's largest bulk export ports by tonnage and services the petrochemical, salt, iron ore and natural gas export industries. It is also the departure point for day cruises through the Dampier Archipelago.

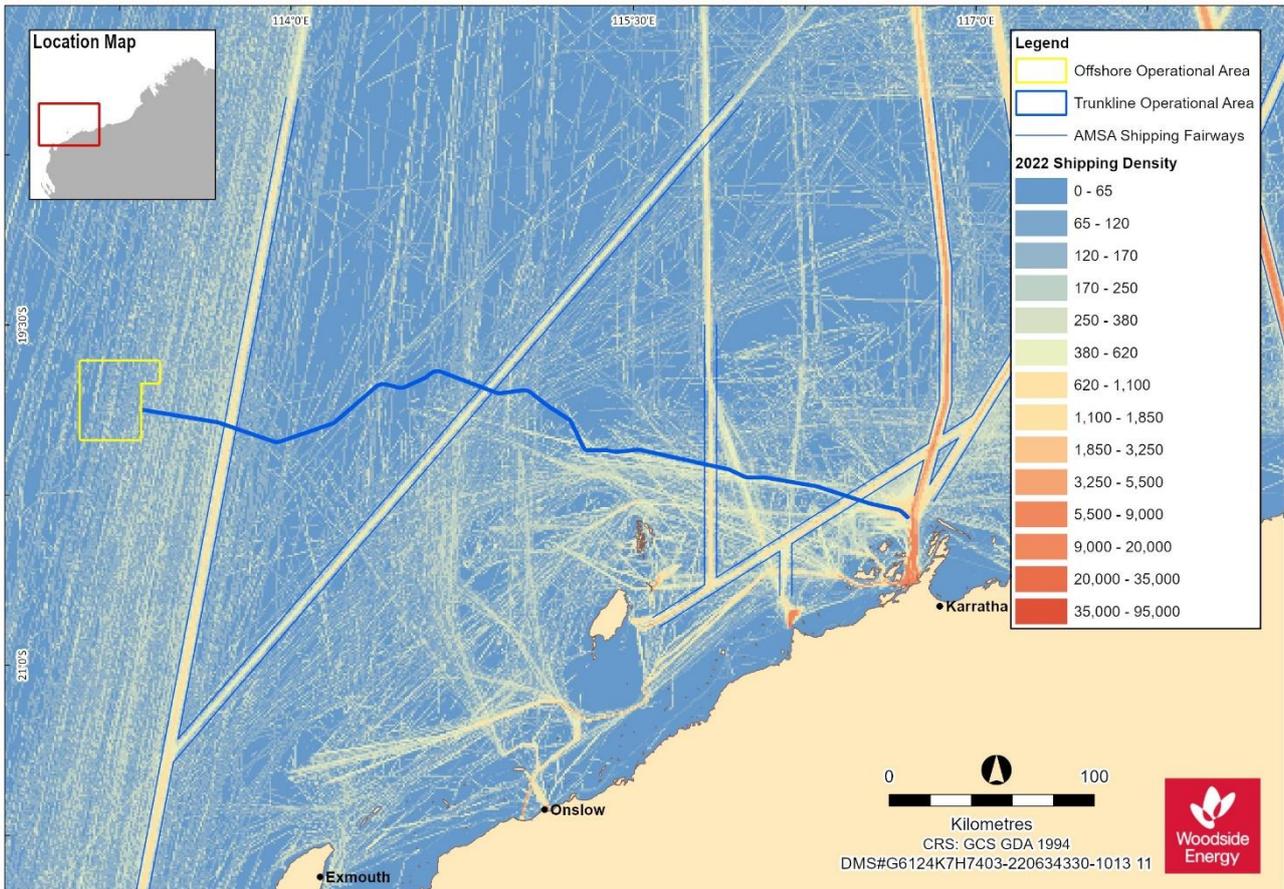


Figure 4-23: Vessel density map for the Petroleum Activities Area, derived from Australian Maritime Safety Authority satellite tracking system data

Note: Vessels include cargo, LNG tanker, passenger vessels, support vessels, and others/unnamed vessels

4.10.5 Oil and Gas

The PAA is located in the Exmouth Plateau area of the Northern Carnarvon Basin. The Trunkline Operational Area intersects several existing oil and gas export trunklines and several facilities are located within 50 km of the Trunkline Operational Area (Table 4-28 and Figure 4-24).

Table 4-28: Other oil and gas facilities located within 50 km of the Petroleum Activities Area

Facility Name and Operator	Distance and direction from PAA to facility
Pluto Platform – Woodside	2 km north
Wheatstone Platform – Chevron	10 km north
Stag Platform – Jadestone	5 km south
Reindeer Platform – Santos	15 km north
Goodwyn Platform – Woodside	48 km north
Campbell Platform and Sinbad platform (Varanus hub) – Santos	50 km south
Reindeer Trunkline – Santos	Crosses at KP75
Wheatstone Trunkline – Chevron	Crosses at KP191
Julimar-Brunello Flowlines and Umbilical	Crosses at KP192
Pluto Flowlines and Umbilical	Crosses at KP194
Pyxis Flowline and Umbilical	Crosses at KP212

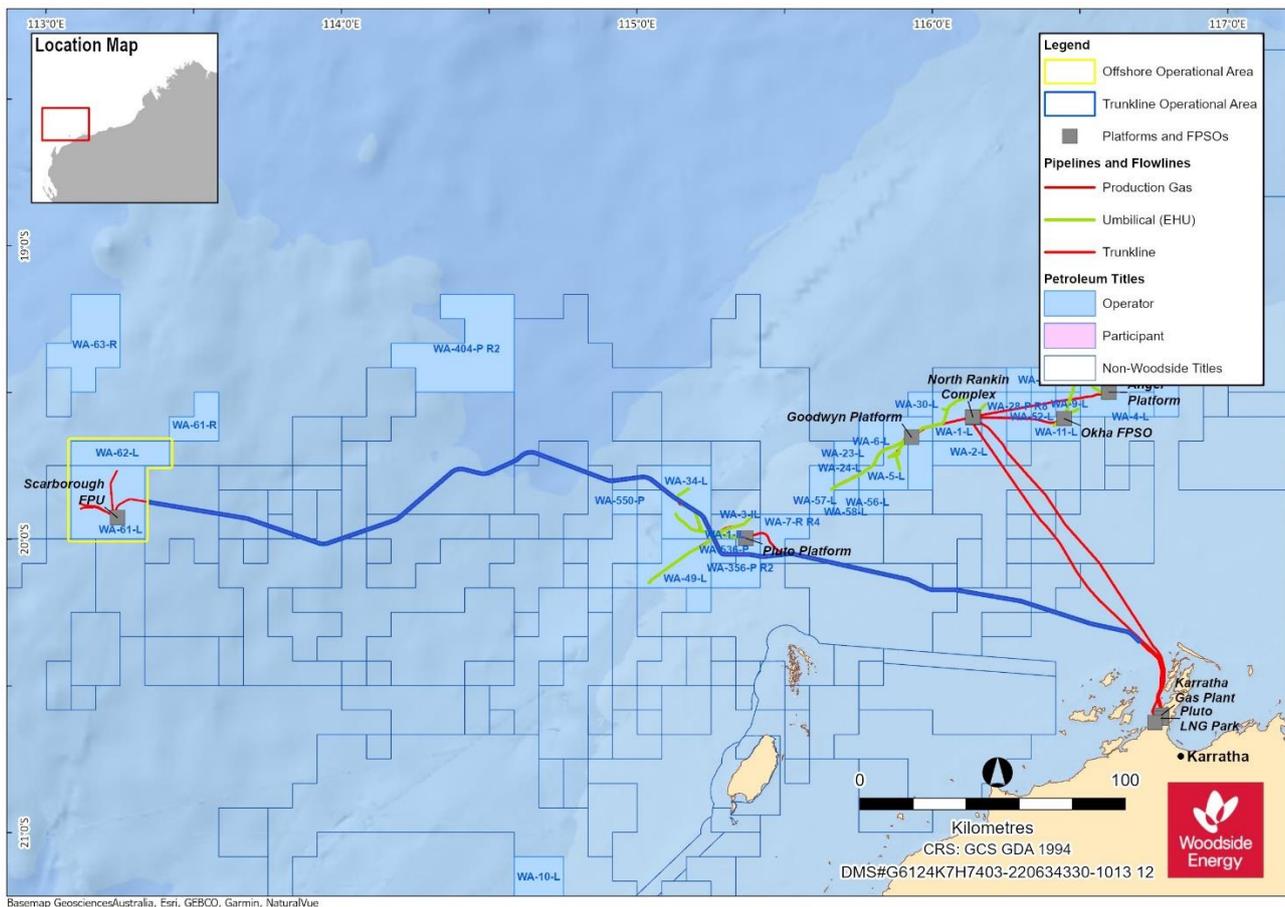


Figure 4-24: Oil and gas titles and infrastructure relative to the Petroleum Activities Area

4.10.6 Submarine Communications Infrastructure

The PAA overlaps a variety of communication infrastructure, or submarine cables (Table 4-29).

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Table 4-29: Communications Infrastructure located within 50 km of the Petroleum Activities Area

Communications Infrastructure (submarine cables)	Distance and direction from PAA to facility
Darwin Jakarta Singapore Cable (DJSC)	Overlaps Offshore Operational Area
Scarborough Fibre Optic Cable	Overlaps Offshore Operational Area
Chevron Fibre Optic Cable Route	Overlaps Trunkline Operational Area
Woodside Fibre Optic Cable Route	46.5 km North East

Source: submarine cable locations sourced from Vocus and Telstra.

The Darwin Jakarta Singapore Cable (DJSC) System is a 1,000 km fibre optic cable that connects the Australia Singapore Cable to the North West Cable System. The DJSC System is owned and operated by Vocus Communications. The DJSC overlaps the Offshore Operational Area (specifically in WA-62-L Permit Area). An extension (Scarborough Fibre Optic Cable) of the cable has been installed to connect the SCA FPU with the existing DJSC System. The extension will be installed prior to commencement of the Scarborough Offshore Facility and trunkline activities detailed in Section 3. Therefore, potential interaction and impacts to cable installation are not considered or assessed further in the EP.

4.10.7 Defence

There are designated Department of Defence practice areas in the offshore marine waters off Ningaloo Reef and the North West Cape in the EMBA. The PAA lies within the northern tip of one of these defence training areas, the North West Exercise Area (NWXA) accessed by Royal Australian Air Force (RAAF) Base Learmonth (Figure 4-25). The Learmonth Air Weapons Range (AWR) practice area is located approximately 70 km south of the Offshore Operational Area. The Trunkline Operational Area (from KP 120) overlaps the Defence Training Area associated with the Learmonth RAAF base. The closest site where unexploded ordinance is known to occur is east of Montebello Islands, approximately 28 km south of the Trunkline Operational Area and within the EMBA. The closest site to the Offshore Operational Area is Anchor Island, located approximately 195 km south-east of the Offshore Operational Area, within the EMBA. Defence areas overlapping the PAA are presented in Figure 4-25.

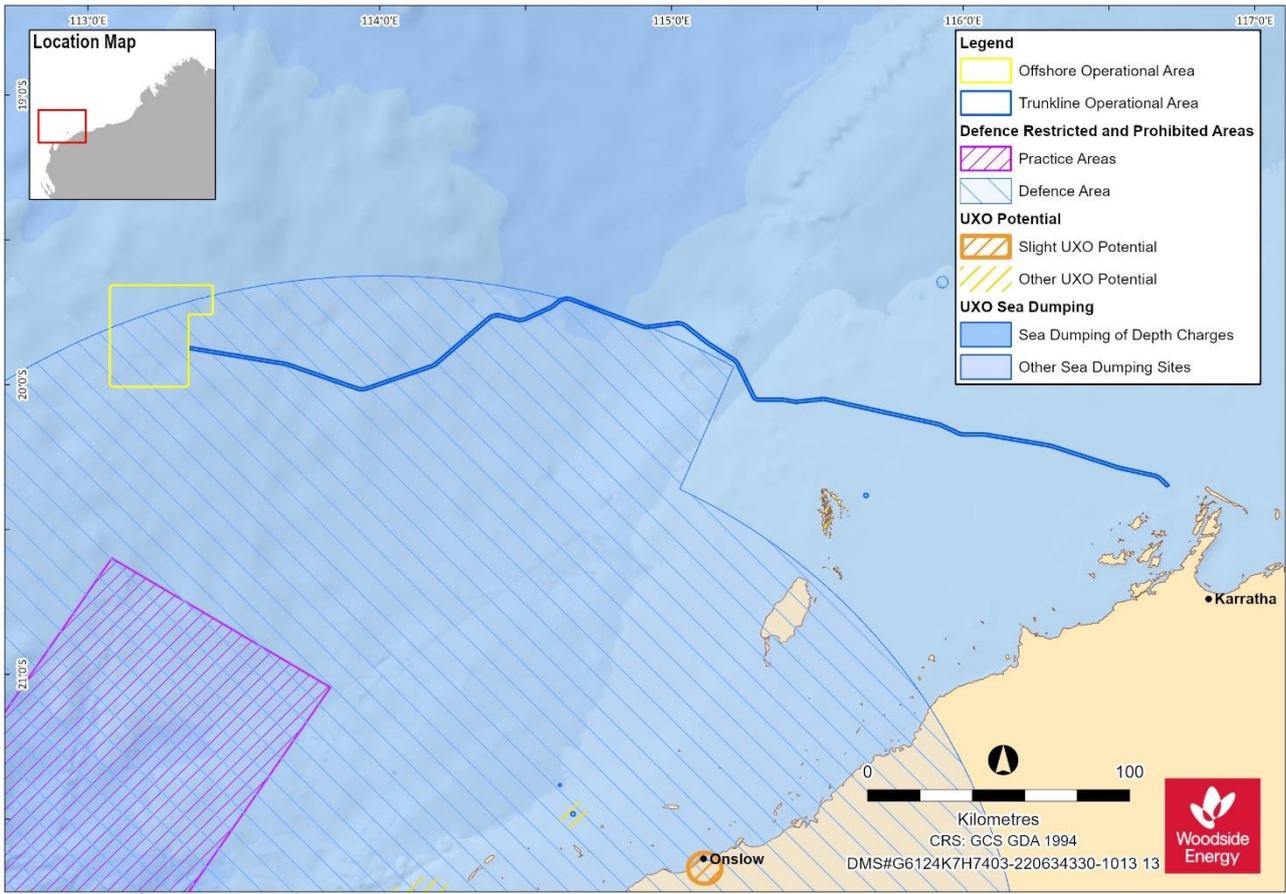


Figure 4-25: Defence Restricted and Prohibited areas relative to the Petroleum Activities Area

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5 CONSULTATION

5.1 Summary

Woodside consults relevant persons in the course of preparing an Environment Plan (EP) in accordance with regulation 25 of the Environment Regulations. (In this Section, references to 'regulations' are to regulations of the Environment Regulations, unless otherwise stated).

The consultation process is designed to identify relevant persons and give them with sufficient information and a reasonable period to allow them to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities. This enables Woodside to assess the merits of objections or claims about the adverse impact of each activity to which the EP relates that are received from relevant persons and for Woodside to adopt appropriate measures (if any) in response to those objections or claims so that the activity is carried out in a manner by which the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable (ALARP) and will be of an acceptable level.

Consultation is informed by both the Environment Regulations and the findings of relevant Courts, including the Full Federal Court in the *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Tipakalippa Appeal) (see Section 5.2 and 5.5.1) and *Munkara v Santos NA Barossa Pty Ltd (No 3)* [2024] FCA 9 (Munkara Case).

For this EP, Woodside has considered both the Operational Areas and the broader EMBA in undertaking consultation (see further discussion in Section 5.2). The broadest extent of the EMBA has been determined by reference to the highly unlikely event of a hydrocarbon release resulting from activities in the Operational Area (see Section 4). Consultation beyond the defined EMBA is too remote, would mean persons with interests are not reasonably capable of ascertainment and would mean consultation is not workable (*Tipakalippa* para [88]). Woodside has also, where relevant, considered, assessed and proactively responded to historical feedback received from stakeholders on the Scarborough OPP and prior Scarborough EPs, as that feedback relates to Scarborough operations.

Woodside's consultation methodology is divided into two parts:

- The first section (Section 5.2 to 5.5) provides an overview of Woodside's consultation methodology for its EPs, including how we apply regulation 25(1) to identify relevant persons.
- The second section (Section 5.6 to 5.7) details Woodside's approach to accepting feedback and assessment of the merits of each objection or claim about the adverse impact of each activity to which the EP relates, and engaging in ongoing consultation for this EP.

Woodside undertook a tiered consultation approach for this EP, building on the existing consultation approach with further measures due to the nature and scale of the activity outlined in the EP. The approach is proactive, extended, has enabled self-identification, and has raised broad awareness of Woodside's activities related to this EP and the Scarborough Project (see Appendix F: Consultation).

Woodside's consultation record is at Appendix F: Consultation and includes a summary of the:

- assessment and identification of relevant persons
- consultation information provided to relevant persons, feedback received, Woodside's assessment of the merits of objections or claims about the adverse impact of each activity to which this EP relates and Woodside's response to relevant persons and other stakeholders Woodside chose to consult
- engagement with persons or organisations that Woodside chose to contact who are not relevant persons for the purposes of regulation 25(1) (see Section 5.3.7)
- opportunities provided to persons or organisations to participate in consultation.

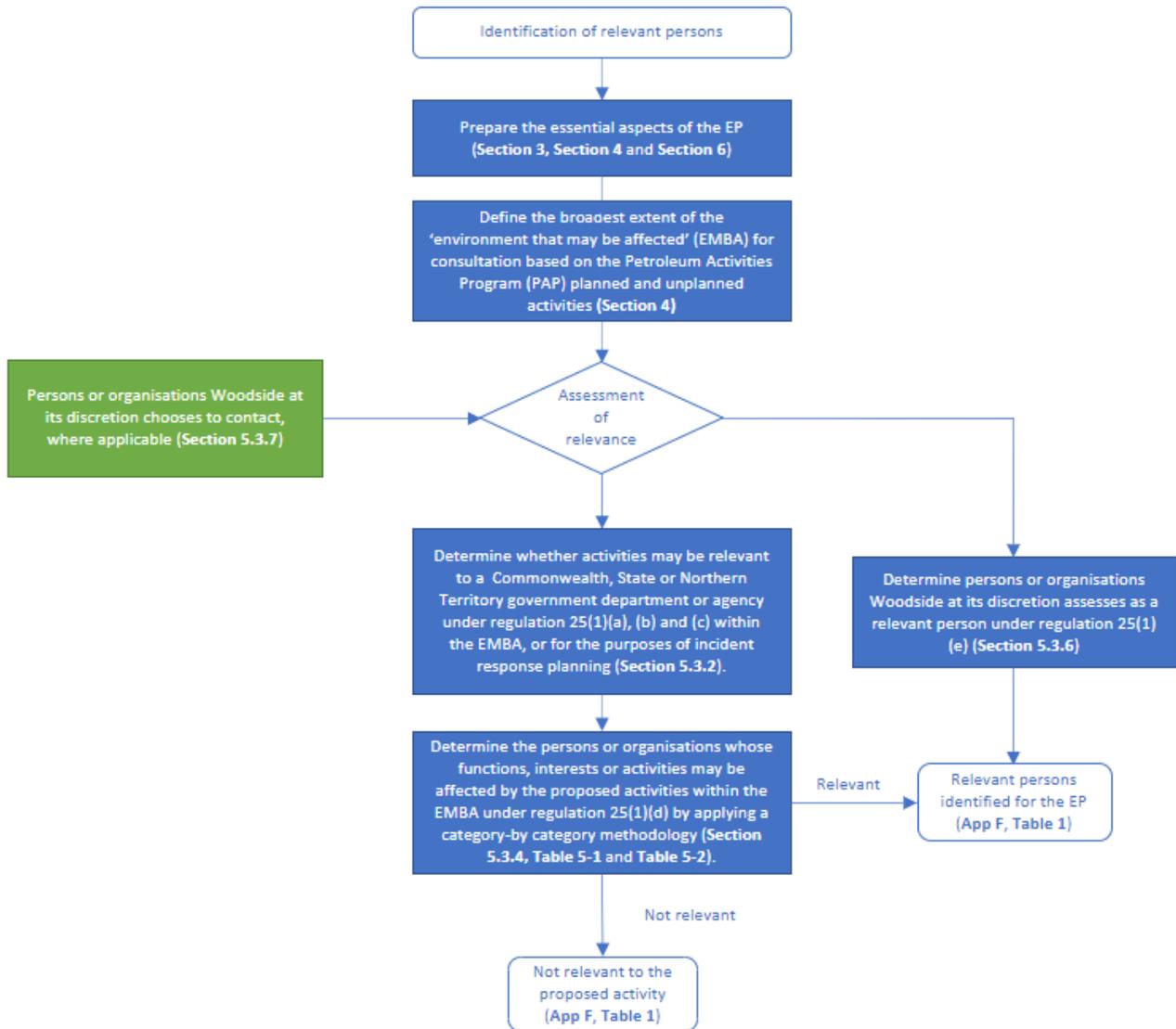


Figure 5-1: Overview of Woodside’s methodology to identify relevant persons

5.2 Consultation – General Context

Woodside has a portfolio of quality oil and gas assets and more than 30 years of operating experience. We have a strong history of working with local communities, the relevant regulators and a broad range of persons and organisations, to better understand the potential risks and impacts associated with our proposed activities and to develop appropriate measures to manage them.

The length of time that we have operated in Commonwealth and State waters, and the history of continued engagement with a wide range of persons and organisations, enables Woodside to develop an extensive consultation list to inform its consultation process. This consultation list is not used as a definitive list of persons to consult but, rather, assists Woodside as an input to its understanding of relevant persons with whom to consult on a Petroleum Activities Program. The information in the consultation list has been captured from years of experience: it contains insights relating to the type of information particular persons or organisations want to receive during consultation, the appropriate method of consultation for relevant persons and includes appropriate contact details, which are reviewed and updated periodically.

Woodside acknowledges NOPSEMA's *Guideline on Consultation in the course of preparing an environment plan* (12 May 2023) as well as judicial guidance in the *Tipakalippa Appeal* on the intent of consultation, as follows:

- At paragraph 54 of the appeal decision: ... *provide a basis for NOPSEMA's considerations of the measures, if any, that a titleholder proposes to take or has taken to lessen or avoid the deleterious effect of its proposed activity on the environment, as expansively defined.*
- At paragraph 89 of the appeal decision: ... *its purpose is to ensure that the titleholder has ascertained, understood and addressed all the environmental impacts and risks that might arise from its proposed activity. Consultation facilitates this outcome because it gives the titleholder an opportunity to receive information that it might not otherwise have received from others affected by its proposed activity. Consultation enables the titleholder to better understand how others with an objective stake in the environment in which it proposes to pursue the activity perceive those environmental impacts and risks. As the Regulations expressly contemplate, it enables the titleholder to refine or change the measures it proposes to address those impacts and risks by taking into account the information acquired through the consultations. Objectively, the scheme intends that this is likely to improve the minimisation of environmental impacts and risks from the activity.*

The *Tipakalippa Appeal* and *Munkara Case* have also been further considered in the context of specific methods for consultation with First Nations' relevant persons (Section 5.5.1).

To undertake consultation, Woodside has developed a methodology for identifying relevant persons in accordance with regulation 25(1) (Section 5.3). This methodology is consistent with NOPSEMA's *Guideline* and demonstrates that, to meet the requirements of regulation 34 (criteria for EP acceptance) when preparing the EP, Woodside understands:

- our planned activities in the Operational Area, being the area in which our planned activities are proposed to occur (see Section 3.3)
- the geographical extent to which the environment may be affected (EMBA) by risks and impacts from our activities (unplanned) (identified in Section 4.1 and assessed in Section 6.7.13).

Woodside has undertaken consultation in the course of preparing this EP in compliance with regulation 25, which requires a titleholder to:

- consult with each of the following (a **relevant person**) in the course of preparing an EP:
 - each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the EP may be relevant
 - if the plan relates to activities in the offshore area of a State – the Department of the responsible State Minister
 - if the plan relates to activities in the Principal Northern Territory offshore area – the Department of the responsible Northern Territory Minister
 - a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP
 - any other person or organisation that the titleholder considers relevant (regulation 25(1))
- give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on their functions, interests or activities (regulation 25(2))
- allow a relevant person a reasonable period for the consultation (regulation 25(3))
- tell each relevant person that the titleholder consults with, that the relevant person may request that particular information it provides in the consultation not be published and any information subject to such a request is not to be published (regulation 25(4)).

Further, Woodside seeks to carry out consultation in a manner that:

- is consistent with the principles of ecologically sustainable development (ESD) set out in section 3A of the EPBC Act – see Section 2
- is intended to reduce the environmental impacts and risks from the activity to ALARP and an acceptable level (regulation 4)
- is intended to minimise harm to the relevant person and the environment from the proposed petroleum activities and to enable Woodside to consider measures that may be taken to mitigate the potential adverse environmental impacts from the petroleum activity
- provides opportunities for relevant persons to provide feedback throughout the life of the EP through its ongoing consultation process (refer to Section 5.7 and Section 7.10.5)
- is collaborative; Woodside respects that, for a relevant person, consultation is voluntary. Where the relevant person seeks to engage, Woodside engages with the relevant person with the aim of seeking genuine and meaningful two-way dialogue.

An overview of Woodside's consultation approach is outlined at Figure 5-2.

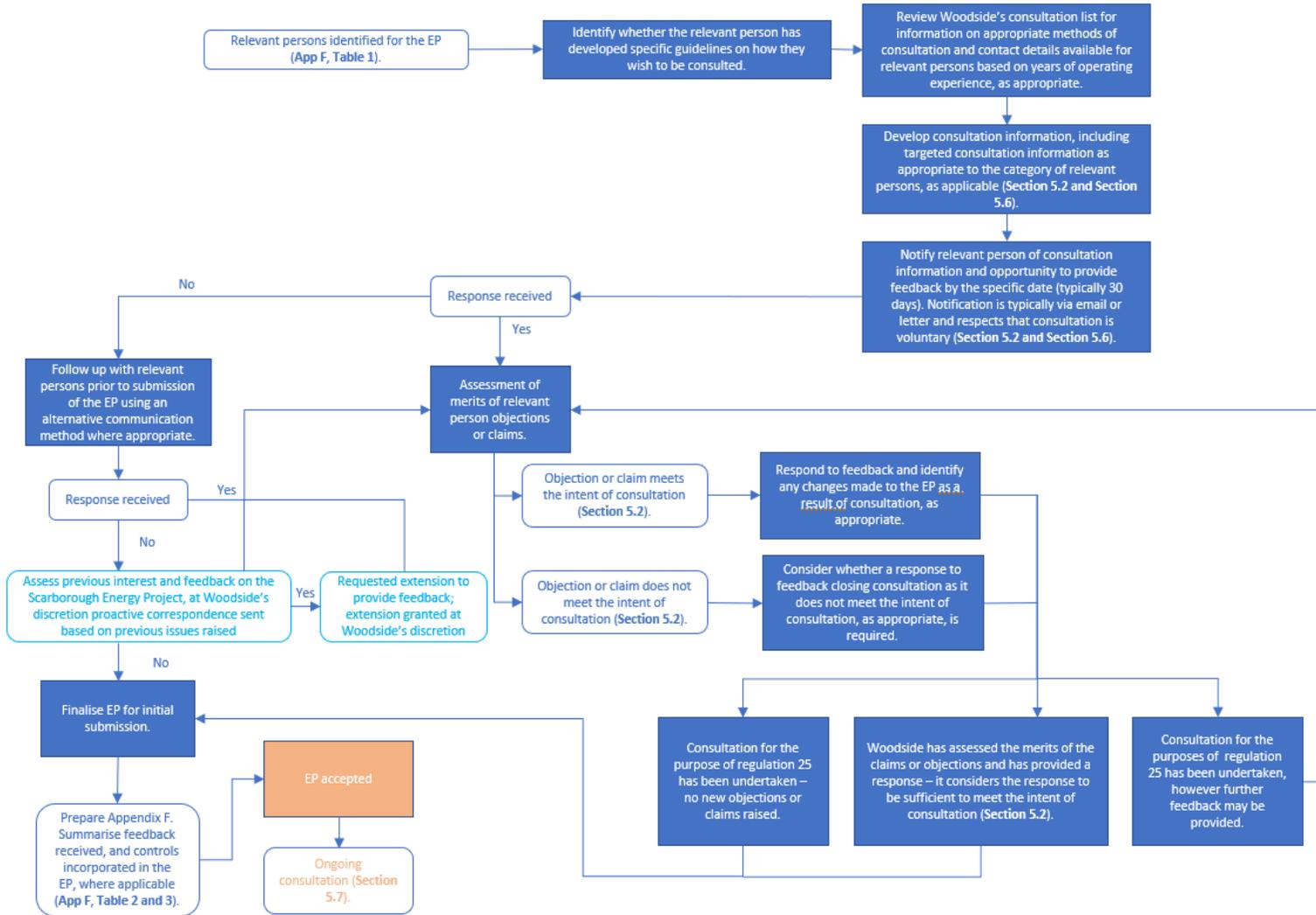


Figure 5-2: Overview of Woodside's consultation approach

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The methodology for consultation for this activity has been informed by various guidelines and relevant information for consultation on planned activities, including:

Federal Court:

- [Santos NA Barossa Pty Ltd v Tipakalippa \[2022\] FCAFC 193](#)
- [Cooper v NOPSEMA \(No 2\) \[2023\] FCA 1158](#)
- [Munkara v Santos NA Barossa Pty Ltd \(No 3\) \[2024\] FCA 9](#)

NOPSEMA:

- [GL2086 – Consultation in the course of preparing an environment plan – May 2024](#)
- [GN1847 – Responding to public comment on environment plans – January 2024](#)
- [GN1344 - Environment plan content requirements - September 2020](#)
- [GL1721 – Environment Plan decision making – January 2024](#)
- [GN1488 - Oil pollution risk management - July 2021](#)
- [GN1785 – Petroleum activities and Australian Marine Parks – January 2024](#)
- [GL 1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – August 2024](#)
- [PL9028 Managing gender-restricted information – December 2023](#)
- [Consultation on offshore petroleum environment plans – Information for the community](#)

Department of Climate Change, Energy, the Environment and Water (DCCEEW)

- [Sea Countries of the North-West; Literature review on Indigenous connection to and uses of the North West Marine Region](#)

Australian Fisheries Management Authority (AFMA):

- [Petroleum industry consultation with the commercial fishing industry](#)

Commonwealth Department of Agriculture and Water Resources (DAWR):

- [Fisheries and the Environment – Offshore Petroleum and Greenhouse Gas Act 2006](#)
- [Offshore Installations Biosecurity Guide](#)

WA Department of Primary Industries and Regional Development (DPIRD):

- [Guidance statement for oil and gas industry consultation with the Department of Fisheries](#)

WA Department of Transport (DoT):

- [Offshore Petroleum Industry Guidance Note](#)

WA Australian Fishing Industry Council (WAFIC)

- [Oil and Gas Consultation Framework](#)

Good practice consultation:

- [IAP2 Public Participation Spectrum](#)
- [Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Act 1999](#)

5.3 Identification of Relevant Persons for Consultation

5.3.1 Regulations 25(1)(a), (b) and (c)

The relevant inquiry for determining relevant persons under regulations 25(1)(a) and (b) is whether the activities to be carried out under the EP may be relevant to one of the government departments or agencies in those regulations. The government departments and agencies relevant to the EP are listed in Appendix F, Table 1. In accordance with Regulation 25(1)(b), Woodside consults with the Department of the relevant State Minister.

5.3.2 Identification of Relevant Persons under Regulations 25(1)(a), (b) and (c)

Woodside's methodology for identifying relevant persons under regulations 25(1)(a), (b) and (c) is as follows:

- Woodside considers the defined responsibilities of each of the departments and agencies to which the activities to be carried out in the EMBA under the EP may be relevant. This list of relevant departments and agencies is formulated by reference to the responsibilities of the government departments, as set out on their websites, in NOPSEMA's *GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area guideline* (January 2024), which describes where the Department is a relevant agency under the Environment Regulations, as well as experience and knowledge that Woodside has gained from years of operating. This list is revised from time to time, for example, for the purposes of accommodating government restructures, renaming of departments, shifting portfolios and/or to account for new agencies that might arise.
- Woodside has categorised government department or agency groups as:

Government departments / agencies – marine	Agencies with legislated responsibilities for use of the marine environment.
Government departments / agencies – environment	Agencies with legislated responsibilities for the protection of the marine environment.
Government departments / agencies – industry	The legislated Department of the responsible Commonwealth, State or Northern Territory Minister for Industry.

- Woodside considers each of the responsibilities of the departments and agencies, determining whether those responsibilities overlap with potential risks and impacts specific to the PAP in the EMBA. The assessment is both activity and location based.
- Woodside acknowledges the roles and responsibilities of government departments and agencies acting on behalf of various industry participants. For example, AMSA – Marine Safety is responsible for the safety of vessels and the seafarers who are operating in the domestic commercial shipping industry; and AHO is responsible for maritime safety and Notices to Mariners. To undertake activities in the Operational Area in a manner that prevents a substantially adverse effect on the potential displacement of marine users, Woodside therefore consults AMSA – Marine Safety and AHO on its proposed activities. Woodside considers each of the responsibilities of the departments and agencies and determines those that would either be involved in the incident response itself or in relation to the regulatory or decision-making capacity with respect to planning for the unlikely event of a worst-case hydrocarbon release incident response specific to the Operational Area. Feedback received, if any, is assessed in accordance with the intended outcome of consultation.
- The list of government departments and agencies assessed as relevant is set out in Appendix F: Consultation, Table 1.

- Feedback received, if any, is assessed in accordance with the intended outcome of consultation and summarised at Appendix F, Table 2 and Table 3 as appropriate to the relevance assessment.

Woodside does not consult with departments or agencies with interests that do not overlap with risks and impacts specific to the proposed petroleum activity in the EMBA or would not be involved in incident response planning.

5.3.3 Regulation 25(1)(d)

To identify a relevant person for the purposes of regulation 25(1)(d), the meaning of “functions, interests or activities” needs to be understood. In regulation 25(1)(d), the phrase “functions, interests or activities” should be construed broadly and consistently with the objects of the Environment Regulations (regulation 4) and the objects of the EPBC Act (section 3A).

In developing its methodology for consultation, Woodside acknowledges the guidance below from NOPSEMA’s GL2086 – *Consultation in the course of preparing an environment plan guideline (May 2023)*:

Functions	Refers to a power or duty to do something.
Interests	Conforms to the accepted concept of ‘interest’ in other areas of public administrative law and includes any interest possessed by an individual whether or not the interest amounts to a legal right or is a proprietary or financial interest or relates to reputation.
Activities	Broader than the definition of ‘activity’ in regulation 5 of the Environment Regulations and is likely be directed to what the relevant person is already doing.

Woodside’s methodology for determining ‘relevant persons’ for the purpose of regulation 25(1)(d) includes consideration of:

- whether a person or organisation has functions interests or activities that overlap with the Operational Area and EMBA
- whether a person or organisation’s functions, interests or activities may be affected by Woodside’s proposed planned or unplanned activities.

5.3.4 Identification of Relevant Persons under Regulation 25(1)(d)

Relevant persons under regulation 25(1)(d) are defined as a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP. In identifying relevant persons, Woodside considers:

- the planned activities to be carried out under the EP (described in Section 3)
- the EMBA by unplanned activities (identified in Section 4 and assessed in Section 6.7.13).

To identify relevant persons who fall within regulation 25(1)(d), Woodside adopts the following methodology, and then undertakes consultation with relevant persons.

As a general proposition, Woodside assesses whether a person or organisation is a relevant person having regard to:

- whether a person or organisation has functions, interests or activities that overlap with the Operational Area and EMBA
- whether a person or organisation's functions, interests or activities may be affected by Woodside’s proposed planned or unplanned activities to be carried out under the EP.

This assessment will include applying judgement, knowledge and considering available, relevant literature.

To assist in identifying the full range of relevant persons, Woodside considers the impacts and risks associated with its proposed activities and considers the broad categories of relevant persons who may be affected by the activities to be carried out under the EP. The broad categories are identified in Table 5-1 and identification methodology applied as set out in Table 5-2.

For this EP, Woodside also considered feedback from relevant persons on other Scarborough Energy Project EPs, and if that feedback relates to this EP.

The list of those persons or organisations assessed as relevant persons or organisations Woodside separately chose to contact is set out in Appendix F: Consultation, Table 1.

Feedback received, if any, is assessed in accordance with the intended outcome of consultation and applying the categories of relevant persons methodology outlined in Table 5-2, as appropriate.

Feedback from relevant persons is summarised at Appendix F: Consultation, Table 2. Feedback from persons assessed as “not relevant” but whom Woodside chose to contact, or self-identified and Woodside assessed as “not relevant”, are summarised at Appendix F: Consultation (Table 3).

Table 5-1: Categories of relevant persons

Category	Explanation
Commercial fisheries (Commonwealth and State) and peak representative bodies	Commonwealth or State Commercial Fishery with a fishery management plan recognised under the <i>Commonwealth Fisheries Management Act 1991 (Cth)</i> and the <i>Western Australian Fish Resources Management Act 1994 (WA)</i> , which may be amended from time to time. Commonwealth peak fishery representative bodies are identified by AFMA. WAFIC is the peak representative body for state fishers in Western Australia.
Recreational marine users and peak representative bodies	Charter boat, tourism and dive operators identified by DPIRD specific to the location of the proposed activity. Representative bodies are the recognised peak organisation(s) for recreational marine users.
Titleholders and Operators	Registered holder of an offshore petroleum title or GHG title under the <i>OPGGGS Act</i> and associated regulations.
Peak industry representative bodies	Recognised peak organisation(s) for the oil and gas sector.
Traditional Custodians (individuals and/or groups/entity)	Traditional Custodians are First Nations Australians with cultural rights and interests or cultural functions or who perform cultural activities over particular lands and waters. Where a First Nations person, group or entity self-identifies and asserts cultural rights, functions, interests or activities they will be considered under the definition of Traditional Custodian for the purpose of this EP (as appropriate).
Nominated Representative Corporations	Nominated representative corporations are Traditional Custodians' nominated representative institutions such as Prescribed Bodies Corporate (PBC). PBCs are established under the <i>Native Title Act 1993 (Cth)</i> by Traditional Custodians to represent their entire Traditional Custodian group (defined broadly by reference to descents from an ancestor set who were known to be the Traditional Custodians at the time of European colonisation) and their interests including, among other things, management and protection of cultural values.
Native Title Representative Bodies	A Representative Aboriginal/Torres Strait Islander Bodies (RATSIB) is a regional organisation appointed under the <i>Native Title Act 1993 (Cth)</i> with prescribed functions, set out in Part 11 of the <i>Native Title Act 1993 (Cth)</i> , which relate to: facilitation and assistance; certification; dispute resolution; notifications; agreement making. They are also known, and referred to here, as Native Title Representative Bodies.
Historical heritage groups or organisations	Legislated or government enlisted groups or organisations responsible for the management of marine heritage.

Category	Explanation
Local government and elected Parliamentary representatives and recognised local community reference/liaison groups or organisations	Local government body formed under the <i>Local Government Act 1995</i> (WA) and elected Parliamentary representatives which are responsible for representing the local community. Recognised local community reference or liaison group or organisation in relation to oil and gas matters.
Other non-government groups, organisations or individuals	Non-government organisation with public website material targeting the proposed activity. Individual who demonstrates the proposed activity could potentially impact their interests, functions or activities. Non-government organisation or individual who has provided feedback relevant to this EP on the OPP, and other Scarborough Energy Project EPs.
Research institutes and local conservation groups or organisations	Research institutes are government or private institutions that conduct marine or terrestrial research. Local conservation groups are local non-government organisation that regularly conduct conservation activities focused on the local environment or wildlife.

Table 5-2: Methodology for identifying relevant persons within the environment that may be affected undertaken under regulation 25(1)(d) – by category

Category	Relevant person identification methodology
Commercial fisheries (Commonwealth and State) and peak representative bodies	<p>Woodside assesses relevance for commercial fisheries (Commonwealth and State) and their representative bodies using the following next steps in its methodology:</p> <ul style="list-style-type: none"> Defining the parameters having regard to timing, location and duration of the proposed petroleum activity. Confirming whether the EMBA overlaps with the fisheries management area (i.e., the spatial area the fishery is legally permitted to fish in) (see Section 4.10.1). Woodside acknowledges WAFIC’s consultation guidance²⁴, that Titleholders develop separate consultation strategies for significant unplanned events (for example an oil spill) where titleholders can demonstrate the likelihood of such events occurring is extremely low. WAFIC’s guidance is that consultation on unplanned events resulting in an emergency scenario should only be undertaken if an incident occurs (see Appendix I: Oil Pollution First Strike Plan) For Commonwealth and State commercial fisheries, Woodside assesses the potential spatial and temporal extent for interaction with the fishery by reviewing AFMA, ABARES and DPIRD FishCube data within the Operational Area and EMBA (see Section 4.10.1). <p>Assessment of relevance:</p> <ul style="list-style-type: none"> State commercial fisheries that have been assessed as having a potential for interaction within the Operational Area or EMBA (see Section 4.10.1) are assessed as relevant to the proposed activity. However, to avoid over consulting and as requested in WAFIC’s guidance, Woodside only consults individual licence holders based on WAFIC’s advice. Woodside also utilises WAFIC’s consultation service whereby WAFIC: <ul style="list-style-type: none"> directly consults fishery licence holders that are assessed as having a potential for interaction in the Operational Area

24 Consultation Approach for Unplanned Events - WAFIC

Category	Relevant person identification methodology
	<ul style="list-style-type: none"> ○ consults fisheries that are assessed as having a potential for interaction in the EMBA only in the event of an unplanned emergency scenario. • Commonwealth commercial fisheries that have been assessed as having a potential for interaction within the Operational Area or EMBA (see Section 4.10.1) are assessed as relevant to the proposed activity. • If Woodside has identified that a Commonwealth or State fishery is a relevant person, then Woodside also consults the fisheries relevant representative body. For example, WAFIC represents the interests of State fisheries in Western Australia. If a State fishery is identified as relevant, Woodside would also identify WAFIC as relevant. Recognised Commonwealth fishery representative bodies are identified by AFMA via its website. WAFIC is the only recognised State fishery representative body.
<p>Recreational marine users and peak representative bodies</p>	<p>Woodside assesses relevance for recreational marine users and peak representative bodies using the following next steps in its methodology:</p> <ul style="list-style-type: none"> • Using Woodside knowledge and operating experience, applying knowledge of recreational marine users in the area. This assessment is both activity and location based. • Defining the parameters having regard to timing, location and duration of the proposed petroleum activity. • Assessing the potential spatial and temporal extent for interaction with recreational marine users by reviewing DPIRD FishCube data to assess whether there has been activity within the EMBA in the past 5 years. <p>Assessment of relevance:</p> <ul style="list-style-type: none"> • Recreational marine users that have been active in the past 5 years within the EMBA are assessed as relevant to the proposed activity. Woodside is provided with the contact details of charter, boat tourism and dive operators specific to the region of the EMBA by DPIRD to consult with the relevant persons. • If Woodside has identified recreational marine users as relevant persons, then Woodside also consults identified peak recreational marine user representative bodies. For example, Recfishwest represents the interests of recreational fishers. These representative bodies are identified via Woodside's existing consultation list, which is updated as appropriate via advice from known groups and DPIRD.
<p>Titleholders and Operators</p>	<p>Woodside assesses relevance for other Titleholders and operators using the following steps in its methodology:</p> <ul style="list-style-type: none"> • Using GPInfo to determine overlap with other Titleholders' or Operators' permit areas within the EMBA. • Using Woodside knowledge and operating experience, applying knowledge of other operators in the area. • Woodside produces a map showing the outcome of this assessment. <p>Assessment of relevance:</p> <ul style="list-style-type: none"> • Titleholders and Operators whose permit areas are identified as having an overlap within the EMBA are assessed as relevant.
<p>Peak industry representative bodies</p>	<p>Woodside assesses relevance for peak industry representative bodies using the following steps in its methodology:</p> <ul style="list-style-type: none"> • Review of peak industry representative bodies responsibilities that Woodside actively participates in, with consideration of overlap between industry focus area and Woodside's proposed activities within the EMBA. • Review of Woodside's existing consultation list.

Category	Relevant person identification methodology
	<ul style="list-style-type: none"> Website search to identify whether any additional peak industry representative bodies have been created whose responsibilities may overlap with Woodside's proposed activities within the EMBA. <p>Assessment of relevance:</p> <ul style="list-style-type: none"> Peak industry representative bodies whose responsibilities are identified as having an overlap with Woodside's proposed activities within the EMBA are assessed as relevant.
<p>Traditional Custodians (individuals and/or groups/entity) and Nominated Representative Corporations</p>	<p>Consistent with its understanding of the matters discussed in Section 4.9, to identify Traditional Custodian groups or individuals, Woodside:</p> <ul style="list-style-type: none"> uses existing systems of recognition to identify First Nations groups who overlap or are coastally adjacent to the EMBA (for example, recognition provided under native title or cultural heritage legislation, or marine park management plans, or identification by other First Nations groups or entities) notifies and invites consultation with First Nations people through their nominated representative corporation (for example PBCs); or, in the case of native title and where appropriate, the Native Title Representative Body requests the nominated representative body to forward the notifications and invitations to consult to their members (members are individual communal rights holders; requests advice as to other First Nations groups or individuals that should be consulted advertises widely so as to invite self-identification and consultation by First Nations groups and individuals. <p>Further detail to Woodsides methodology is as follows.</p> <p>Woodside uses the databases of the National Native Title Tribunal:</p> <ul style="list-style-type: none"> to understand whether there are any Native Title Claims (historical or current) or determinations overlapping or coastally adjacent to the EMBA to understand whether there are any relevant Indigenous Land Use Agreements (ILUA), registered with the National Native Title Tribunal that overlap or are adjacent to the EMBA that may identify Traditional Custodians or representative bodies to contact regarding potential cultural values. <p>Where there is a positive determination of native title, contacting the PBC or, where their representative is a Native Title Representative Body, contacting the Native Title Representative Body.</p> <p>Where appropriate, contacting the relevant Native Title Representative Body to request a list of any First Nations groups asserting Traditional Custodianship over an area of coastline adjacent to the EMBA.</p> <p>Review of Commonwealth and State Marine Park Management Plans that overlap the EMBA which may identify Traditional Custodians or representative bodies to contact regarding potential cultural values.</p> <p>First Nations groups or individuals identified by a Traditional Custodian, nominated representative corporation, Native Title Representative Body.</p> <p>Request to the PBC to distribute Woodside consultation materials through its membership. Woodside is unable to contact this membership through any other means.</p> <p>Woodside has a number of public notification and information sharing processes by which individual Traditional Custodians can become aware of the proposed activity, its risks and impacts, and self-identify.</p> <p>Individuals that consider their functions, interests or activities may be affected by a proposed activity are provided an opportunity to self-identify for each EP. Woodside does not presume that self-identification for an activity, covered by another EP, automatically means that an individual/s functions, interests and activities may be affected by other activities where EMBAs overlap. This decision is for the individual to make. The public notification,</p>

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Category	Relevant person identification methodology
	<p>information sharing, and consultation processes Woodside puts in place enables Traditional Custodians to become aware of proposed activities, assess risks and impacts to their values, and enable individuals to self-identify.</p> <p>Assessment of relevance:</p> <ul style="list-style-type: none"> Traditional Custodian groups, entities or individuals and Nominated Representative Corporations who are identified through the above methodology and overlap or are coastally adjacent to the EMBA are assessed as relevant.
Native Title Representative Bodies	<p>Woodside assesses relevance for Native Title Representative Bodies using the following steps in its methodology:</p> <ul style="list-style-type: none"> A Representative Aboriginal/Torres Strait Islander Body (RATSIB) is a regional organisation appointed under the <i>Native Title Act 1993</i> (Cth) with prescribed functions set out in Part 11 of the <i>Native Title Act 1993</i> (Cth), which relate to: facilitation and assistance; certification; dispute resolution; notifications; agreement making. They are also known, and referred to here, as Native Title Representative Bodies. Review of National Native Title Tribunal RATSIB areas that overlap or are coastally adjacent to the EMBA. <p>Assessment of relevance:</p> <ul style="list-style-type: none"> Where the area for which a Native Title Representative Body is recognised under the <i>Native Title Act 1993</i> (Cth), overlaps with the EMBA or is coastally adjacent to the EMBA, Woodside will assess the Native Title Representative Body as relevant.
Historical heritage groups or organisations	<p>Woodside assesses relevance for groups or organisations whose responsibilities are focused on historical heritage using the following steps in its methodology:</p> <ul style="list-style-type: none"> Using the Australasian Underwater Cultural Heritage Database to assess known records Maritime Cultural Heritage sites (shipwrecks, aircraft and relics) within the EMBA (see Section 4.9) <p>Assessment of relevance:</p> <ul style="list-style-type: none"> Where there is a known underwater heritage site (shipwrecks, aircraft and relics) within the EMBA, the relevant group or organisation that manages the site will be assessed as relevant.
Local government and elected Parliamentary representatives and recognised local community reference/liaison groups or organisations	<p>Woodside assesses relevance for local government and elected Parliamentary representatives and recognised local community reference/liaison groups or organisations using the following steps in its methodology:</p> <ul style="list-style-type: none"> Review Woodside maps (developed based on data from the WA Local Government, Sport and Cultural Industries 'My Council' database and WA Local Government Association (WALGA) Local Government Directory maps) to assess overlap between the local government's defined area of responsibility and the EMBA. Woodside hosts regular community reference/liaison group meetings. Members represent a cross-section of the community and local towns interests. Representatives are from community and industry and generally include, Woodside, State Government (for instance relevant Regional Development Commissions), Local Government, Indigenous Groups, Industry representative bodies, community and industry organisations. Woodside considers these reference/liaison groups to be the appropriate recognised representatives of the local community for the oil and gas sector. Woodside reviews the community reference/liaison group's terms of reference to determine its area of responsibility and overlap with the EMBA. For example, the Exmouth Community

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Category	Relevant person identification methodology
	<p>Liaison Group's area of responsibility in relation to Woodside's operational, development and planning activities, is defined in the terms of reference as the Exmouth sub-basin. Comparatively, the Karratha Community Liaison Group's area of responsibility is the Pilbara region (i.e., onshore).</p> <ul style="list-style-type: none"> • Commonwealth and State elected politicians. <p>Assessment of relevance:</p> <ul style="list-style-type: none"> • The local government and elected Parliamentary representative/s whose defined area of responsibility overlaps the EMBA is assessed as relevant. • The community reference/liaison group whose defined area of responsibility overlaps the EMBA is assessed as relevant and consulted collectively via the relevant reference/liaison group.
<p>Other non-government groups, organisations or individuals</p>	<p>Woodside assesses relevance for other non-government groups, organisations or individuals using the following steps in its methodology:</p> <ul style="list-style-type: none"> • Review Woodside's existing consultation list. • Search websites of registered non-government groups or organisations (i.e., registered with an Australian Business Number (ABN) and publicly available contact information) that may have public website material specific to the proposed activity at the time of development of the EP. • Organisation has a publicly available mission statement (or purpose) that clearly describes their collective functions, interests or activities. • Review current website material to identify targeted information which demonstrates functions, interests or activities relevant to the potential risks and impacts associated with planned activities. • Review an individual's feedback to consider whether their functions, interests or activities could be impacted. <p>Assessment of relevance:</p> <ul style="list-style-type: none"> • Registered non-government groups or organisations with current targeted public website material specific to the proposed activity at the time of developing the EP and who have demonstrated functions, interests or activities relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation will be assessed as relevant. • Individual demonstrates their functions, interests or activities could be impacted will be assessed as relevant.
<p>Research institutes and local conservation groups or organisations</p>	<p>Woodside assesses relevance for research institutes and local conservation groups or organisations using the following steps in its methodology:</p> <ul style="list-style-type: none"> • Review Woodside's existing consultation list. • Search websites for research institutes that may operate within the EMBA. This assessment is both activity and location based. • Search websites for local conservation groups or organisations that regularly conduct conservation activities within the EMBA. <p>Assessment of relevance:</p> <ul style="list-style-type: none"> • Where there is known research being undertaken by a research institute within the EMBA, the research institute that is conducting the research will be assessed as relevant. • Local environmental conservation groups who regularly conduct conservation activities or have demonstrated conservation functions, interests or activities within the EMBA are assessed as relevant. This assessment is both activity and location based.

5.3.5 Regulation 25(1)(e)

In addition to assessing relevance under regulation 25(1)(d), Woodside has discretion to categorise any other person or organisation as a relevant person under regulation 25(1)(e).

5.3.6 Identification of Relevant Persons under Regulation 25(1)(e)

Woodside adopts a case-by-case approach for each EP to assess relevance under regulation 25(1)(e).

5.3.7 Persons or Organisations Woodside Chooses to Contact

In addition to undertaking consultation with relevant persons under regulation 25(1), from time to time there are persons or organisations that Woodside chooses to contact in relation to a proposed activity. For example, these are persons or organisations:

- that are 'not relevant' pursuant to regulation 25(1) but that Woodside has chosen to seek additional guidance from, for example, to inform the correct contact person that Woodside should consult, or engage with
- that are 'not relevant' pursuant to regulation 25(1) but have been contacted as a result of consultation requirements changing, updated guidance from the Regulator, or has provided historical feedback on the OPP or previous Scarborough EPs.
- where it is unclear what their functions, interests or activities are, or whether their functions, interests or activities may be affected. In this circumstance, engagement is used to inform relevance under Woodside's methodology. Woodside follows the same methodology for assessing a person or organisation's relevance as it does during its initial assessment (as described in Figure 5-1 and Section 5.3). The result of Woodside's assessment of relevance during the development of the EP is outlined at Appendix F, Table 1.

5.3.8 Assessment of Relevant Persons for the Proposed Activity

The result of Woodside's assessment of relevant persons in accordance with regulation 25(1) is outlined at Appendix F: Consultation, Table 1 and Table 2.

Persons or organisations that Woodside assessed as not relevant but chose to contact at its discretion in accordance with Section 5.3.4, or self-identified and Woodside assessed as not relevant, are summarised at Appendix F: Consultation (Table 1 and Table 3).

5.4 Consultation Material and Timing

Regulation 25(2) provides that a titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person. Regulation 25(3) provides that the titleholder must allow a relevant person a reasonable period for the consultation.

As set out in Section 5.2, Woodside notifies relevant persons of the proposed activities, respecting that consultation is voluntary, and collaborates on a consultation approach where further engagement is sought by the relevant person. The consultation process aims to be appropriate for the category of relevant persons and not all persons or organisations will require the same level of engagement. In circumstances where there is an ongoing relationship or previous consultation on other EPs, Woodside follows the method of consultation that was historically engaged in and was accepted by the person being consulted. Respecting historic engagement is also important because it means that topics have often been assessed and discussed previously and it also assists to manage consultation fatigue where relevant persons are frequently consulted. Woodside recognises that the level of engagement is dependent on the nature and scale of the Operational Area. Woodside acknowledges published guidance for good practice consultation, relevant to different

sectors and disciplines. Woodside's methodology for providing relevant persons with sufficient information as well as a reasonable period of time to provide feedback is set out in this section.

5.4.1 Sufficient Information

Woodside produces a Consultation Information Sheet for each EP. This is provided to relevant persons and organisations and is also available on Woodside's website for interested parties to access and to provide feedback on. The Consultation Information Sheet typically includes:

- a description of the proposed petroleum activity
- the Operational Area or PAA, dependant on the EP
- where the activity will take place
- the timing and duration of the activity
- a location map of the Operational Area or PAA and EMBA²⁵
- a description of the EMBA
- relevant exclusion zones
- a summary of relevant risks and mitigation and management control measures relevant to the PAP.

It also sets out contact details to provide feedback to Woodside.

The level of information necessary to assist a person or organisation to understand the impacts of the proposed activity on their functions, interests or activities may vary and may depend on the degree to which a relevant person may be affected and also may depend on historic consultation engagements. For example, Woodside considers that relevant persons who may be affected by planned activities in the Operational Area, as a result of temporary displacement due to exclusion zones, may require more targeted information relevant to their functions, interests or activities. Relevant persons who have been consulted on other EPs relevant to the Project may previously have been provided with information relevant to their topics of interest and may not need to receive this again in order to make an informed assessment of the possible consequences of the activity on their functions, interests or activities. Further, sufficient information may have been provided to a relevant person even where all documents requested by a relevant person have not been provided. Woodside also acknowledges NOPSEMA's brochure entitled *Consultation on offshore petroleum environment plans information for the community*, which advises persons being consulted that they may inform titleholders that they only want to be consulted in the very unlikely event of an oil spill.

Woodside places advertisements in selected local, state and national newspapers. This typically includes:

- the name of the EP Woodside is seeking feedback on
- an overview of the activity
- the consultation feedback date
- the ways in which a person or organisation can provide feedback.

Advertising in the local paper in the area of the activity is also consistent with the public notification process under section 66 of the *Native Title Act 1993* (Cth) for native title applications. Woodside typically aligns advertisement feedback timeframes with the timing described below. Feedback received is assessed in accordance with Section 5.3 to determine relevance and evidenced in Appendix F: Consultation, Table 1 as appropriate.

²⁵ Following issue of the consultation information sheet the EMBA modelling was re-run to incorporate recent advancements in the model developed by the specialist modelling consultant. Therefore the EMBA described in this EP is different to that used for consultation.

Woodside utilises a range of tools to provide sufficient information to relevant persons, which may include one or more of:

- Consultation Information Sheet available on Woodside’s website and shared directly with relevant persons
- Summary Consultation Information Sheet, presentations or summaries specific to a particular relevant person group
- project information on Woodside’s website
- a subscribe function available on Woodside’s website to receive notification of new Consultation Information Sheets for Woodside EPs and to receive Woodside’s consultation newsletter ‘Let’s Talk’
- emails
- letters
- phone calls
- face-to-face meetings (virtual or in person) with presentation slides or handouts as appropriate
- Let’s Talk newsletter – digital copy and hard copy
- maps outlining a person or organisation’s defined area of responsibility in relation to the proposed activity, for example a fisheries management area or defence training area
- community meetings, as appropriate
- attendance at on-the-ground community events or planned regional roadshows
- broader awareness campaigns on the how to be involved in the EP consultation process
- broad proactive communication activities were undertaken with the public to raise awareness of Woodside’s activities related to this EP and the Scarborough Energy Project more generally.

Woodside recognises that information may be provided to relevant persons in an iterative manner during the consultation process. Woodside considers that genuine two-way engagement may, in certain instances, be demonstrated via information on incorporation of controls, where applicable, being provided to the relevant person so that the relevant persons understand how their input has been considered in the development of the EP.

Woodside communicates with relevant persons in different ways. Woodside recognises that, as part of genuine two-way dialogue, these forms of communication may evolve including, for example due to changes to organisation representation, as relationships are further established, or a preference for an alternative form of communication is expressed by a person or organisation. There might also be limitations in how Woodside can consult with relevant persons.

Typical forms of communications for categories of relevant persons are set out in Table 5-3.

Table 5-3: Typical forms of communication

Category of relevant person	Typically accepted form of communication
Government departments/agencies – marine	Woodside applies NOPSEMA’s guideline for engagement with Commonwealth government departments or agencies GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023_by using email for its consultation unless another form of communication_is requested. Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request.
Government departments/agencies – environment	
Government departments/agencies – industry	

Category of relevant person	Typically accepted form of communication
Commercial fisheries and peak representative bodies	Commonwealth commercial fisheries: Email is used as the primary form of communication with Commonwealth commercial fisheries in the ordinary course of business. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.
Recreational marine users and peak representative bodies	State commercial fisheries and recreational marine users: The Western Australian Department of Primary Industries and Regional Development (DPIRD) has responsibility for managing the <i>Fish Resources Management Act 1994 (WA)</i> and <i>Aquatic Resources Management Act 2016 (WA)</i> , which limits the provision of contact details from the register to the name and business address of licence holders. Alternative forms of communication are at the licence holder’s discretion. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request. Peak representative bodies: Email is used as the primary form of communication with commercial fishery and recreational marine user peak representative bodies in the ordinary course of business. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.
Titleholders and Operators	Email is used as the primary form of communication between titleholders and operators in the ordinary course of business. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.
Peak industry representative bodies	Email is used as the primary form of communication with peak representative bodies in the ordinary course of business. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.
Traditional Custodians and nominated representative corporations	There are many forms of communication that Woodside uses on a case-by-case basis and as appropriate to or requested by the specific group, such as email, phone calls, meetings and community forums. Other forms of communication are used on request.
Native Title Representative Bodies	There are many forms of communication that Woodside uses on a case-by-case basis and as appropriate to or requested by the specific group, such as email, phone calls, meetings and community forums. Other forms of communication are used on request.
Historical heritage groups or organisations	NOPSEMA’s guideline (GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023) for engagement with government departments or agencies is used as a reference for Woodside’s approach for communicating with historical heritage groups or organisations. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.
Local government and elected Parliamentary representatives and recognised local community reference/liaison groups or organisations	Local government: NOPSEMA’s guideline (GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023) for engagement with local government is used as a reference for Woodside’s approach for communicating with historical heritage groups or organisations. Community reference/liaison groups and chambers of commerce: Email and presentations are used as the primary form of communication with local community reference/liaison groups or organisations in the ordinary course of business. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.
Other non-government groups or organisations or individuals	Email is used as the primary form of communication with Other non-government groups or organisations. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.
Research Institutes and Local conservation groups or organisations	Email is used as the primary form of communication with research institutes and local conservation groups or organisations. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.

Information which is provided to relevant persons for the purposes of consultation on this EP is summarised at Appendix F: Consultation, Table 2.

Appendix F: Consultation, Table 3 sets out the information which is provided to persons or organisations that are not relevant for the purposes of regulation 25 but which Woodside has chosen to contact.

When engaging in consultation, Woodside notifies relevant persons that, in accordance with regulation 25(4), the relevant person may request that the titleholder notifies NOPSEMA that particular information the person or organisation provides in the consultation not be published, and that information subject to that request will not be published under the Environment Regulations.

5.4.2 Reasonable Period for Consultation

Woodside seeks to consult in order to support preparation of its EP. Woodside acknowledges that what constitutes allowing a reasonable period for consultation should be considered on a case-by-case basis, with reference to the nature, scale and complexity of the activity.

For this EP, relevant persons were allowed a reasonable consultation period (in some instances 30 days and in some instances around 4.5 months) to enable an informed assessment of possible consequences of the activity on their functions, interests or activities. The consultation timeframe was also extended at the request of some relevant and non-relevant persons.

The consultation period under this EP is consistent with benchmark periods under other relevant legislative processes:

- Regulation 30 sets out a public consultation period of 30 days.
- The Department of Mines, Energy and Petroleum (DEMIRS) “Guidelines for Consultation with Indigenous People by Mineral Explorers” directs a period of 21 to 30 days of consultation with traditional owners.
- While repealed, guidance taken from the *Aboriginal Cultural Heritage Act 2021—Consultation Guidelines* (Government of Western Australia, 2023) suggests that up to 12 weeks may be a reasonable period to allow identification, contact and response from First Nations peoples (subject to any alternative timeframe being agreed through co-design of consultation).

Woodside allowed relevant persons either 30 days or an approximately 4.5-month period of consultation demonstrating that Woodside has provided a “reasonable period” for relevant persons to consult in accordance with regulation 25(3). Commentary in the *Tipakalippa Appeal* judgment limits consultation to a process that must be capable of being discharged within a reasonable time:

“it must be taken to be the regulatory intention that the consultation requirement cannot be one that is incapable of being complied with within a reasonable time...”²⁶

Woodside seeks feedback in order to support preparation of its EP. What is considered to be a titleholder allowing a relevant person a reasonable period for consultation is considered on a case-by-case basis, with reference to the person being consulted and the nature, scale and complexity of the activity.

Woodside's typical approach to allowing a relevant person a reasonable period for consultation is:

- advertising in selected local, state and national newspapers to give persons or organisations the opportunity to understand the activity and make an informed assessment of the possible consequences of the activity on their functions, interests or activities. Woodside also undertook advertised, regional consultation roadshows and facilitated consultation at regional community events for this EP.
- providing consultation materials directly to relevant persons as well as persons who are not relevant but Woodside chose to contact and providing a target date for feedback. Woodside acknowledges that feedback may be received from relevant persons following the target date

²⁶ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [136].

- acknowledging that the way in which Woodside provides consultation information may vary depending on the relevant person or organisation and, may depend on the degree to which a relevant person or organisation is affected. Different consultation processes may be required for relevant persons and organisations
- following up with relevant persons prior to EP submission. Where possible, if no response has been received, Woodside will endeavour to use an alternative method of communication to contact the relevant person. Woodside also reviewed, assessed, and proactively wrote to numerous relevant and non-relevant persons based on their historical feedback on and topics of interest relating to the OPP or previous Scarborough Energy Project EPs.
- engaging in two-way dialogue with relevant persons or organisations where feedback is received.

Appendix F: Consultation Table 2 and Table 3 sets out a history of ongoing consultation and demonstrates that a reasonable period of consultation has been provided.

Woodside considers and has communicated that consultation for this EP has closed.

As detailed in Section 5.6, if comments and feedback are received after the EP has been submitted, Woodside will consider those comments and update controls as appropriate and at all stages of the life of the EP as per Woodside's ongoing consultation approach described in Section 5.7.

5.4.3 Discharge of Regulation 25

The Full Federal Court made clear in the *Tipakalippa Appeal* that consultation should be approached in a “reasonable”, “pragmatic” and “not so literal” way, so that consultation obligations were capable of being met by titleholders (Section 5.5.1).²⁷ Consultation is a “real world activity” and must be capable of reasonable discharge.²⁸ The Full Federal Court referred to Native Title cases as an illustration that reasonable limits should be applied to consultation efforts to ensure the process is workable.²⁹

When the titleholder demonstrates that it has given a relevant person sufficient information and allowed a relevant person a reasonable period for consultation, then regulation 25 consultation requirements are met.³⁰ Meeting these obligations requires evaluative judgement to determine reasonable satisfaction of the consultation obligation and whether these criteria are met. The nature of the person being consulted and their function, interest and activity that may be affected, will inform the manner of consultation and the reasonable period to be allowed for consultation.³¹

While a titleholder is required to provide an opportunity to consult showing that the consultation is appropriate and adapted to the interests of the relevant person, there are limits. For example, the titleholder is not required to obtain consent from a person being consulted, or confirmation from a person being consulted, that consultation is complete. The Federal Court has commented that a “reasonable opportunity” for consultation must be afforded to relevant persons.³² A reasonable opportunity does not mean every opportunity requested and is limited to reasonable opportunities to consult.

²⁷ *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 [89], [98], [103]-[104] and [109].

²⁸ *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [89].

²⁹ *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [96] and [103].

³⁰ Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 29.

³¹ Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 30 and *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [153].

³² *Cooper v National Offshore Petroleum Safety and Environmental Management Authority (No 2)* [2023] FCA 1158 at paragraph [11]; *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [153].

Woodside has discharged its consultation obligations. Woodside has given relevant persons sufficient information to enable relevant persons to make an informed assessment of the possible consequences of the activity on their functions, interests or activities. Woodside has also allowed relevant persons a sufficient period to provide relevant feedback for Woodside to assess objections or claims about the adverse impact of the activity to which this EP relates. Woodside has also provided a reasonable opportunity in that consultation is appropriate and adapted to the interests of the relevant person, including that there has been genuine two-way dialogue on a relevant person's claims or objections about the adverse impact of the activity to which this EP relates.

Woodside has discharged its duty under regulation 25. Consultation for this EP is complete.

Appendix F: Consultation (Table 2 and Table 3) of this EP sets out the history of consultation under regulation 25. To the extent a relevant person says that they have further information to share or claims that consultation under regulation 25 has not been completed, Appendix F: Consultation (Table 2 and Table 3) provide reasons why Woodside considers consultation under regulation 25 has been met, in relation to that relevant person.

5.5 Context of Consultation Approach with First Nations

To comply with regulation 25, Woodside identifies and consults Traditional Custodians whose functions, interests or activities may be affected by the activities under an EP.

5.5.1 Approach to Methodology – Woodside's Interpretation of *Tipakalippa Appeal*

Woodside has implemented a consultation methodology consistent with regulation 25 and guidance provided in the *Tipakalippa Appeal* and *Munkara* case (Section 5.2). Woodside's consultation methodology allows for a sufficiently broad capture of Traditional Custodian relevant persons, provides for informed consultation, follows cultural protocols and allows a reasonable opportunity for consultation with Traditional Custodians whose functions, interests or activities may be affected by the activity described in this EP (Section 5.5.2.1 to 5.5.2.5).

Woodside notes the Full Federal Court discussed several *Native Title Act 1993 (Cth)* cases in response to a submission made in that case that a requirement under regulation 25 to consult "each and every" relevant person would be "unworkable". The reference to native title cases dealt with how decision-making processes under the NTA requiring "all" members of a group to be contacted for communal approval are interpreted by courts in a "reasonable", "pragmatic" and "not so literal" way,³³ and how obligations to consult "each and every" person under regulation 25 should be interpreted in a similarly pragmatic way, so that consultation is workable. The reference to NTA authorities was made by analogy:

*"It can be seen that the terms of [the native title legislation] are somewhat absolute – "all". However, [the native title legislation] has consistently been construed in a way that is not so literal ... The cases concerning [the native title legislation] ... have reiterated ... that [the native title legislation] does not require that "all" of the members of the relevant claim group be involved in the decision. The key question will be whether a reasonable opportunity to participate in the decision-making process has been afforded by the notice for a relevant meeting."*³⁴

*"We consider the authorities in relation to processes under the NTA to be illustrative of how a seemingly rigid statutory obligation to consult persons holding a communal interest may operate in a workable manner"*³⁵ (emphasis added).

33 Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [95], [98], [103]-[104] and [109].

34 Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [98].

35 Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [96].

“[T]here is no definition of what constitutes “consultation for the purpose of Reg11A [now regulation 25] ... A titleholder will need to “demonstrate” to NOPSEMA that what it did constituted consultation appropriate and adapted to the nature of the interests of the relevant persons”³⁶ (emphasis added).

The Judgment in the *Tipakalippa Appeal* makes it clear that a titleholder will have some decisional choice in identifying which person(s) are to be approached, how the information will be given to allow the "relevant person" to assess the possible consequence of the proposed activities on their functions, interests or activities, and how consultation is undertaken.³⁷ Consultation is not fixed to a rigid process and will be adapted so that it is informed by the relevant person or group. Woodside has met its regulation 25 requirements through its consultation methodology (Section 5.2).

Consistent with the *Tipakalippa Appeal*, Woodside considers NTA-style “full group” meetings are not required for there to be compliance with regulation 25. Nominated representative corporations (such as PBCs established under the NTA) have a designated role of representing the views of their member Traditional Custodians. They have established methods for engaging with their own members. Woodside will not undermine the purpose and authority of nominated representative corporations by requiring full group meetings where the nominated representative corporations have not requested engagement of members via full group meetings. It is not appropriate for titleholders to direct or challenge the nominated representative corporations on how to engage with their members.

Woodside's approach described below demonstrates that sufficient information and a reasonable opportunity is provided to individual Traditional Custodians to provide feedback on Woodside activities beyond the opportunity provided to nominated representative corporations.

5.5.2 Consultation Method

Woodside's First Nations team has experience in engaging and working with First Nations organisations and individuals, including within the Commonwealth native title and cultural heritage systems, and state and territory cultural heritage and land rights systems. The team understands the complexities of making information accessible to groups and individuals and engaging in accordance with First Nations groups' established channels of communication and methods of consultation. The First Nations team exercises its professional judgement and is respectful of long-standing relationships (where in place) when considering consultation with First Nations groups. The First Nations team's approach is also informed by the established systems of recognition for First Nations groups and their nominated representative corporations within particular jurisdictions. For example, the methodology for engaging with First Nations groups in the Northern Territory (not relevant for this EP) tends to centre around engagement through Aboriginal land councils (under the *Aboriginal Land Rights (Northern Territory) Act 1976 (Cth)*) as well as community meetings that target clan groups where they do not have PBCs or other nominated representative corporations to represent them.

By contrast, recognition for First Nations groups and their nominated representative corporations in Western Australia falls under the *Native Title Act 1993 (Cth)* because the vast majority of the Western Australian coastline is settled under the native title regime. This means that the methodology and process for consultation in Western Australia places greater emphasis on, but is not limited to, Native Title Representative Bodies and PBCs.

Native title determinations provide certainty about the appropriate Traditional Custodian groups that have the cultural authority to speak for country and help Woodside to identify Traditional Custodian persons and groups asserting Traditional Custodianship. The Judgment in the *Tipakalippa Appeal*

36 Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [104].

37 Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [47] and [48].

endorses methods of consultation with groups of relevant persons that are appropriate and adapted to the characteristics of groups.³⁸ Woodside's consultation methodology is adapted and appropriate to the recognised systems of communal interests in Western Australia.

In Western Australia (relevant for this EP), Woodside has sought to follow the established, effective and respectful means of communication used by Native Title Representative Bodies and nominated representative corporations (including PBCs) with their respective First Nations communities. Woodside follows these processes for the appropriate broad capture of individuals' awareness of our activities, to self-identify (Section 5.5.2.2), and to provide feedback to inform the management of environmental impacts and risks.

Using these processes, Woodside communicates information about EPs in the following ways:

- Woodside advertises in relevant newspapers, which encourages self-identification, by advertising proposed activities widely through newspapers that have national and intra-state circulation, i.e. Koori Mail, National Indigenous Times, The West Australian.
- Woodside creates carefully considered Consultation Summary Sheets with information developed by an Indigenous member of the First Nations Team to remove jargon and provide relevant information for people to have informed understandings about the activities.
- Woodside makes direct contact through nominated representative corporations.
- Woodside uses social media (i.e. Facebook/Instagram), texts and emails. These mediums are the preferred communication methods used by Traditional Custodians throughout Western Australia and, on that basis, used by Native Title Representative Bodies and other government agencies and industry, to engage with Traditional Custodians or call meetings. First Nations woman, Professor Bronwyn Castle, through 10 years of research found "*Social media is an intrinsic part of daily life. The use of Facebook is around 20 per cent higher [among First Nations people] than the national average across all geographical locations*" (Social media mob: being Indigenous online, Professor Bronwyn Carlson (2018)).
- For ongoing consultation post regulation 25 consultation, Woodside has a Program of Ongoing Engagement with Traditional Custodians which sets out Woodside's commitment to ongoing engagement and support to care for and manage country, including Sea Country. The program was developed in response to Traditional Custodian feedback.
- Woodside has members of its First Nations team who are based in Karratha and Roebourne and who serve as on-Country points of contact for First Nations organisations and individuals. These team members have broad local knowledge and established, on-the-ground relationships within communities. This helps contribute to positive outcomes including encouraging First Nations attendance and involvement at Woodside's information sessions and Community roadshows. Team members on the ground engage in a great deal of preparatory work including by distributing information and providing notice to the community to support First Nations attendance at information sessions and Community roadshows.
- From the commencement of engagement with Traditional Custodians, Woodside seeks direction on how they prefer to be consulted and has consulted accordingly. Consultation processes that are informed by Traditional Custodians and co-designed on a case-by-case basis and includes, where appropriate, direction from Traditional Custodians as to cultural protocols, structure of consultation and who to appropriately consult with (such as elders).
- Woodside holds meetings on Country at a place and time agreed with Traditional Custodians and offers and provides financial support for meeting expenses to enable consultation (as appropriate).

³⁸ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraphs [95], [104], [153].

- Woodside provides information specifically designed to be easily understood, to reach relevant people, and give a reasonable period of time for those people to make an informed assessment of the possible consequences of the proposed activity on them.

The First Nations team's approach to consultation is also consistent with the Federal Court's decision in the *Munkara Case*. The *Munkara Case* notes that the word "culture" (and hence the word "cultural") has a communal aspect to it. To establish cultural features, it is necessary that the beliefs and values are held by the relevant people *as a people*. For values, features or beliefs that are expressed by an individual to be "cultural" they cannot simply be an individual's belief – the belief must have a communal aspect too, and demonstrate that the "individual beliefs are broadly representative of the beliefs of other members of the group"³⁹. The phrase "cultural features", when applied to "people" as constituent parts of an ecosystem, is not directed to idiosyncratic views or beliefs of an individual⁴⁰. When the First Nations team is told that a particular value is cultural by an individual Traditional Owner, that information is taken back to the relevant cultural authority to test its broad acceptance. In the case of gender sensitive information, that information would be restricted to the specific gender within the community.

5.5.2.1 Identification of Relevant Persons

To undertake consultation, Woodside has developed a methodology for identifying relevant persons, in accordance with regulation 25(1) (Section 5.2 and 5.3).

Woodside's approach for identifying relevant Traditional Custodians is consistent with Woodside's First Nations Communities Policy (Woodside, 2022) and consultation is guided by Traditional Custodians by directing consultations through their nominated representative corporation. This has been implemented by Woodside through consultation with a nominated representative corporation, where that corporation has advised Woodside that it acts as the representative body for a Traditional Custodian group and has requested that Woodside engage with it as the representative body for that Traditional Custodian group.

Woodside has an approach designed to facilitate broad capture for consultation. It asks nominated representative corporations (such as PBCs) and Native Title Representative Bodies to identify individuals that should be consulted, and also enables individuals to self-identify in response to national and local advertising, social media and community engagement opportunities (Section 5.5.2.2). Where there is a nominated representative corporation for an area, unless directed by the nominated representative corporation, Woodside does not directly approach individuals for consultation, because this has the potential to undermine the role of the nominated representative corporation. Approaching individuals directly is a practice that is no longer considered acceptable because of divisions it has been shown to cause in communities. In addition to asking for the identification of individuals, Woodside also asks nominated representative corporations to distribute consultation information to whomever the nominated representative corporations deem appropriate, including members of the nominated representative corporations who are communal rights holders.

Having said this, as set out in further detail in Section 5.5.2.2, individuals are also given the opportunity to self-identify, consult and provide their own feedback on the proposed activity. When approached in this way, Woodside will engage individuals as relevant persons and will also (subject to any confidentiality or cultural restrictions) advise the nominated representative body of the consultation with individuals where it relates to cultural values. These methods of consultation are consistent with requirements for notification under the *Native Title Act 1993 (Cth)*, such as under the future act provisions (section 29), which requires notification of the Native Title Representative Body, the PBC (or nominated representative) and notification through newspapers. The notification process has been selected as a respectful, practical and pragmatic analogue for consultation with

³⁹ *Munkara v Santos NA Barossa Pty Ltd* (No 3) [2024] FCA 9 at [205]

⁴⁰ *Munkara v Santos NA Barossa Pty Ltd* (No 3) [2024] FCA 9 at [205]

First Nations peoples, rather than requiring members to be notified via a formal authorisation process which seeks, from members, authorisation of agreements and native title/compensation claims under the *Native Title Act 1993 (Cth)*⁴¹.

In this consultation, Woodside requested nominated representative corporations to identify any potential individual relevant persons for consultation. Woodside requests nominated representative corporations to distribute consultation materials to their members. However, Woodside recognises that the process is voluntary and that it cannot compel nominated representative corporations (such as PBCs) to do so. Woodside also recognises that it would not be appropriate to seek to audit the nominated representative corporations for compliance with any member consultation request.

5.5.2.2 Opportunity to Self-identify and Identifying Other Individuals

Woodside requests nominated representative corporations and Native Title Representative Bodies to identify other individuals to consult with or individuals who may seek to self-identify for a proposed activity. Woodside also advertises broadly through Indigenous, national and local advertising, social media and community engagement opportunities to provide individuals with an opportunity to consult. Woodside does not directly approach individuals for consultation, as this undermines the role of the nominated representative corporations (Section 5.5.2.1). Woodside's approach to providing individual Traditional Custodians the opportunity to self-identify and consult for an EP is as follows:

- Woodside applies the principles of self-determination when consulting with Traditional Custodians by consulting through the Traditional Owners' authorised representative entities.
- Recognising the function of nominated representative corporations (such as PBCs) and Native Title Representative Bodies to represent communal interests and manage cultural values, Woodside requests that the information provided to representative entities is provided to their members but Woodside recognises the process is voluntary and Woodside cannot compel them to do so, nor seek to audit the representative entities for compliance with any request.
- Representative entities cannot provide membership details to Woodside due to individual confidentiality requirements.
- Woodside requests advice as to who else Woodside should be consulting but recognises the process is voluntary and cannot compel nominated representative corporations to provide this information.
- Modern Indigenous engagement practises focus on the building and maintaining of respectful relationships. To date, most nominated representative corporations have requested the building of a relationship of that kind, where one is not already in place.
- Woodside has, in some instances, been required to approach individuals, directors and Elders outside of this process due to requirements imposed in EP consultation. However, this approach is considered inappropriate by modern Indigenous engagement standards as it fundamentally undermines the authority of the authorised representative entity and can be detrimental to the relationship.

For this proposed activity, Woodside requested nominated representative corporations (including PBCs) and Native Title Representative Bodies to identify any potential individual relevant persons for consultation, and to distribute consultation materials to their member base. However, Woodside recognises the process is voluntary and it cannot compel them to do so nor seek to audit the representative entities for compliance with any request. Woodside has not been directed to engage individual Traditional Custodians by nominated representative corporations for this proposed activity. Woodside has nevertheless provided reasonable opportunity for individual Traditional Custodians to

⁴¹ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193, at [104]

engage in consultation through appropriate and adapted consultation methods. Woodside has also consulted specific individuals where there has been previous consultation with them and has confirmed this consultation with relevant representative corporations.

5.5.2.3 Sufficient Information

Woodside gives relevant persons information that is sufficient to allow a person or organisation to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities. This information sets out an overview of the activity, the location of the activity, timing of the activity and a summary of risks and impacts of the activity. It also includes maps showing the location of the activity and EMBA, diagrams and details on consultation and providing feedback. It is acknowledged that some relevant persons may seek additional information and the information that is sufficient may depend on the degree to which a relevant person is potentially affected.

Woodside produces Consultation Information Sheets for each EP which are provided to relevant persons and organisations for the purpose of seeking feedback on the activity (Section 5.4.1). In response to feedback from Traditional Custodians, Woodside has tailored consultation methods for its activities, specifically for Traditional Custodians, so that information is provided in a form that is readily accessible and appropriate. The Summary Information Sheet is developed and reviewed by Woodside's First Nations Team so that content is appropriate to the intended recipients, which is then provided to relevant Traditional Custodian groups. In instances where consultation has not occurred before, phone calls are often made following provision of the Summary Information Sheet so as to provide context to the consultation.

Where face-to-face consultation meetings are requested, Woodside coordinates engagement at the Traditional Custodians location of choice (where practicable) and with their nominated attendees. Key project personnel, environmental and First Nations relations experts are typically present to enable effective communication, provide explanatory information or background and provide prompt responses to questions. Materials for these sessions include visual aids such as photos, maps and videos, and plain language suitable for people with a non-technical background.

During consultation, Woodside provides relevant persons with additional information as appropriate in response to requests. There is no requirement to provide relevant persons with all information or documents requested and a titleholder will have provided sufficient information even where it has not provided all information or documents requested.

Woodside has sought to provide sufficient information to individual members of nominated representative corporations (such as PBCs) by providing information to representative bodies and requesting dissemination with members. However, Woodside recognises consultation is voluntary and it cannot compel them to do so, nor would it be appropriate to seek to audit the representative entities for compliance with any request.

Woodside also notes that, in an effort to simplify, support and enable consultation, Woodside has offered to enter into consultation framework agreements with Traditional Owners. The framework agreements ask Traditional Owners to provide their input on a number of factors including how the Traditional Owners would like to be consulted, what amount of information is sufficient for them, what period of time is reasonable, how best to capture their feedback and how they would like their information included in EPs. Woodside has also offered to provide for reasonable sitting fees and other costs to support and enable Traditional Owners to engage in consultation. Despite offering consultation agreements to numerous Traditional Owners, in a number of instances Woodside has observed a low priority or a significant degree of negotiation from groups to progress the agreements. Woodside has engaged in continuing negotiations on the framework agreements and has nevertheless continued consultation on this EP in parallel with those negotiations. Woodside has also confirmed that payment of reasonable sitting fees and other reasonable costs to support and enable consultation, must accord with Woodside's internal policies and procedures.

5.5.2.4 Reasonable Period for Consultation

Woodside seeks to consult in order to support preparation of its EP. Under Woodside's methodology, Woodside allows relevant persons at least 30 days for consultation in preparation of the EP. For many relevant persons, that period is a reasonable period for them to engage in consultation. In some instances, that period is extended, especially where there is a reasonable request from a relevant person for more time. Woodside also recognises that what constitutes a reasonable period for consultation may also take into account the nature, scale and complexity of the activity (Section 5.4.2).

5.5.2.5 Discharge of Regulation 25

Woodside's consideration and approach to discharging regulation 25 for relevant persons is discussed in Section 5.4.3 and Appendix F: Consultation. In addition to this, Woodside has considered the application of regulation 25 specific to First Nations based on the Tipakalippa Appeal and Munkara case.

In relation to Traditional Custodian relevant persons (and all relevant persons), Woodside has discharged its duty under regulation 25 of the Environment Regulations. Consultation under regulation 25 is complete (Section 5.4.3).

5.6 Providing Feedback and Assessment of Merit of Objections or Claims

There are a number of ways in which feedback can be provided to Woodside during consultation. Feedback can be provided through the Woodside feedback email or via the Woodside feedback toll free phone line as outlined in the Consultation Information Sheet and the Woodside website. Where appropriate, consultation may also be supported by phone calls or meetings. An EP feedback form is also available on Woodside's website enabling anyone to provide feedback on proposed activities, or to request additional information.

Woodside consults widely on its EPs and notes that feedback is received in various forms and with varying tones and objectives. Feedback that is considered inappropriate or that puts the environment, health, safety or wellbeing of Woodside employees or operations at risk will not be tolerated. Woodside respects people's rights to protest peacefully and lawfully but actions that put the environment, health, safety or wellbeing of Woodside employees or operations at risk go beyond those boundaries.

Woodside accepts feedback and engages in consultation in order to achieve the aims set out in Section 5.2. Woodside recognises that there are persons and organisations that take a view that Woodside's activities, operations and/or growth projects should be stopped or at least delayed as far as possible. Whilst Woodside assesses the merits of objections or claims about the adverse impact of the activity that Woodside receives, it acknowledges NOPSEMA's guidance in its brochure entitled *Consultation on offshore petroleum environment plans information for the community*, which states that relevant persons are free to respond on any matter and raise any concern, however this may not be able to be considered if it is outside the scope or purpose of the EP and approval process, for example, statements of fundamental objection to offshore petroleum activities or information containing personal threats or profanities.

Woodside notes that the regulations require Woodside to determine the sufficient information to give a relevant person and the reasonable period of time to allow a person to consult. There is no requirement for a relevant person to agree or confirm they have been provided sufficient information or a reasonable period of time. There is also no requirement for a relevant person to agree or confirm that they have been adequately consulted by Woodside or that consultation is closed.

Feedback, objections or claims about the adverse impact of the activity under the EP received from relevant persons are reviewed and an assessment of the merits of objections or claims is made. This might, for instance, be done through a review of data and literature and for relevance to the nature and scale of the activity outlined in the EP. Consistent with the aim of consultation in Section 5.2,

Woodside will consider information received when reviewing and designing appropriate measures to put in place to manage impacts and risks of the activity to ALARP and acceptable levels.

Woodside considers feedback during consultation from relevant persons and other persons Woodside chose to contact (see Section 5.3.4). Woodside has also considered topics raised and relevant to this EP from prior consultation on the OPP and other Scarborough Energy project EPs. This information is summarised in Appendix F: Consultation (Table 1 and Table 2) of the EP and includes a summary of Woodside's response, or proposed response, if any, to each objection and claim.

In accordance with the purpose of consultation, where Woodside receives information during consultation that enables Woodside to better understand the environment and to refine or change the measures it proposes to address risks and impact, that information is included in the EP. Cultural information relevant to the environment is incorporated in Chapter 4 "Existing Environment" of this EP.

In accordance with regulation 26(8), sensitive information (if any) in an EP, and the full text of any response by a relevant person to consultation under regulation 25, must be contained in the sensitive information part of the plan and not anywhere else in the plan.

5.7 Ongoing Consultation

In addition to consultation in the course of preparing EP, consultation can continue to occur during the life of an EP, including after an EP has been accepted by NOPSEMA.

As per Woodside's ongoing consultation approach (refer to Section 7.10.5), feedback and comments received from relevant persons continue to be assessed and responded to (as appropriate) throughout the life of an EP, including during its assessment and once accepted, in accordance with the intended outcome of consultation.

Should consultation feedback be received following the acceptance of an EP that identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate (see Section 7.2.7).

6 ENVIRONMENTAL RISK ASSESSMENT, PERFORMANCE OUTCOMES, STANDARDS AND MEASUREMENT CRITERIA

6.1 Overview

This section presents the impact and risk analysis, evaluation and Environment Performance Outcomes (EPOs), Environmental Performance Standards (EPS) and Measurement Criteria (MC) for the Petroleum Activities Program, using the methodology described in Section 2 of this EP.

6.2 Impact and Risk Analysis and Evaluation

As required by Regulations 21(5) and 21(6) of the Environment Regulations, the following analysis and evaluation demonstrates that the identified impacts and risks associated with the Petroleum Activities Program are reduced to ALARP and are of an acceptable level, and considers all operations of the activity, including potential emergency conditions.

Impacts and risks identified during the ENVID workshops (including decision type, current risk level, acceptability of impacts and risks, and tools used to demonstrate acceptability and ALARP) have been divided into two broad categories:

- planned (routine and non-routine) activities
- unplanned events (accidents, incidents or emergency situations).

Within these categories, impact and risk assessment groupings are based on environmental aspect (e.g. emissions, physical presence etc). For all hazardous events considered, the worst-case risk was assumed.

The ENVID identified 12 impacts and 11 risks associated with the Petroleum Activities Program. Planned activities and unplanned events are summarised in Table 6-1 and Table 6-2. The assigned risk ratings were determined with controls in place as described in Section 2.3.4.

The analysis and evaluation for the Petroleum Activities Program indicates that current environmental risks and impacts associated with the activity are reduced to ALARP and are of an acceptable level, as discussed further in Sections 6.7 and Section 6.7.13.

The environmental impacts and risks for all aspects are summarised in Table 6-1.

Table 6-1: Environmental risk analysis and summary

Aspect	EP Section	Risk Rating				Acceptability
		Impact/Consequence	Potential Impact/Consequence Level	Likelihood	Current Risk Rating	
Planned Activities (Routine and Non-routine)						
Physical Presence – Interaction with other marine users	6.7.1	E	Slight, short-term impact (<1 year) to a community or area/item of cultural significance.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Physical Presence – Seabed Disturbance	6.7.2	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Sections 2.3.5 and 2.3.6
Routine Light Emissions: FPU and Vessels	6.7.3	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Routine Acoustic Emissions: FPU Hook-up and Commissioning	6.7.4	E	Environment – Slight, short-term impact (<1year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Routine Acoustic Emissions: Routine Operations	6.7.5	E	Environment – Slight, short-term impact (<1year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Routine Greenhouse Gas Emissions	6.7.6	F	Environment – No lasting effect on net global atmospheric GHG concentrations.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6

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Aspect	EP Section	Risk Rating			Acceptability	
		Impact/Consequence	Potential Impact/Consequence Level	Likelihood		Current Risk Rating
Routine Atmospheric Emissions: Offshore, and Indirect Emissions from gas processing onshore	6.7.7	F	Environment – No lasting effect (<1 month); localised impact not significant to environmental receptors.			Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Physical Presence: Interactions between diurnal migratory/foraging seabirds and shorebirds and the FPU	6.7.8	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Routine and Non-Routine Discharges: Vessels	6.7.9	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Routine and Non-Routine Discharges: FPU Operations (Wastewater streams)	6.7.10	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Routine and Non-routine Discharges: FPU Operations (Commingled PW/Seawater Return Stream stream)	6.7.11	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Routine and Non-routine Discharges: Subsea Operations, Activities and Contingent Trunkline Dewatering	6.7.12	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6

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Aspect	EP Section	Risk Rating				Acceptability
		Impact/Consequence	Potential Impact/Consequence Level	Likelihood	Current Risk Rating	
Routine and Non-Routine Discharges: FPU and Subsea Commissioning and Initial Start-up	6.7.13	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Unplanned Activities (Accidents, Incidents, Emergency Situations)						
Unplanned Diesel Release: Vessel Collision	6.8.2	C	Environment - Moderate, medium-term impact (2-10 years) on ecosystems, species, habitat or physical or biological attributes	1	M	Acceptable if ALARP
Unplanned Diesel Release: Loss of FPU/ASV Structural Integrity/Stability	6.8.3	D	Environment – Minor, short-term impact (1–2 years) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	1	M	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Unplanned Gas Release: Loss of Well Containment	6.8.4	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Unplanned Gas Release: Subsea Equipment and Trunkline Loss of Containment	6.8.5	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Unplanned Diesel Release: FPU Topsides Loss of Containment including bunkering/refuelling	6.8.6	E	Environment – Minor short-term impact (1–2 years) on species, habitat (but not affecting ecosystem function), physical or biological attributes.	2	M	Acceptable if ALARP

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Aspect	EP Section	Risk Rating			Acceptability	
		Impact/Consequence	Potential Impact/Consequence Level	Likelihood		Current Risk Rating
Unplanned Discharge: Chemical Release During Transfer, Storage and Use	6.8.7	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	3	M	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Unplanned Discharge: Loss of Solid Hazardous and Non-Hazardous Wastes	6.8.8	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	2	M	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Physical Presence (Unplanned): Seabed Disturbance	6.8.9	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	2	M	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Physical Presence: Interactions with Fauna	6.8.10	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6
Physical Presence (Unplanned): Introduction and Establishment of Invasive Marine Species	6.8.11	E	Environment – Slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	0	L	Broadly Acceptable Has been shown to meet requirements listed in Section 2.3.6

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6.2.1 Concurrent Operations and Cumulative Impacts

The Scarborough OPP (Section 8) assesses the potential cumulative impacts of the Scarborough Project and other activities/developments. In addition, Woodside has considered other Scarborough activities that could result in overlapping temporal and spatial extents.

Concurrent operations may occur between activities included in this Petroleum Activities Program and Scarborough activities covered by future EPs (e.g. drilling and completions, subsea installation or seismic survey). Cumulative impacts associated with these activities will be assessed in future EPs, as required.

Drilling operations covered under the current approved Scarborough Drilling & Completions Environment Plan may occur concurrently with activities covered under this Environment Plan. As such, cumulative impact assessment has been carried out for routine acoustic emissions and physical presence (unplanned): interactions with marine fauna, within this Environment Plan.

Other facilities located in proximity to the PAA were identified within Section 4.10.5. While there is spatial overlap with a number of pipelines and cables, it is highly unlikely that concurrent activities with other operations would occur, due to required communications between operators and the inherent risk reduction in avoiding such situations. Therefore, no cumulative risks or impacts will credibly occur.

6.3 Environmental Performance Outcomes, Standards and Measurement Criteria

Regulation 21(7) of the Environment Regulations requires that an EP includes Environmental Performance Outcomes (EPOs), Environmental Performance Standards (EPSs) and Measurement Criteria (MC) that address legislative and other controls to manage the environmental risks of the activity to ALARP and an acceptable level.

As defined in Regulation 5 of the Environment Regulations, an EPO “for an activity, means a measurable level of performance required for the management of environmental aspects of the activity to ensure that environmental impacts and risks of the activity will be of an acceptable level”.

The EPOs, EPSs and MC specified are consistent with legislative requirements and Woodside’s standards and procedures. They have been developed based on the Codes and Standards, Good Industry Practices and Professional Judgement outlined in Sections 2.3.2 and 2.3.3 as part of the acceptability and ALARP justification process.

The EPOs, EPSs and MC are presented throughout this section and in Appendix H: Oil Spill Preparedness and Response Mitigation Assessment (Oil Spill Preparedness and Response). A breach of these EPOs or standards constitutes a 'Recordable Incident' under the Environment Regulations (refer to Section 7.12.4).

The Scarborough OPP identified the impacts and risks associated with the proposed development and defined suitable EPOs. The OPP EPOs have been cascaded to the relevant project activities under this EP or new EPOs created which are commensurate with the OPP EPOs and enable the same or greater level of protection. The relationship between OPP EPOs and those developed in this EP is summarised in Table 6-2.

For the physical and biological receptors within the EMBA, Woodside has set EPOs that are consistent with the Matters of National Environmental Significance – Significant impact guidelines 1.1 (DoE, 2013). EPOs are set so that they are consistent with the principles of ESD as defined in the Section 3A of the EPBC Act and this is demonstrated through the acceptability process (described in Section 2.3.6), which is applied to the aspects / receptors in Section 6. The EPOs for planned activities have been set at a level of environmental performance that considers the planned activities and associated level of environmental impact. This means that it can be demonstrated that

changes which do not trigger EP resubmission as per MOC process (refer to Section 7.2.7) are able to be managed to the Acceptable level.

For social receptors, including fishing and other commercial activities, the EPOs that have been set reflect the requirements in the section 280(2) of the OPGGS Act, in that the activities undertaken as a part of the development of Scarborough should not interfere with other marine users, to a greater extent than is necessary for the exercise of right conferred by the titles granted.

The EPOs for all environmental impacts/risks are identified and summarised in Table 6-2.

Table 6-2: Comparison of Environment Plan Environmental Performance Outcomes to the relevant Offshore Project Proposal Environmental Performance Outcomes

Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
Planned Activities			
Section 6.7.1 Physical Presence – Interactions with other Marine Users	EPO 1 Impacts to relevant stakeholders from the Petroleum Activities Program planned activities will be limited through the provision of appropriate information / notification.	EPO 5.1 & EPO 5.2	EPOs 5.1 and 5.2 from the Scarborough OPP require undertaking the Scarborough development in a manner that prevents substantial adverse effect on commercial fishing, and in a manner that does not interfere with other marine users to a greater extent than is necessary to exercise rights under the Title. This EP EPO 1, to limit impacts to planned activities through provision of appropriate information, is aligned with preventing substantial adverse effect, and not interfering with other users beyond the extent necessary to exercise rights conferred by the Title(s) granted.
Section 6.7.2 Physical Presence – Seabed Disturbance	EPO 2 Seabed disturbance to be limited to planned activities and impacts described as part of the Petroleum Activities Program and will not occur outside the Operational Area. EPO 4 No adverse impact to unexpected finds of Underwater Cultural Heritage without a permit ⁴² .	EPO 6.1, 6.4 and 6.8	EPOs 6.1, 6.4 and 6.8 from the Scarborough OPP require the prevention of substantial change, adverse impact on a range of receptors including biodiversity, ecological integrity, social amenity, human health and KEFs. The EP EPOs align with the OPP by limiting seabed disturbance to the ALARP and Acceptable level described in the Section 6.7.2 impact assessment, which takes into consideration impact potential for relevant receptors and alignment with impact significance levels for individual receptors from the OPP, conservation management plans, requirements for protected places and other sensitivities or values raised through consultation.

⁴² Permit for Entry into a Protected Zone or to Impact Underwater Cultural Heritage would be acquired under the UCH Act.

Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
<p>Section 6.7.3 Routine Light Emissions from FPU and Vessels</p>	<p>EPO 6 No impacts to marine fauna greater than that caused by minimum required light emissions for safe work / navigation.</p> <p>EPO 7 No displacement of marine turtles from habitat critical during nesting and interesting periods and marine turtles' biologically important behaviour can continue in biologically important areas.</p>	<p>EPO 1.1 - EPO 1.4</p>	<p>OPP EPO's 1.1 through to 1.4 require protection of habitat such that no adverse impact occurs on the marine ecosystem, as well as no substantial adverse effect on a population of seabirds / shorebirds, or migratory species.</p> <p>The EP EPO 6 aligns with these protection requirements in that lighting impacts will be limited to the ALARP and Acceptable level discussed in the Section 6.7.3 Risk Assessment, taking into consideration the National Light Pollution Guidelines.</p> <p>An additional EPO 7 has been included for marine turtles.</p>
<p>Section 6.7.4 Routine Acoustic Emissions: FPU Hook-up and Commissioning</p> <p>Section 6.7.5 Routine Acoustic Emissions: Routine Operations</p>	<p>EPO 8 No injury of, or mortality to, EPBC Act 1999 and WA Biodiversity Conservation Act 2016 listed marine fauna as a result of noise generated by the Petroleum Activities Program.</p> <p>EPO 9 No displacement of marine turtles or pygmy blue whales from habitat critical during nesting/breeding (inc. interesting periods for turtles) and ensure biologically important behaviour can continue in biologically important areas.</p>	<p>EPO 4.1 – EPO 4.3</p>	<p>OPP EPOs 4.1 through to 4.3 relating to underwater noise impact potential require protection of habitat such that no adverse impact occurs on the marine ecosystem, no substantial adverse effect on fish, marine mammals, marine reptiles or spatial distribution of a population. The OPP EPO's also require no serious disruption to lifecycle of an ecologically significant proportion of the population of a migratory species.</p> <p>The EP EPO's provide a higher level of protection than the OPP EPO's due to requirement to protect against injury or mortality to individual marine fauna, rather than the population level set in the OPP.</p> <p>EP EPO 9 aligns with OPP EPO 4.3 and offers a greater level of protection through no displacement of marine turtles and pygmy blue whales as opposed to the level of serious disruption established in the OPP.</p>
<p>Section 6.7.6 Routine and Non-Routine Atmospheric</p>	<p>EPO 3 Minimise GHG emissions from vessels through efficient fuel usage and consideration of fuel types utilised.</p>	<p>EPO 3.1 and EPO 3.2</p>	<p>OPP EPO's 3.1 and 3.2 require optimisation of air emissions, reduction in direct GHG emissions and active support for the global transition to a lower carbon future.</p>

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Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
and Greenhouse Gas Emissions	EPO 10 Net FPU GHG emissions shall achieve GHG reductions under reformed Safeguard Mechanism (inclusive of legislated net zero emissions by 2050).		EP EPO's have been rewritten to be more measurable, align with Regulatory regimes whilst still meeting the intent of the OPP EPO's to drive reduction in Woodside direct emissions and support customers in reducing their own emissions.
	EPO 11 Woodside will support customers to reduce their GHG emissions		
	EPO 12 Net GHG emissions associated with onshore processing will be subject to reduction requirements under the reformed Safeguard Mechanism (inclusive of legislated net zero emissions by 2050)		
	EPO 29 Estimated GHG emissions associated with third party transport, regasification, distribution and end use shall remain below 162 MtCO ₂ -e over 5 year operational span of this EP revision		
Section 6.7.7 Routine Atmospheric Emissions –Offshore, and Indirect emissions from gas processing onshore	EPO 13 Impacts of routine offshore atmospheric emissions will be limited to planned activities and impacts described as part of the Petroleum Activities Program.	EPO 2.1	OPP EPO 2.1 requires no substantial change to air quality which may adversely impact on biodiversity, ecological integrity, social amenity or human health. The EP EPOs align with the OPP protection requirements through limiting impacts to those that have been assessed as ALARP and Acceptable in the Section 6.7.8 risk assessment. The risk assessment takes into consideration the context of community interest and concern and existing studies such as the Murujuga Rock Art Monitoring Program (MRAMP).
	EPO 14 Prevent accelerated weathering of Murujuga rock art or impact to human health from air emissions that result from onshore processing of Scarborough gas.		

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Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
<p>Section 6.7.8 Physical Presence: Interactions between diurnal migratory / foraging seabirds and shorebirds and the FPU</p>	<p>EPO 5 Prevent injury or mortality to seabirds as a result of the Petroleum Activities Program.</p>	<p>EPO 1.2 & EPO 1.4</p>	<p>EPO 1.2 from the OPP requires no substantial adverse effect on a population of seabirds or shorebirds, or the spatial distribution of a population while EPO 1.4 requires no serious disruption to the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.</p> <p>The EP EPO 5 provides a higher level of protection than the OPP EPO's due to requirement to protect against injury or mortality to a single bird, rather than the population level set in the OPP.</p>
<p>Section 6.7.9 Routine and Non-Routine Discharges: Vessels</p>	<p>EPO 15 Vessel discharges shall meet requirements defined by Marine Orders and the Woodside chemical assessment and approval process.</p>	<p>EPO 7.1, EPO 8.1, EPO 9.1, EPO 10.1 – EPO 10.9</p>	<p>OPP EPO's 7.1, 8.1, 9.1 and 10.1 – 10.9 relating to emissions from vessels such as sewage and greywater, food waste, chemicals and deck drainage, brine and cooling water require no substantial change in water quality which may adversely impact on biodiversity, ecological integrity, social amenity or human health. The OPP EPO's 10.1 – 10.9 also require no substantial effect on plankton, significant impacts to values of KEFs, no substantial adverse effect on a population of fish and no substantial adverse effect on a population of marine mammals – for example.</p> <p>The EP EPO aligns with the OPP EPO's by ensuring acceptable levels established in Marine Orders are achieved, and chemicals discharged will be ALARP and Acceptable through the use of the Woodside chemical assessment process. By meeting legislative, best practise and ALARP / acceptable discharge requirements, impact potential on receptors will be as described in Section 6.7.9 of the EP, which is less than or equal to the accepted impact significance levels in the OPP.</p>

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Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
<p>Section 6.7.10 Routine and Non-routine Discharges: FPU Operations (Wastewater streams)</p>	<p>EPO 16 Impacts from routine and non-routine discharges from FPU Operations (wastewater streams) will be limited to planned activities and impacts described as part of the Petroleum Activities Program.</p>	<p>EPO 11.1 – EPO 11.6</p>	<p>OPP EPO's 11.1 through to EPO 11.6 from the Scarborough OPP require that there is no substantial change in water or sediment quality, no substantial adverse effect on a population of plankton, no significant impact on KEFs and no disturbance to habitat such that there is an adverse impact on marine ecosystem functioning or integrity.</p> <p>The EP EPO 16 aligns with these protection requirements in that FPU Operations waste water streams will be limited to the ALARP and Acceptable level discussed in the Section 6.7.10 Risk Assessment, taking into consideration acceptable levels established through best practise and legislative requirements.</p>
<p>Section 6.7.11 Routine and Non-Routine Discharges: FPU Operations (Commingled PW/CW stream)</p>	<p>EPO 17 No impact to the environment outside of the Approved Mixing Zone from planned discharge of comingled produced water / cooling water and brine.</p>	<p>EPO 11.1 – EPO 11.6</p>	<p>OPP EPO's 11.1 through to EPO 11.6 from the Scarborough OPP require that there is no substantial change in water or sediment quality, no substantial adverse effect on a population of plankton, no significant impact on KEFs and no disturbance to habitat such that there is an adverse impact on marine ecosystem functioning or integrity.</p> <p>The EP EPO 17 aligns with these protection requirements in that FPU Operations comingled produced water and cooling water streams will be limited to the ALARP and Acceptable level discussed in the Section 6.7.11 Risk Assessment, taking into consideration acceptable levels established through best practise and legislative requirements such as the WA EPA Technical Guidance (Protecting the Quality of Western Australia's Marine Environment) and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG).</p>

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Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
<p>Section 6.7.12 Routine and Non-Routine Discharges: Subsea Operations, Activities and Contingent Trunkline Dewatering</p>	<p>EPO 18 Impacts from routine and non-routine discharges from subsea operations, activities and contingent trunkline dewatering will be limited to planned activities and impacts described as part of the Petroleum Activities Program.</p>	<p>EPO 12.1 – EPO 12.5 EPO 11.1 – EPO 11.6</p>	<p>OPP EPO's 12.1 through to 12.5 and 11.1 through to 11.6 require no substantial change to water quality, sediment quality, KEFs or habitat that may adversely impact on biodiversity, ecological integrity, social amenity, ecosystem functioning, or human health. Also to prevent substantial impact to plankton populations including life cycle and spatial distributions.</p> <p>The EP EPO 18 aligns with these protection requirements in that subsea operations activities and contingent trunkline dewatering will be limited to the ALARP and Acceptable level discussed in the Section 6.7.12 Risk Assessment, taking into consideration acceptable levels established through best practise and legislative requirements.</p>
<p>Section 6.7.13 Routine and Non-Routine Discharges: FPU and Subsea Commissioning and Initial Start-up</p>	<p>EPO 19 Impacts from routine and non-routine discharges from FPU and Subsea Commissioning and Initial Start-Up will be limited to planned activities and impacts described as part of the Petroleum Activities Program.</p>	<p>EPO 12.1 – EPO 12.5</p>	<p>OPP EPO's 12.1 through to 12.5 require no substantial change to water quality, sediment quality, KEFs or habitat that may adversely impact on biodiversity, ecological integrity, social amenity, ecosystem functioning, or human health. Also to prevent substantial impact to plankton populations including life cycle and spatial distributions.</p> <p>The EP EPO 19 aligns with these protection requirements in that FPU and subsea commissioning and startup activities impacts will be limited to the ALARP and Acceptable level discussed in the Section 6.7.13 Risk Assessment, taking into consideration acceptable levels established through best practise and legislative requirements.</p>
<p>Unplanned Activities (Accidents, Incidents, Emergency Situations)</p>			
<p>Section 6.8.2 Unplanned Diesel Release: Vessel Collision</p>	<p>EPO 20 No release of hydrocarbons to the marine environment due to a vessel collision associated with the Petroleum Activities Program.</p>	<p>EPO 19.1</p>	<p>EPO 19.1 from the Scarborough OPP requires there to be no release of hydrocarbons to the marine environment due to a vessel collision associated with the Scarborough development.</p> <p>The OPP EPO 19.1 is the same as the EP EPO 20.</p>

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Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
Section 6.8.3 Unplanned Diesel Release: Loss of FPU / ASV Structural Integrity/Stability	EPO 21 No release of hydrocarbons to the marine environment due to structural integrity failure or loss of stability of the FPU/ASV.	EPO 19.1	There is no EPO in the OPP which relates directly to this risk, however EPO 19.1, which requires there to be no release of hydrocarbons to the marine environment (due to a vessel collision) associated with the Scarborough development, is the closest comparable. EPO 21 is the same as EPO 19.1 in that no release of hydrocarbons to the marine environment is permitted.
Section 6.8.4 Unplanned Gas Release: Loss of Well Containment	EPO 22 No release of hydrocarbons to the marine environment due to well loss of containment.	EPO 19.1	There is no EPO in the OPP which relates directly to this risk, however EPO 19.1, which requires there to be no release of hydrocarbons to the marine environment (due to a vessel collision) associated with the Scarborough development, is the closest comparable. EPO 22 is the same as EPO 19.1 in that no release of hydrocarbons to the marine environment is permitted.
Section 6.8.5 Unplanned Gas Release: Subsea Equipment and Trunkline Loss of Containment	EPO 23 No release of hydrocarbons to the marine environment from subsea equipment and the Scarborough Trunkline.	EPO 19.1	There is no EPO in the OPP which relates directly to this risk, however EPO 19.1, which requires there to be no release of hydrocarbons to the marine environment (due to a vessel collision) associated with the Scarborough development, is the closest comparable. EPO 23 is the same as EPO 19.1 in that no release of hydrocarbons to the marine environment is permitted.
Section 6.8.6 Unplanned Diesel Release: FPU Topsides Loss of Containment including Bunkering/Refuelling	EPO 24 No release of hydrocarbons or chemicals to the marine environment from FPU Topsides or bunkering activities.	EPO 19.1 and EPO 14.1	EPO 19.1 from the Scarborough OPP requires there to be no release of hydrocarbons to the marine environment (due to a vessel collision) associated with the Scarborough development while OPP EPO 14.1 requires no unplanned release of chemicals to the marine environment resulting in a substantial change in water quality which may adversely impact on biodiversity, ecological integrity, social amenity or human health.
Section 6.8.7 Unplanned Discharge: Chemical Release during Transfer, Storage and Use	EPO 24 No release of hydrocarbons or chemicals to the marine environment from FPU Topsides or bunkering activities.		

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Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
<p>Section 6.8.8 Unplanned Discharge: Loss of Solid Hazardous and Non-hazardous Wastes/Equipment</p>	<p>EPO 25 No release of solid hazardous or non-hazardous waste to the marine environment.</p>	<p>EPO 15.1 – EPO 15.9</p>	<p>EPO's 15.1 through to 15.9 in the Scarborough OPP require no unplanned release of solid waste to the marine environment that will result in significant impact. Also required is no substantial change in water quality, no substantial effect on a population of seabirds, shorebirds, fish, marine mammals, marine reptiles or migratory species.</p> <p>The EP EPO 25 aligns with the OPP EPO's in that it does not allow for the release of wastes to the marine environment. In doing so, it removes the impact pathway for harm as described in the OPP EPO's and therefore allows for a commensurate or greater level of protection.</p>
<p>Section 6.8.9 Physical Presence (Unplanned): Seabed Disturbance</p>	<p>EPO 2 Seabed disturbance to be limited to planned activities and impacts described as part of the Petroleum Activities Program and will not occur outside the Operational Area.</p> <p>EPO 4 No adverse impact to unexpected finds of Underwater Cultural Heritage without a permit.</p>	<p>EPO 16.1 – EPO 16.3</p>	<p>EPO's 16.1 – 16.3 in the Scarborough OPP require activities to be undertaken in a manner that prevents unplanned seabed disturbance, as well as the modification, destruction, fragmentation or disturbance of an important or substantial area of habitat that would cause adverse impact on marine ecosystem functioning or integrity (including for KEF's).</p> <p>The EP EPO 2 directly aligns with EPO 16.1 as they both require seabed disturbance to be limited to planned activities, and in doing so, enable OPP EPO's 16.2 and 16.3 to be met.</p>
<p>Section 6.8.10 Physical Presence (Unplanned):</p>	<p>EPO 5 Prevent injury or mortality to seabirds as a result of the Petroleum Activities Program.</p>	<p>EPO 18.1 – EPO 18.5</p>	<p>Scarborough OPP EPO's 18.1 through to 18.5 require prevention of vessel strike with marine fauna as well as no adverse impact on marine ecosystem functioning</p>

Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
Interactions with Marine Fauna	<p>EPO 27 No injury or mortality to EPBC Act 1999 and WA Biodiversity Conservation Act 2016 listed marine fauna as a result of the Petroleum Activities Program.</p>		<p>and integrity, marine mammal populations, marine reptiles, and a significant proportion of the population of a migratory species.</p> <p>EP EPO's 5 and 27 align with the OPP EPO's through prevention of injury or mortality to seabirds and fauna listed under relevant legislation. This directly aligns with EPO 18.1 and offers a greater level of protection than EPO's 18.2 – 18.5 by requiring no injury or mortality to single animals, where the OPP EPO's focussed on a significant proportion of the population being effected or impacts being substantial, for example.</p>
<p>Section 6.8.11 Physical Presence (Unplanned): Introduction and Establishment of Invasive Marine Species</p>	<p>EPO 28 No introduction and establishment of invasive marine species into the Operational Area(s) as a result of the Petroleum Activities Program.</p>	EPO 17.1 – EPO 17.4	<p>Scarborough OPP EPO 17.1 requires prevention of a known or potential pest species (IMS) becoming established in the project area. EPO's 17.2 through to 17.4 require no substantial impact to an area of habitat, water quality or interference with other marine users.</p> <p>The EP EPO 28 directly aligns with EPO 17.1 as they both require no introduction of IMS into the Operational area, and in doing so, achieve the outcomes of OPP EPO's 17.2 through to 17.4.</p>
<p>Section 6.10 Cultural Features and Heritage Values Assessment</p>	<p>EPO 4 No adverse impact to unexpected finds of Underwater Cultural Heritage without a permit.</p> <p>EPO 5 Prevent injury or mortality to seabirds as a result of the Petroleum Activities Program.</p> <p>EPO 6 No impacts to marine fauna greater than that caused by minimum required light emissions for safe work / navigation.</p> <p>EPO 7 No displacement of marine turtles from habitat critical during nesting and interesting periods and marine turtles' biologically important behaviour can continue in biologically important areas.</p>	Various – as above through this table	Various – as above through this table

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Aspect	EPOs in this EP	Relevant EPOs from the Scarborough OPP	Comparison
	<p>EPO 8 No injury of, or mortality to, EPBC Act 1999 and WA Biodiversity Conservation Act 2016 listed marine fauna as a result of noise generated by the Petroleum Activities Program.</p> <p>EPO 9 No displacement of marine turtles or pygmy blue whales from habitat critical during nesting/breeding (inc. internesting periods for turtles) and ensure biologically important behaviour can continue in biologically important areas.</p> <p>EPO 14 Prevent accelerated weathering of Murujuga rock art or impact to human health from air emissions that result from onshore processing of Scarborough gas.</p>		

6.4 Presentation

The environmental impact and risk analysis and evaluation (ALARP and acceptability), EPOs, standards and MC are presented in the following tabular form throughout this section. Italicised text in the following example denotes the purpose of each part of the table with reference to the relevant sections of the Environment Regulations and/or this EP.

Scarborough OPP Relevant Impact Assessment Section															
<Reference to section number in the Scarborough Project OPP>															
Context															
<Description of the context for the impact/risk. Regulation 21(1), 21(2) and 21(3)>															
<i>Relevant Activities</i> <i>Source of Aspect – Section reference</i> <i>Description of the Activity – Regulation 21(1)</i>				<i>Existing Environment</i> <i>Relevant environment – Section reference</i> <i>Description of the Environment – Regulations 21(2) and (3)</i>				<i>Consultation</i> <i>Consultation – Section reference</i> <i>Consultation – Regulation 25</i>							
Impact/Risk Evaluation Summary															
<i>Source of Impact/Risk</i> Regulation 21(1)	<i>Environmental Value Potentially Impacted</i> <i>Regulations 21(2)(3)</i>							<i>Evaluation</i>							
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Global atmospheric GHG concentration	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Summary of source of risk/impact															
Description of Source of Impact/Risk															
<i>Description of the identified impact/risk including sources or threats that may lead to the risk or identified event. Regulation 21(1).</i>															
Detailed Impact Assessment															
Assessment of Potential Impacts															
<i>Receptor</i> <i>Impact/risk</i> <i>Assessment of potential impact</i> <i>Discussion and assessment of the potential impacts to the identified environment value(s). Regulations 21(5) and (6).</i> <i>Potential impacts to environmental values have been assigned and discussed based on Woodside’s Environmental Consequence Definitions for Use in Environmental Risk Assessments (Figure 2-2).</i>															
Cumulative Impacts															
<i>Description of any cumulative impacts specific to the Petroleum Activities Program (cumulative impact assessment of Scarborough project as a whole is covered in the OPP)</i>															

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Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level/Risk Consequence
<p>Overall Impact Significance Level/Risk consequence: Roll up to Impact/consequence rating (in impact/risk evaluation summary at top of this table) but need to look at individual receptors as being equal to or less than level of acceptability in the OPP.</p>				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
ALARP Tool Used – Section 2.3.5				
Summary of control considered to ensure the impacts and risks are continuously reduced to ALARP. Regulation 21(5)(c).	Technical/logistical feasibility of the control. Cost/sacrifice required to implement the control (qualitative measure).	Quantum of impact/risk that could be averted (measured in terms of reduction of likelihood, consequence and current risk rating) if the cost/sacrifice is made and the control is adopted.	Proportionality of cost/sacrifice vs environmental benefit. If proportionate (benefits outweigh costs) the control will be adopted. If disproportionate (costs outweigh benefits) the control will not be adopted.	If control is adopted: Reference to Control # provided.
<p>ALARP Statement: Made on the basis of the environmental risk assessment outcomes, use of the relevant tools appropriate to the decision type (Section 2.3.3 and Figure 2-2) and a proportionality assessment. Regulation 34(b).</p>				

Demonstration of Acceptability
Acceptability Criteria and Assessment
Impact Significance Level/Risk Consequence levels for receptors are within acceptable bounds of the OPP: Adoption of relevant OPP EPOs and controls: Internal/external context and other requirements specific to this EP Petroleum Activities Program:
<p>Acceptability Statement: Outcomes of the impact assessment in comparison to OPP and ALARP demonstration.</p>

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>EPO#</p> <p>S: Specific performance which addresses the legislative and other controls that manage the activity and against which performance by Woodside in protecting the environment will be measured.</p> <p>M: Performance against the outcome will be measured by measuring implementation of the</p>	<p>C#</p> <p>Identified control adopted to ensure the impacts and risks are continuously reduced to ALARP.</p> <p>Regulation 21(5)(c).</p>	<p>PS#</p> <p>Statement of the performance required of a control measure.</p> <p>Regulation 21(7)(a)</p>	<p>MC#</p> <p>Measurement criteria for determining whether the outcomes and standards have been met.</p> <p>Regulation 21(7)(c)</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>controls via the measurement criteria.</p> <p>A: Achievability/feasibility of the outcome demonstrated via discussion of feasibility of controls in ALARP demonstration. Controls are directly linked to the outcome.</p> <p>R: The outcome will be relevant to the source of risk and the potentially impacted environmental value.</p> <p>T: The outcome will state the timeframe during which the outcome will apply or by which it will be achieved.</p>			

6.5 Potential Environment Risks Not Included Within the Scope of this Environment Plan

The ENVID identified environmental risks that were assessed as not being applicable within or outside the PAA as a result of the Petroleum Activities Program and, therefore, were determined to not form part of this EP. These are described in the next sections for information only.

6.5.1 Shallow/Near-shore Activities

The Petroleum Activities Program is located in water depths greater than 30 m and more than 5 km from nearest landfall (Dampier Archipelago). Consequently, risks associated with shallow/nearshore activities such as vessel anchoring, and risks of grounding were assessed as not credible.

6.5.2 Loss of Containment of Existing or Third-party Subsea Infrastructure

As described in Section 4.10.5, the Trunkline Operational Area intersects several existing oil and gas export trunklines. A subsea loss of containment from a rupture of one of these export trunklines within the Trunkline Operational Area could occur in the event of a dropped object during IMMR activities. While credible, the risk has been eliminated through the adoption of lifting controls, detailed in the controls of Section 6.8.9.

Worst-case credible hydrocarbon release scenarios have been defined in relevant EPs including:

- Start-Up and Operations EP for the Wheatstone Project
- Reindeer Wellhead Platform and Offshore Pipeline Operations EP
- Julimar Operations EP
- Pluto Facility Operations EP.

These EPs include subsea loss of containment resulting from a rupture of the export trunkline/flowline where relevant. The existing EPs provide a description and assessment of impacts and risks as well as management controls and response capabilities for an export trunkline/flowline rupture.

While it is credible for activities within the Petroleum Activities Program to cause damage to third party infrastructure, so that assessments can be made, at the point of environmental consequence occurring, the event falls in the scope of the relevant third-party Environment Plan described above.

6.6 Indirect Impacts

For the proposed Petroleum Activities Program, potential 'indirect' environmental impacts and risks are those associated with waste brought onshore, mobilisation/demobilisation of vessels to the PAA, wet-tow of the FPU to the operational area, and emissions associated with the extraction of Scarborough gas for onshore processing and third party transport, regassification, distribution and use. Due to the nature and scale of these potential indirect environmental impacts and risks, and the regulatory frameworks in place to manage them, Woodside considers the potential indirect impacts and risks from these activities to be inherently managed to ALARP and acceptable in its current state.

However, recognising stakeholder interest with the processing of Scarborough gas onshore and the potential indirect impacts from atmospheric emissions; and indirect GHG emissions from third party use, further information and evaluation has been provided for in Section 6.7.6 and Section 6.7.7.

Description of Source of Impact/Risk

(approximately 0.79 km²). The FPU is highly visible under most conditions and is lit to meet operational requirements and navigational codes and regulations. The nature of the facility (large steel structure) ensures a clear radar return to alert ships fitted with anti-collision radars.

Routine vessel activities associated with the Petroleum Activities Program will be concentrated within the FPU PSZ (e.g. activities performed by Support Vessels at the FPU). Support Vessels, LCVs, or Uncrewed Surface Vessels (USV) may undertake activities (e.g. IMMR activities, gravimetry surveys, removing redundant equipment) within the PAA at any time, including within parts of the PAA which are beyond the PSZ. The duration and location of these activities will vary depending on the activity being undertaken (**Section 3.4**).

Subsea infrastructure associated with the Petroleum Activities Program such as wells, risers, flowlines, support structures and mooring piles and chains may also impact other marine users.

A number of oil and gas facilities are located in the vicinity of the Operational Areas, including existing pipelines and fibre optic cables (**Section 4.10.5** and **Section 4.10.6**).

Detailed Impact Assessment

Assessment of Potential Impacts

Exclusion and Displacement of Other Users

Interaction with other marine users due to the physical presence of the Petroleum Activities Program may result in localised changes to the functions, interests or activities of other users. The duration of change will be for the period of the Petroleum Activities Program.

Commercial Fisheries – FPU Installation and Mooring Hook-up, Commissioning and Start-up

Potential impacts to commercial fisheries from FPU installation and mooring hook-up, commissioning, and start-up include the loss of commercial catch due to displacement from fishing grounds and potential damage to fishing gear. Fishing activities will be excluded from the PSZ around the FPU and SEZs around applicable vessels.

The Offshore Operational Area is in relatively deep water ~216km from the closest landfall. Very few fisheries routinely operate in similar depths and distances from shore in the region; only the North West Slope Trawl Fishery and Western Deep Water Trawl Fishery operate in similar depths and neither fishery recorded landings in graticular blocks overlapping the Offshore Operational Area in the last five years.

While the presence of the FPU in the field will be ongoing, the presence of vessels and temporary SEZ's outside the FPU PSZ will be intermittent. The potential impact to commercial fishers is considered to be limited to a minor displacement of fishing effort (i.e. navigational hazard).

Commercial Fisheries – Operations

Fishing activities will be excluded from the PSZ around the FPU and from vessel temporary SEZs during IMMR or gravimetry activities. Potential impacts to commercial fisheries include loss of commercial catch due to displacement from fishing grounds and potential damage to fishing gear.

The PAA overlaps four Commonwealth and sixteen State managed commercial fisheries management areas (**Section 4.10**). Of these fisheries, eight have recorded landings from graticular reporting blocks overlapping the PAA. None of these fisheries have recorded landings in graticular reporting blocks overlapping the Offshore Operational Area in the last five years, with landings only recorded in graticular blocks overlapping the Trunkline Operational Area by the following fisheries:

- North West Slope Trawl Fishery
- Western Deep Water Trawl Fishery
- Mackerel Managed Fishery
- Marine Aquarium Fishery
- Pilbara Crab Managed Fishery
- Pilbara Line Managed Fishery
- Pilbara Trap Managed Fishery
- Specimen Shell Fishery.

Fisheries using divers, lines, traps, and pots have little or no potential to interact with subsea infrastructure, hence impacts to such fisheries will be limited to localised displacement from the PSZ and temporary SEZs associated with vessels undertaking work in the PAA. The presence of the trunkline may provide relatively complex habitat that aggregates commercially targeted demersal fish species. This may result in increased fishing effort along the trunkline by line- and trap-based fisheries.

The presence of subsea infrastructure over the field life could present a hazard to bottom trawl fisheries due to the risk of equipment entanglement and subsequent equipment damage/loss. Fisheries using bottom trawl gear with landings

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in the PAA in the last five years are the North West Slope Trawl Fishery and the Western Deep Water Trawl Fishery. The majority of the activity in both fisheries occurs beyond the PAA. The Pilbara Trawl Fishery, the most active trawl fishery in the region, has not recorded landings in the PAA in the last five years, and current management arrangements prohibit this fishery from trawling in the PAA. The PSZ precludes trawl fishing around the FPU, however trawl fishing is permitted along the trunkline.

The design of the trunkline has an inherently low risk of snagging trawled gear, as there are no projections that may present a snag risk. Development of free spans may pose a risk to snagging otter boards of trawled fishing gear. Based on Woodside's operational experience, the development of free spans that pose a risk to snagging trawled gear is infrequent. The consequence of snagging trawled gear is expected to be limited to damage to or loss of trawled gear. Impacts, such as loss of a vessel, are not credible based on operational experience and studies of trawl fishing interactions with subsea infrastructure in Australia. Given the very low levels of trawl fishing in the PAA, the presence of infrastructure on nautical charts, and Woodside's consultation to date, interactions between trawled gear and subsea infrastructure will not credibly occur.

Consequently, impacts to commercial fisheries will be limited to a localised displacement of fishing effort to avoid subsea infrastructure, the PSZ, and vessels undertaking the petroleum activity.

Tourism and Recreation

Tourism and recreation within the PAA are expected to be limited by the distance offshore and water depths. Some tourism may occur in the nearshore waters of the Trunkline Operational Area, particularly in proximity to the Montebello Islands (refer to Section 4.10.3). However, impacts are expected to be limited by the short duration and intermittent nature of vessel activities at this location, and the distance from these islands. Recfishwest has stated that given the location of the activities it is unlikely they will have a high impact on recreational fishing therefore Recfishwest has no concerns. Given the location, and the temporary nature of activities within the Trunkline Operational Area, potential impacts to tourism and recreational activities would likely be a minor interference (i.e. navigational hazard) and temporary, localised displacement/avoidance.

Shipping

Impact to commercial shipping is limited to the temporary presence of vessels throughout the Petroleum Activities Program. It is noted that a number of AMSA marine fairways intersect with the Trunkline Operational Area (refer to Section 4.10.4). The closest major shipping channel is approximately 35 km from the Offshore Operational Area and shipping activity is therefore expected to be low. Vessel traffic data shows that the majority of vessel movements occur to the south-east of the Offshore Operational Area.

Given the temporary nature of vessel activities in the Trunkline Operational Area and the low level of shipping activity within the Offshore Operational Area, impacts to shipping are considered slight with no lasting effect.

The NWS is an area of active oil and gas exploration and production. There are no oil and gas platforms owned or operated by other petroleum titleholders located within 50 km of the Offshore Operational Area (FPU). Displacement of, or interference with, other oil and gas activities are not expected within the Offshore Operational Area.

Defence

The PAA lies within the northern tip of one of these defence training areas, the North West Exercise Area (NWXA) accessed by Royal Australian Air Force (RAAF) Base Learmonth (Section 4.10.6). Defence stakeholders were notified and feedback addressed as per Section 5. Any potential interaction is expected to be negligible and consistent with other facilities within the northwest region.

Industry

A number of oil and gas facilities are located in proximity to the Offshore and Trunkline Operational Area, including a number of existing platforms, export trunklines and fibre optic cables (Section 4.10.5 and Section 4.10.6). The operational area (**Section 3.3**) also includes overlap with adjacent petroleum titles (WA-67-R, WA-89-R and WA-518-P), which are held by other oil and gas operators. There is potential that gravimetry vessel (surface activity) may occur temporarily within the adjacent titles to allow for vessel manoeuvrability and only for the period of time required to undertake the gravimetry activity. Where titleholders are undertaking activities within adjacent titles at the same time, there is sufficient flexibility in the gravimetry survey schedule (e.g. gravimetry to be undertaken at concrete pads away from adjacent title boundaries), that there will be limited to no interference or impacts to other oil and gas operator activities. The nearest oil and gas platform is Pluto. Pluto is operated by a Woodside entity; impacts from the Petroleum Activities Program to Pluto do not affect third parties. The nearest facilities not operated by Woodside are the Jadestone-operated Stag platform and Chevron operated Wheatstone platform 5 km and 10 km respectively outside of the PAA. Activities associated with the occasional physical presence of vessels conducting IMMR activities along the export trunkline route may result in localised, short-term interference to industry vessels requiring minor course alteration or readjustment in asset management while the Petroleum Activities Program is active in the area. However, impacts are not expected to have lasting effect.

Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level
Commonwealth Managed Fisheries	Changes to the function interests or activities of others	High value marine user	No Lasting Effect	Slight (E)
State Managed Fisheries		High value marine user	No Lasting Effect	Slight (E)
Tourism and Recreation		High value marine user	No Lasting Effect	Slight (E)
Commercial shipping		High value marine user	No Lasting Effect	Slight (E)
Industry		Medium value marine user	No Lasting Effect	Negligible (F)
Defence		High value marine user	No Lasting Effect	Slight (E)
Overall Impact Significance Level: The overall impact significance level for Interaction with other marine users is Slight (E) based on no lasting effect to high value socio-economic receptors. The impact significance levels for individual receptors are consistent with the levels in the OPP, noting that defence, tourism and recreation were not identified receptors for this risk in the Scarborough OPP.				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Vessels to adhere to the navigation safety requirements including the <i>Navigation Act 2012</i> and any subsequent Marine Orders.	F: Yes. CS: Minimal cost. Standard practice.	The act regulates ship related activities and invokes certain requirements of MARPOL. Vessels (relevant to class) will adhere to requirements.	Control based on legislative requirement – must be adopted.	Yes C 1.1
Implementation of a 500 m PSZ around FPU.	F: Yes. CS: Minimal cost. Standard practice.	The PSZ is a requirement under Australian regulations and reduces the likelihood of interactions with third parties and the FPU.	Control based on legislative requirement – must be adopted.	Yes C 1.2
Establishment of temporary SEZ by applicable vessels and communicated to marine users.	F: Yes. CS: Minimal cost. Standard practice.	Establishment of temporary SEZ around applicable vessels reduces the likelihood of interaction with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.3
Good Practice				
Notify Australian Hydrographic Service (AHO) of activities and movements, where vessels will be in	F: Yes. CS: Minimal cost. Standard practice.	Notification of AHO will enable them to update maritime charts thereby reducing the likelihood of	Benefits outweigh cost/sacrifice.	Yes C 1.5

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
field >3 weeks, no less than four working weeks prior to commencement of the Petroleum Activities Program.		interaction with other marine users.		
Notify AMSA Joint Rescue Coordination Centre (JRCC) of activities and movements 24 to 48 hours before the scheduled activity commencement date, and at the end of activities.	F: Yes. CS: Minimal cost. Standard practice.	Notification to AMSA JRCC allows for population of marine notices	Benefits outweigh cost/sacrifice.	Yes C 1.6
Undertake consultation with relevant persons if FPU hook-up commences more than a year after EP acceptance.	F: Yes CS: Minimal cost. Standard practice.	Communicating the Petroleum Activities Program to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.7
Notify relevant government departments, fishing industry representative bodies, fishery licence holders and other oil and gas operators (if agreed during consultation) prior to commencement and upon completion of FPU hook-up Activities.	F: Yes CS: Minimal cost. Standard practice.	Communication of the Petroleum Activities Program to other marine users ensures they are informed and aware, thereby reducing the likelihood of interference with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice	Yes C 1.8
Where activities overlap a defence area, DoD will be notified of activity start date no less than five weeks before the scheduled activity commencement date.	F: Yes CS: Minimal cost. Standard practice.	Communication of the Petroleum Activities Program to the DoD ensures they are informed and aware, thereby reducing the likelihood of interference with the DoD.	Benefits outweigh cost/sacrifice. Control is also standard practice	Yes C 1.9
Where gravimetry survey activities involve vessel overlap with adjacent title areas, notify adjacent titleholders	F: Yes CS: Minimal cost. Standard practice.	Communication of gravimetry activities to adjacent titleholders, where vessel surface activities will be	Benefits outweigh cost/sacrifice.	Yes C 1.11

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
prior to the commencement of activities.		undertaken in close proximity or within adjacent title areas ensures they are informed and aware, thereby reducing the likelihood of potential impact		
Professional Judgement – Eliminate				
Limit activities to avoid peak shipping and commercial fishing activities.	F: No. Shipping occurs year-round and cannot be avoided. SIMOPS with fishing seasons cannot be eliminated as exact timings for all activities are not confirmed. CS: Not considered – control not feasible,	Not considered – control not feasible.	Not considered – control not feasible.	No
Reducing the PSZ.	F: No. PSZ is mandated by the OPGGS Act and is an SCE; it cannot be reduced. CS: Not assessed, control not feasible.	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
FPU's collision prevention system is implemented during Operations to alert marine vessels of the facility location, which reduces the likelihood of adverse interaction with other marine users.	F: Yes. CS: Minimal cost. Standard practice.	Collision prevention system equipment has the ability to alert marine vessels of the facility location, which reduces the likelihood of adverse interaction with other marine users.	Control is SCE requirement – must be adopted during Operations.	Yes C 1.10
Over-trawl protection on subsea infrastructure.	F: Yes. Over-trawl protection on subsea infrastructure could be fitted to subsea infrastructure. CS: Significant additional cost associated with designing and installing trawl protection on subsea infrastructure.	Over-trawl protection on subsea infrastructure could mitigate the potential for commercial fishing trawl gear to damage infrastructure or result in gear loss.	Given the PAA only overlaps a small portion of the fisheries management area open to trawl fishing, the cost of installing over-trawl protection is considered grossly disproportionate to the environmental benefit.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>ALARP Statement:</p> <p>On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.3.3), Woodside considers the adopted controls appropriate to manage the impacts of the physical presence of the Petroleum Activities Program on other users.</p> <p>As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.</p>				

Demonstration of Acceptability
<p>Acceptability Criteria and Assessment</p> <p>Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.1 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):</p> <ul style="list-style-type: none"> • Overall impact significance levels for individual receptors are less than the significant impact level defined in the OPP. • EPOs in this EP are aligned with EPOs in the OPP (refer to Table 6-2) • Controls in the OPP that are relevant to this EP Section have been adopted. • There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation.
<p>Acceptability Statement:</p> <p>The impact assessment has determined that, given the adopted controls, physical presence of the Petroleum Activities Program is unlikely to result in an impact significance level greater than Slight.</p> <p>The adopted controls are considered good oil-field practice/industry best practice and meet requirements of Australian Marine Orders, AMSA, DPIRD, DOD and AHO identified during impact assessment and consultation with relevant persons.</p> <p>The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to, manage the impacts from the physical presence of the Petroleum Activities Program to a level that is broadly acceptable; and demonstrates the EPOs are met.</p>

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>EPO 1</p> <p>Impacts to relevant stakeholders from the Petroleum Activities Program planned activities will be limited through the provision of appropriate information / notification.</p>	<p>C 1.1</p> <p>Vessels to adhere to the navigation safety requirements including the <i>Navigation Act 2012</i> and any subsequent Marine Orders.</p>	<p>PS 1.1.1</p> <p>Vessels compliant with Navigation Act and Marine Order 21 (Safety of navigation and emergency procedures) 2012.</p>	<p>MC 1.1.1</p> <p>Marine assurance inspection records demonstrate compliance with standard maritime safety procedures.</p>
	<p>C 1.2</p> <p>Implementation of a 500 m PSZ around FPU.</p>	<p>PS 1.2.1</p> <p>FPU Petroleum Safety Zone maintained and monitored for incursions.</p>	<p>MC 1.2.1</p> <p>Records of adverse interactions in PSZ with other marine users are recorded.</p>
	<p>C 1.3</p> <p>Establishment of temporary SEZ by applicable vessels and communicated to marine users.</p>	<p>PS 1.3.1</p> <p>Temporary SEZ maintained and monitored for incursions around applicable vessels.</p>	<p>MC 1.3.1</p> <p>Daily Operations Reports and Incident records demonstrate breaches by unauthorised vessels within</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
			the safety exclusion zone are recorded.
	<p>C 1.5 Notify AHO of activities no less than four working weeks prior to scheduled activity commencement date where vessels will be in the Operational Area, but outside the Petroleum Safety Zone >3 weeks.</p>	<p>PS 1.5.1 Woodside to notify AHO of activities where vessels will be in field >3 weeks but outside the Petroleum Safety Zone >3 weeks, to allow generation of navigation warnings (Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) (including AUSCOAST warnings where relevant)).</p>	<p>MC 1.5.1 Records demonstrate that AHO notifications complete.</p>
	<p>C 1.6 Vessels to notify AMSA Joint Rescue Coordination Centre (JRCC) of vessel activities and movements 24 to 48 hours before the scheduled activity commencement date, and at the end of activities.</p>	<p>PS 1.6.1 Vessel notification to AMSA JRCC to prevent activities interfering with other marine users. AMSA's JRCC will require the vessel's details (including name, callsign and Maritime Mobile Service Identity (MMSI)), satellite communications details (including INMARSAT-C and satellite telephone), area of operation, requested clearance from other vessels and need to be advised when operations start and end.</p>	<p>MC 1.6.1 Records demonstrate notification provided to AMSA's JRCC within required timeframes (start and end of activities).</p>
	<p>C 1.7 Undertake consultation with relevant persons if FPU hook-up commences more than a year after EP acceptance.</p>	<p>PS 1.7.1 Consultation with relevant persons has been updated if FPU hook-up commences more than a year post EP acceptance.</p>	<p>MC 1.7.1 Consultation records demonstrate that consultation update has occurred if required.</p>
	<p>C 1.8 Notify relevant government departments, fishing industry representative bodies, fishery licence holders and other oil and gas operators (if agreed during consultation) prior to commencement and upon completion of FPU hook-up Activities.</p>	<p>PS 1.8.1 Notification to AFMA, CFA, DAFF (fisheries), DPIRD, WAFIC, Recfishwest, individual relevant Commonwealth fishery licence holders (in the Operational Area) and other O&G operators (if agreed during consultation – refer to Table 7-8) ten days before activity commences, and following completion of activities.</p>	<p>MC 1.8.1 Consultation records demonstrate that stakeholders have been notified prior to commencement and following completion of the activity.</p>
	<p>C 1.9 Where activities overlap a defence area, DoD will be notified of activity start date</p>	<p>PS 1.9.1 Notification to DoD five weeks prior to the scheduled commencement date.</p>	<p>MC 1.9.1 Records demonstrate that DoD has been notified prior to commencement of the</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	no less than five weeks before the scheduled activity commencement date.		Petroleum Activities Program within the required timeframes.
	<p>C 1.10 FPU's collision prevention system is implemented during routine operations to alert marine vessels of the facility location, which reduces the likelihood of adverse interaction with other marine users.</p>	<p>PS 1.10.1 Integrity managed in accordance with Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8) to prevent environment risk related damage to SCEs for: P34 Ship Intrusion Detection Systems to:</p> <ul style="list-style-type: none"> • alert facility of a potential collision with marine vessels alert marine vessels of facility location so they may take timely action to avoid the facility and hence reduce the likelihood of collision. 	<p>MC 1.10.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>
	<p>C 1.11 Where gravimetry survey activities involve vessel overlap with adjacent title areas, notify adjacent titleholders prior to the commencement of activities.</p>	<p>PS 1.11.1 Notification to adjacent titleholders prior to the commencement of gravimetry activities (if agreed during consultation – refer to Table 7-8).</p>	<p>MC 1.11.1 Records demonstrate that adjacent titleholders are notified prior to commencement of gravimetry activities</p>

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6.7.2 Physical Presence: Seabed Disturbance

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.1.6 – Physical Presence – Seabed Disturbance														
Context														
Relevant Activities Gravimetry surveys – Section 3.10 Subsea IMMR Activities – Section 3.9.1.6 FPU Installation and Mooring Hook up– Section 3.6 Commissioning – Section 3.7				Existing Environment Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5				Consultation Consultation – Section 5						
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Presence of FPU moorings, subsea infrastructure and gravimetry concrete pads		✓	✓		✓			A	F	-	-	LCS GP PJ	Broadly Acceptable	EPO 2,4
Seabed disturbance during hook-up of subsea infrastructure to the FPU inc. mooring lines		✓	✓		✓				F					
Gravimetry surveys		✓	✓		✓				F					
Subsea operations, inspection, monitoring maintenance and repair activities		✓	✓		✓				F					
ROV operations near the seabed (including localised sediment relocation)		✓	✓		✓				F					
Placement and retrieval of seabed transponders (DP vessels)		✓	✓		✓				F					

Description of Source of Impact
<p>FPU Mooring Line Retrieval and Connection Operations</p> <p>The transport of the FPU and its subsequent mooring is proposed to be undertaken by tugs as described in Section 3.9.7. While the FPU is held in position by the tugs, two mooring hook-up Anchor Handling Tugs (AHTs) will recover the pre-laid mooring chains from the seabed for attachment. During the recovery of the wet-stored mooring chains, some additional minor seabed disturbance cumulative to the pre-lay footprint (0.008 km² within a 11 km² area) is expected due to the metocean conditions and vessel heave experienced during the activity.</p>

Description of Source of Impact

Once the 20 mooring chains are securely connected, the FPU will be connected (hooked-up) to the wet stored subsea system consisting of six risers and one dynamic umbilical. Pick-up rigging left attached to the pre-laid subsea systems will be used by AHT's to pull-in and hang-off the risers/umbilical from the FPU in order to facilitate installation. Similar to the mooring hook-up, some additional seabed disturbance is expected to occur during this activity.

Gravimetry Surveys

Gravimetry surveys will be conducted at routine intervals and each survey will take approximately 55 days to complete (subject to weather constraints). The surveys involve the measurement of gravity and water pressure by the temporary placement of a passive gravity meter and water pressure sensor, sequentially on each concrete pad (224 installed previously under the *WA-61-L and WA-62-L Subsea Infrastructure Installation EP*) by ROV, and temporary deployment of tide gauges on the seabed. The ROV will stand off during the measurements and is planned to be landed on the seabed. Approximately 39 tide gauges will be deployed at 13 locations, the seabed disturbance footprint at each of the 13 locations will be approximately 1 m² resulting in very minor localised seabed disturbance. The tide gauges will be recovered after each survey is complete.

ROV Operations

ROVs may be used during activities including observation during IMMR activities; physical installation assistance; condition surveys; and removal of debris or marine growth. The use of an ROV may result in temporary seabed disturbance and suspension of sediment as a result of working close to, or occasionally on, the seabed. ROV use close to or on the seabed is limited to that required for effective and safe subsea activities. The footprint of a typical ROV is about 2.5 m × 1.7 m (4.25 m²). Disturbance is expected to be limited to within the immediate vicinity of subsea infrastructure.

Underwater Acoustic Positioning

Accurate positioning for DP systems may be required, and therefore long base line (LBL) and/or ultra short baseline (USBL) acoustic positioning may be required in some instances (**see** Section 3.9.17.11). **LBL** transponders may be moored to the seabed by a clump weight or stands (approximate footprint of <1 m²), which are recovered by means of a hydrostatic release. If clump weights or stands are used, they will be recovered where practicable.

Operations

The facility and associated subsea infrastructure provide hard substrate habitat; extending from the sea surface through the water column to the seabed (e.g., risers), as well as along the seabed (e.g., pipelines, flowlines, etc). The presence of subsea infrastructure may result in localised scouring around the infrastructure due to currents, subsurface waves and seabed sediment fluid dynamics. Scour around subsea infrastructure may necessitate IMMR activities as part of integrity management practices.

Flowline and/or trunkline movement may occur as per design and within integrity margins along the flowline and trunkline corridors. Normal flowline/trunkline operational movement occurs due to factors such as buckling, walking and varying metocean conditions. Lateral movement can occur within the flowline and trunkline corridors. Management of flowline/trunkline buckling and walking may necessitate IMMR activities. Refer to Unplanned Hydrocarbon Release Subsea Equipment Loss of Containment in **Section 6.8.5**, which includes controls to limit scour and flowline movement within integrity requirements.

To maintain the integrity of subsea infrastructure, Woodside may be required to undertake routine subsea IMMR activities, as described in Section 3.9.17. These may impact the benthic environment in the immediate vicinity of the activity. IMMR activities identified as impacting the benthic environment may include but are not limited to:

- inspections – localised sediment resuspension by ROV
- marine growth removal – localised resuspension of sediment; removal of marine biota from subsea infrastructure
- sediment relocation – localised modification of benthic habitat and sediment resuspension
- span rectification, trunkline protection and stabilisation – minor, localised modification of benthic habitat within footprint of area subject to rectification/protection/stabilisation
- jumper and umbilical replacement – minor, localised modification of benthic habitat in the vicinity of the jumper/umbilical
- spool repair/replacement – minor, localised modification of benthic habitat in the vicinity of the spool
- temporary placement of tools on the seabed, e.g. baskets – minor localised modification of the benthic habitat in the vicinity of the items
- temporary pig launcher/receiver installation and retrieval - minor, localised modification of benthic habitat and sediment resuspension in the vicinity of the receiver.

The area of benthic habitat predicted to be impacted varies depending on the nature and scale of the IMMR activity. Span rectification is the IMMR activity with the greatest potential to modify benthic habitats, due to the alteration of the existing soft sediment habitat to hard substrate. Woodside's prior operational experience on the North West Shelf

Description of Source of Impact

indicates these activities are typically restricted to relatively short (tens of metres) linear sections of pipeline, with areas of up to approximately 100 m² impacted.

Contingency Activities

Equipment, materials or tools may need to be wet stored on the seabed in the Operational Area during infrastructure installation. This could include, but not be limited to, work baskets for ROV tools, pig launcher/receiver prior/after connection, damaged risers or flowlines etc.

Detailed Impact Assessment

Assessment of Potential Impacts

Seabed disturbance can be categorised into two potential impacts, direct seabed disturbance (physical alteration to seabed such as placement of tide gauges), or indirect disturbance (activities that cause sediment movement such as ROV operations).

Water and Sediment Quality

Seabed disturbance may include localised and temporary decline in water quality due to increased suspended sediment concentrations and increased sediment deposition caused by the activities described above. However, sediment loads are not expected to be significant due to the relatively small footprint and duration for each activity. Elevations in turbidity will be intermittent and temporary in nature depending on the activity (e.g. IMMR activities, and/or ROV use etc.). Further, the sediment dispersed during these activities is naturally occurring and will settle under existing hydrodynamic conditions. Similarly, removal of marine growth during IMMR activities on an as-required basis would cause localised temporary decrease in water quality and suspended sediment from water jetting activities.

Epifauna and Infauna

The Offshore Operational Area is located in water depths of approximately 900–1000 m and the Trunkline Operational Area in water depths ranging from ~30 - 1400 m (refer to Section 3.2). **Marine** life, such as benthic epifauna and infauna (living on and in the sediment dominated habitat), may be impacted from operational activities that result in disturbance to the seabed.

Disturbance to the seabed can alter the physical seabed habitat conditions, resulting in epifauna and infauna community changes (Newell et al., 1998). The seabed of the Offshore Operational Area is characterised by sparse marine life dominated by mobile organisms (ERM, 2013). The benthic biota are predominantly deposit feeders such as epifauna (living on the seabed): shrimp (crustaceans) and sea cucumbers (echinoderms), and infauna (living within the surface sediments) small, burrowing worms (polychaetes) and crustaceans (ERM, 2013).

No threatened or migratory species, or ecological communities (as defined under the EPBC Act), were identified in the benthic communities during studies completed in the PAA (e.g. ERM, 2013). The epifauna and infauna benthic communities known to exist in the PAA are likely to be well represented elsewhere in the region, with impacts restricted to a highly localised proportion of benthic communities.

The seabed sediments of the PAA contain low levels of contaminants such as metals and no hydrocarbons (Section 4.4) so no toxicological impacts to benthic biota from disturbed sediments is predicted. The scale and magnitude of potential impacts will be limited to the offshore seabed infrastructure and trunkline physical footprint area, representing a relatively small proportion of the total area of deep water habitat and associated benthic communities of the PAA, that are known to be present in the wider region.

Offshore Operational Area

Temporary disturbance to the seabed will occur in the Offshore Operational Area from infrastructure and equipment associated with FPU hook-up. Impacts will be highly localised and equipment (e.g., ROV associated equipment and transponders) will be removed upon completion of the activity. Permanent infrastructure will be present for the duration of field life including gravimetry pads; flowlines, umbilicals and associated structures (including mud mats); RBM and foundation and FPU mooring legs. Habitat modification will be highly localised as a result of scouring around subsea infrastructure or disturbance to the seabed during IMMR activities.

Trunkline Operational Area

The export trunkline up to approximately KP 33 is buried and ongoing disturbance to benthic communities is not expected. Between KP 50 and KP 109, the seabed is generally featureless with occasional areas where the underlying calcarenite is intermittently exposed that may support patches of benthic filter feeder communities. The calcarenite outcrops generally run perpendicular to the export trunkline and are spread widely over the North West Shelf (Wilson, 2013). Any intersections of the isolated calcarenite outcropping identified from the geophysical data represent a very small area (<0.01km²). From KP 109 to KP 192 the export trunkline intersects the Montebello AMP, with potential impacts to the values of the AMP assessed below. From KP 192 to the continental slope and deep waters of the PLET, the seabed has been observed to be generally featureless, with epifauna more abundant on the continental shelf compared to the slope. Soft sediment benthic communities are dominated by infauna (including molluscs, crustaceans and worms) and isolated larger fauna (free swimming cnidarian, demersal fish and benthic crustaceans).

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Detailed Impact Assessment

Direct seabed disturbance, including permanent modification of benthic communities, may result as a consequence of IMMR activities such as span rectification, export trunkline protection and stabilisation. These activities may disturb a small area (typically < 100 m²) of soft sediment habitat, which is broadly represented in the PAA and wider region. Benthic communities may be reduced or altered, leading to a highly localised impact to any epifauna and infauna benthic communities present. Potential impacts include; burial or smothering of benthic biota from localised sediment deposition, particularly to sessile epifauna such as sea pens and infauna (polychaetes), and sediment coating resulting from elevated turbidity/TSS potentially causing clogging or damage to the physiological functioning of certain biota (sea pens, polychaetes) reliant on external respiratory and feeding structures.

The estimated overall extent of direct and indirect seabed disturbance is extremely small in relation to the extent of the soft sediment habitats which are broadly represented within the PAA. As such, impacts are expected to be slight (E) and short term.

Artificial Habitat

The presence of the FPU, subsea infrastructure and trunkline (including concrete mattresses and rock armour) provides hard substrate for the settlement of marine organisms; the availability of hard substrate is often a limiting factor in benthic communities. As such, the ongoing presence of these structures will lead to the development of ecological communities which would not have existed otherwise. For example, export trunkline infrastructures has been shown to support more diverse fish assemblages and benthic biota (McLean et al. 2017). These communities are relatively diverse compared to the open water and soft sediment habitats in the broader PAA.

The provision of artificial habitat associated with the FPU, subsea infrastructure and export trunkline will either have no adverse environmental impact or a low level of positive environmental impact through increasing biological diversity.

KEFs

The Exmouth Plateau, Continental Slope Demersal Fish Communities and Ancient Coastline at 125 m depth contour KEFs overlap the PAA and seabed disturbance may lead to a highly localised change in habitat and water quality (Table 6-3). Impact to habitats from localised scour or seabed disturbance in the proximity of infrastructure represents a small area relative to the large extent of the KEFs and disturbance will be short-term, associated with the temporal extent of the operational activities described above (e.g. FPU mooring hook-up, gravimetry surveys and IMMR activities). These potential impacts are unlikely to impact the ecological value of the KEFs (as described in Section 4.7). Physical habitat modification is not listed as a potential concern for Exmouth Plateau KEF or Ancient Coastline at 125 m Depth Contour KEF and therefore impacts to the values of these KEFs are not anticipated. Physical habitat modification is listed as a potential concern for the Continental Slope Demersal Fish Communities KEF; however, the total impact area is small, and impacts will be highly localised to the Trunkline Operational Area.

Table 6-3: Potential Petroleum Activities Program within key ecological features and disturbance

KEF	Activities which may occur within KEF	Disturbance within KEF (%) based on 30 m disturbance
Exmouth Plateau KEF	FPU hook-up and subsea/trunkline IMMR activities (including span rectification)	<0.0035
Ancient Coastline at 125 m Depth Contour KEF	Trunkline IMMR activities (including span rectification)	<0.0004
Continental Slope Demersal Fish Communities KEF	Trunkline IMMR activities (including span rectification)	<0.0007

AMPs

The Trunkline Operational Area intersects the Montebello AMP (Multiple Use Zone (VI)) between KP 109 to KP191. This equates to an approximate 2.48 km² overlap (allowing for a 30 m disturbance area for the export trunkline during IMMR activities), which is equivalent to 0.07% of the AMP, including the area intersecting the Ancient Coastline KEF. Potential scour around the export trunkline will be highly localised. IMMR activities along the export trunkline such as span rectification will also result in short-term temporary disturbance within the 30 m disturbance corridor. No mooring of vessels during IMMR activities will be required.

A description of the epifaunal communities in the Montebello Islands AMP is provided in Section 4.8. The trunkline intersects an area of sparse epifauna in the South-eastern section of the AMP and intersects areas of slightly more abundant and diverse epifauna in the North-western section of the AMP (Advisian 2019a and 2019b, Keesing 2019). However, these areas are typical of the benthos found both within the AMP and regionally. Benthic organisms (including sponges and soft corals) generally occur as single or low density aggregations of individuals with isolated denser areas of sponges in areas identified from the bathymetry as having a more complex seabed structure (Advisian, 2019b). In the long term, the trunkline and crossing materials will provide hard substrate to the marine environment for the duration of the activity, which may support epifaunal communities (McLean et al. 2020; McLean et al. 2018; Bond et al. 2018; McLean et al. 2017).

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Detailed Impact Assessment				
Potential impacts to foraging habitat for marine fauna, such as turtles (listed as part of the natural values of the Montebello AMP), are not expected due to the highly localised and short-term nature of seabed disturbance within the AMP during operational activities. Furthermore, the relatively deep offshore waters where the export trunkline overlaps the northern extent of the Montebello AMP (46 m to 214 m) do not represent important internersting habitat for flatback turtles.				
Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level
Water quality	Change in water quality	Low value	Slight	Negligible (F)
Sediment quality	Change in sediment quality	Low value	Slight	Negligible (F)
Epifauna and infauna	Injury/mortality	Low value	Slight	Negligible (F)
KEFs	Change in habitat Change in water quality	High value	No lasting effect	Slight (E)
AMPs	Change in habitat Change in water quality	High value	No lasting effect	Slight (E)
Overall Impact Significance Level: The overall impact significance level for disturbance to benthic habitat from subsea infrastructure installation activities is E based on a Slight impact to the high value receptors (KEFs and AMPs). The impact significance levels for individual receptors are consistent with the level in the OPP.				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Maintain log of equipment on the seabed to confirm all temporary equipment is removed and wet stored equipment is tracked and recorded.	F: Yes CS: Minimal cost ROV as left survey is standard practice	In accordance with OPGGS Act Section 572 all equipment is removed when neither used nor to be used in connection with the operations	Legislative requirement	Yes C 2.1
Good Practice				
Unexpected finds of potential Underwater Cultural Heritage sites/features, including first nations UCH are managed in accordance with an Unexpected Finds Procedure set out in Section 7.7	F: Yes CS: Costs of implementation	Allows management of new finds in accordance with legislative requirements (including Underwater Cultural Heritage Guidance for Offshore Developments and the Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters – Guidance on the application of the <i>Underwater Cultural Heritage Act 2018</i>), expert advice and community expectations.	Benefits outweigh cost/sacrifice.	Yes C 2.2

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Relevant IMMR vessel crew, USV remote operators and ROV operators will be advised in an induction of the potential to encounter UCH and requirement to follow the Unexpected Finds Procedure (Section 7.7)	F: Yes CS: Minimal	Ensures workforce are suitably aware of legal and process requirements for managing cultural features and heritage values. And is in line with recommendation from Mott (2019).	Benefits outweigh cost/sacrifice.	Yes C 2.3
Report any potential UCH finds to relevant persons and authorities in accordance with the Unexpected Finds Procedure, Underwater Cultural Heritage Act 2018 and the ATSIHP Act	F: Yes CS: Minimal	Meets legislative requirements and community expectations.	Benefits outweigh cost/sacrifice.	Yes C 2.4
Professional Judgement – Eliminate				
Do not use ROV close to, or on the seabed.	F: No. The use of ROVs (including work close to or occasionally landed on the seabed) is critical as the ROV is the main tool used to guide and manipulate equipment during drilling. ROV usage is already limited to only that required to conduct the work effectively and safely. Due to visibility and operational issues ROV work on or close to the seabed is avoided unless necessary. CS: Not assessed, control not feasible.	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Vessels used for IMMR activities will not anchor under routine conditions.	F: Yes. CS: Minimal. LCVs or Support Vessels undertaking IMMR activities typically do not anchor	By not anchoring, the potential impacts to benthic habitat are reduced.	Benefits outweigh cost sacrifice.	Yes C.2.5
Professional Judgement – Substitute				
No additional controls identified.				

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Professional Judgement – Engineered Solution				
Monitoring and maintenance of subsea infrastructure to manage scour and flowline movement to within integrity envelope.	F: Yes, subsea inspection maintenance and integrity monitoring is undertaken which inherently controls extent of scour and flowline movement. CS: Minimal cost. Standard practice.	Monitoring and maintenance of subsea infrastructure confirms benthic seabed disturbance is limited to design flowline corridor.	Control is WMS requirement – must be adopted.	Yes C 2.6 Refer also Section 6.8.5
Monitoring and maintenance of subsea infrastructure to manage scour and flowline movement to within integrity envelope.	F: Yes. ROV footage collected as part of subsea integrity surveys could be reviewed to observe and detect changed in benthic habitats. CS: Costs associated with the review of collected footage.	Limited environmental benefit (information) gained from monitoring benthic habitats.	Given the sparsely populated infauna habitat and low sensitivity of the environment surrounding the FPU and associated subsea infrastructure, any environmental benefit gained is outweighed by costs associated with implementing control.	No

ALARP Statement:

On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, **Section 2.3.3**), Woodside considers the adopted controls appropriate to manage the impacts of seabed disturbance from activities associated with the Petroleum Activities Program. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 6.3 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):

- Overall impact significance levels for individual receptors are consistent with the levels rated in the OPP.
- EPOs in this EP are aligned with EPOs in the OPP
- Controls in the OPP that are relevant to this EP Section have been adopted.
- There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation. Following consultations with DNP on the potential risks to AMPs, the DNP noted it has no objections and claims at this time.

Acceptability Statement:

The impact assessment has determined that, given the adopted controls, the Petroleum Activities Program is unlikely to result in an impact significance level greater than Slight. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered consistent with industry good practice and meet the requirements of Woodside relevant systems and procedures.

The potential impacts are considered broadly acceptable if the adopted controls are implemented. The inclusion of C2.1 and C2.6 will confirm the activity is undertaken as described. Activities do not have a significant impact on MNES (**Section 2.4.2**). Therefore, Woodside considers the adopted controls appropriate to manage the impacts of disturbance to benthic habitat to a level that is broadly acceptable; and demonstrate the EPOs are met.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>EPO 2 Seabed disturbance to be limited to planned activities and impacts described as part of the Petroleum Activities Program and will not occur outside the Operational Area</p> <p>EPO 4 No adverse impact to unexpected finds of Underwater Cultural Heritage without a permit⁴³.</p>	<p>C 2.1 Maintain log of equipment on the seabed to confirm all temporary equipment is removed and wet stored equipment is tracked and recorded.</p>	<p>PS 2.1.1 Location of equipment, including those made redundant by the installation of a replacement, are recorded, and updated in the inventory</p>	<p>MC 2.1.1 Records confirm location of temporary equipment and removal status.</p>
		<p>P.S 2.1.2 Temporary equipment is removed.</p>	<p>MC 2.1.2 As left survey confirms temporary equipment is removed.</p>
	<p>C 2.2 Unexpected finds of potential Underwater Cultural Heritage⁴⁴ sites/features, including first nations UCH are managed in accordance with the Unexpected Finds Procedure set out in Section 7.7.</p>	<p>PS 2.2.1 In the event that an underwater cultural heritage site or feature is identified implement the Unexpected Finds Procedure set out in Section 7.7.</p>	<p>MC 2.2.1 No non-compliance with the Unexpected Finds Procedure.</p>
	<p>C 2.3 Relevant IMMR vessel crew, USV remote operators and ROV operators will be advised in an induction of the potential to encounter UCH, and of their requirement to follow the Unexpected Finds Procedure (Section 7.8)</p>	<p>PS 2.3.1 Relevant IMMR vessel crew and USV remote operators (including ROV operators) are made aware of the requirements of the Unexpected Finds Procedure (Section 7.8) through an induction.</p>	<p>MC 2.3.1 Records demonstrate IMMR vessel crew and USV remote operators are made aware of potential to encounter UCH.</p>
	<p>C 2.4 Report any potential UCH finds to relevant persons and authorities in accordance with the Unexpected Finds Procedure, <i>Underwater Cultural Heritage Act 2018</i> and the ATSIHP Act.</p>	<p>PS 2.4.1 Report any finds of potential UCH in accordance with the Unexpected Finds Procedure (Section 7.8) including to:</p> <ul style="list-style-type: none"> • WA Museum as requested during EP consultation • Australasian Underwater Cultural Heritage Database via DCCEEW. 	<p>MC 2.4.1 Records of potential UCH finds reported to relevant authorities and persons.</p>

⁴⁴ Underwater Cultural Heritage is defined as any trace of human existence that has a cultural, historical or archaeological character and is located under water, in accordance with the UCH Act.

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	<p>C 2.5 Vessels used for IMMR activities will not anchor under routine conditions.</p>	<p>PS 2.5.1 Vessels used for IMMR activities will not anchor under routine operations.</p>	<p>MC 2.5.1 Records demonstrate no anchoring during IMMR activities.</p>
	<p>C 2.6 Monitoring and maintenance of subsea infrastructure to manage scour and flowline movement to within integrity envelope.</p>	<p>PS 2.6.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> • P09 – Pipeline / Trunkline Systems to maintain the minimum required mechanical integrity to prevent loss of containment due to scour/flowline movement. 	<p>MC 2.6.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>

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Vessel Operations

Project vessels will have external lighting, which includes navigation lights and work area lighting (i.e., bright white lights on deck areas or the exterior of accommodation areas) typically commensurate with the size of the vessel. Navigation lighting is required for the safe operation of all vessels and cannot be eliminated. Crewed vessels require the use of exterior lighting to enable a safe working environment for personnel on the back deck or in accommodation areas and cannot reasonably be eliminated. Vessels will be lit to maintain operational safety on a 24-hour basis. Uncrewed surface vessels do not require the use of exterior lighting except for the purposes of navigation, and therefore emit less light into the surrounding environment than typical crewed vessels.

During IMMR activities, underwater lighting is generated over short periods of time while ROVs are in use, as well as from deck lighting on crewed vessels. Given the typical intensity of ROV lights and the attenuation of light in seawater, light from ROVs will be localised to the vicinity of the ROV and vessels. The extent of this potential impact for the Petroleum Activities Program is restricted to the line of sight for each activity emitting light, which based on previous work undertaken by Woodside is about 30 km from vessels (Woodside, 2014). As described above, light monitoring of navigational lighting on a MODU measured light density to attenuate below 1.00 Lux and 0.03 Lux at distances of 300 m and 1.4 km, respectively. Since vessels have lower deck height than MODUs, navigational lighting from vessels is expected to be below 1.00 Lux within 300 m from the source (Woodside, 2014).

Offshore Operational Area

Cumulative light scenarios are likely with light emissions from the FPU, an ASV and additional vessels during FPU hook-up and commissioning, potentially concurrent with MODU conducting D&C activities, Support Vessels, LCVs and uncrewed surface vessels conducting gravimetry surveys and/or IMMR activities. Light emissions from the FPU will be a persistent source under normal operations, while emissions from Support Vessel activities will be temporary, only lasting for the time required to undertake the activity alongside the FPU. The location of concurrent activities in permit areas WA-61-L and WA-62-L and the existing environment with low presence of light sensitive receptors, means that cumulative impact from light on sensitive receptors, as a result of concurrent operations, is not considered credible.

Trunkline Operational Area

Vessels may temporarily be present in the Trunkline Operational Area for IMMR activities. Once activities are completed and vessels depart the area, there will be no further light emissions from activities within the Trunkline Operational Area. Light emissions in any one area are governed by the transient nature of the works along the export trunkline route. Activities will be completed sequentially which limits cumulative impacts from multiple light sources in a single area.

Detailed Impact Assessment

Assessment of Potential Impacts

Ambient Light

Lighting from the FPU and vessels may appear from direct unshielded light sources or through skyglow. Where direct light falls upon the ocean, this area of light is referred to as light spill. Skyglow is the diffuse glow caused by light that is screened from view, but through reflection and refraction creates a glow in the atmosphere. The distance at which direct light and skyglow may be visible from the source is dependent on the lighting on the FPU/vessel and environmental conditions.

Receptors that have important habitat present within a 20 km buffer of the PAA were considered as having potential for interaction, based on recommendations of the *National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds* (NLPG). The 20 km threshold provides a precautionary limit based on observed effects of sky glow on marine turtle hatchlings (15 to 18 km) and fledgling seabirds grounded in response to artificial light 15 km away (Commonwealth of Australia, 2020).

Light emissions can affect fauna in two main ways:

- **Behaviour:** many organisms are adapted to natural levels of lighting and the natural changes associated with the day and night cycle as well as the phase of the moon. Artificial lighting has the potential to create a constant level of light at night that can override these natural levels and cycles.
- **Orientation:** organisms such as marine turtles and birds may use lighting from natural sources to orient themselves in a certain direction at night. In instances where an artificial light source is brighter than a natural source, the artificial light may act to override natural cues, leading to disorientation.

Offshore Operational Area

The marine fauna within the Offshore Operational Area are predominantly pelagic fish and zooplankton, with a low abundance of species such as turtles, whale sharks and large whales transiting through the area. Of these identified species, those with known impact pathways related to artificial light include marine turtles and a variety of seabirds and migratory shorebirds (PENV, 2023). Additionally, there is no known critical habitat within the Offshore Operational Area for EPBC listed species or BIAs listed in **Section 4.6** that overlap the Offshore Operational Area. Of the operational areas specified in the PAA, the Offshore Operational Area will have the greatest and most protracted light emissions, with concurrent activities relating to the FPU and associated vessels together with IMMR activities and gravimetry surveys, at times, all occurring within a small, localised area. Once the FPU has started up and normal operations have

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Detailed Impact Assessment

Assessment of Potential Impacts

commenced, a constant source of light from the FPU external lighting and flare tower, along with external lighting from the associated vessels, will persist until the end of the Petroleum Activities Program timeline. The impact of emissions will be dampened by the remoteness of the Offshore Operational Area (~ 210 km from nearest shoreline) relative to light sensitive receptors.

Trunkline Operational Area

Due to its extensive geographic coverage from east to west, the Trunkline Operational Area overlaps a whale shark foraging BIA, various marine turtle Habitat Critical areas and BIAs, pygmy blue whale and humpback whale migration BIAs, and several seabird breeding BIAs including wedge-tailed shearwater, roseate terns, and fairy terns. Light emissions will be infrequent and transient, with occasional IMMR works and span rectification activities occurring along specified parts of the Trunkline Operational Area, typically over short timelines.

Existing light sources at the eastern end of the Trunkline Operational Area (within 20 km of land) include heavy vessel traffic within the Pilbara Port Authority (PPA) Management area and 26 designated anchorages for vessels such as bulk carriers, petroleum and gas tankers and drilling rigs. These anchorages are located between Rosemary Island and the Trunkline Operational Area. Existing light pollution in this area is expected to be high (Commonwealth of Australia, 2017).

Seabirds

High levels of marine lighting can attract and disorient seabird species resulting in species behavioural changes (e.g. circling light sources or disrupted foraging), injury or mortality near the light source (e.g. Longcore and Rich, 2004; Gaston et al., 2014; Rich and Longcore, 2006). All seabird species active at night are vulnerable to artificial light as it can disrupt their ability to orient towards the sea (Commonwealth of Australia, 2020). The potential for bird interactions is dependent upon their ability to perceive the dominant wavelengths in the spectral composition of a light source (PENV, 2023). Species with a nocturnal component to their behaviour and life history, such as procellariiforms (including wedge-tailed shearwaters), are at greater risk of negative impacts from artificial light sources at night. The bulk of the literature concerning impacts of lighting upon procellariiforms relates to the synchronised mass exodus of fledgling seabirds from their nesting sites (Deppe et al., 2017; Raine et al., 2007; Rodriguez et al., 2017a; Rodriguez et al., 2017b), with fewer investigating the impacts of light at sea. Diurnal seabird species, such as terns, noddies and boobies, in contrast to procellariiforms, are less vulnerable to impacts resulting from nocturnal behaviours. However, the presence of lit facilities can result in localised alteration of foraging behaviours such as extended foraging durations. When Seabirds and shorebirds interact with bright light sources which could alter migratory pathways and/or nocturnal roosting behaviours when artificial light spill occurs over the habitat (PENV, 2023).

Offshore Operational Area

A variety of avian species may occur within a 20 km radius from the FPU, including terns, petrels, tropicbirds, noddies and shorebirds utilising the East Asian-Australasian Flyway (Dunlop et al., 1988, Bamford et al., 2008). Artificial light at night can alter foraging and migratory behaviours of avian species and lead to disorientation, grounding or death. As the Offshore Operational Area is offshore and away from islands or other emergent features, including a 105 km separation from a breeding BIA for the wedge-tailed shearwater, any presence of seabirds or shorebirds is considered likely to be of a transient nature only. Minimal disruption to seabird foraging or migratory behaviours is therefore expected. The isolated and remote location of the FPU and related vessels in the Offshore Operational Area relative to sensitive receptors will reduce light impacts to 'no lasting effect'.

Trunkline Operational Area

The Trunkline Operational Area is in proximity to and overlaps breeding and foraging habitat for a number of seabird species. Key Biodiversity Areas (KBAs) are sites contributing significantly to the global persistence to biodiversity. The nearest KBA for migratory shorebirds is located at the Dampier Saltworks. Onshore nesting habitat, including for the wedge-tailed shearwater, roseate, caspian and Australian fairy tern, is reported for the Dampier Archipelago and other offshore islands groups such as the Montebellos and Lowendals. Adults utilising these breeding habitats (see BIAs in Table 4-14) will forage in nearshore waters (e.g., the Australian fairy tern) or offshore waters (e.g., wedge-tailed shearwater, caspian and roseate terns, refer to Section 4.6.4). The Trunkline Operational Area represents a relatively small portion of the seabird BIAs and while seabird presence may occur, it is considered likely to be of a transient nature only.

There is a small overlap between the Trunkline Operational Area and a breeding BIA for roseate terns between KP 32 to ~KP 58. Breeding populations of this tern species occur throughout the NWMR on fringing islands of the Burrup Peninsula, Montebello Islands, North Turtle Island, Airlie Island, the Ningaloo coast and Bernier Island. There is small overlap of the fairy tern breeding BIA with the State Waters end of the Trunkline Operational Area. The fairy tern mainly occurs on sheltered coasts and is rarely out of sight of land. In the North-west Marine Region they breed on islands of the North West coast, including the Dampier Archipelago. They feed in inshore waters around island archipelagos, foraging mainly for fish in shallow water.

There is also an overlap between the Trunkline Operational Area and a breeding/foraging BIA for wedge-tailed shearwaters between KP 32 to ~KP 220. Wedge-tailed shearwaters occur throughout the NWMR across fringing islands

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Detailed Impact Assessment

Assessment of Potential Impacts

of the Dampier Archipelago to Cape Range and to Barrow Island. Given the broad breeding distribution it may be assumed that wedge-tailed shearwaters may breed on any of the vegetated, unoccupied islands of the Dampier Archipelago.

Adult shearwaters are vulnerable to artificial lighting in the breeding cycle, when returning to and leaving the nesting colony to maintain nesting sites or forage. Foraging wedge-tailed shearwaters may be attracted to sources of light emissions to feed on fish drawn to the light, however the species reportedly feeds predominately during the day (Catty et al. 2009). Artificial light can also impact behaviour and adult nest attendance, or confuse shearwater species, resulting in injury or mortality as a result of birds colliding with structures (Cianchetti-Benedetti et al. 2018; Rodriguez et al. 2017a and b). Fledglings of burrow-nesting seabirds, and to a lesser extent adults, are attracted to and then grounded (i.e., forced to land) by lights when they fly at night with the most affected seabirds being petrels and shearwaters (Procellariiformes) (Rodriguez et al. 2017). Shearwater fledglings are predominately impacted by onshore lighting sources, which can override sea finding cues and attract fledglings further inland, preventing them from reaching the sea (Mitkus et al. 2016; Telfer et al., 1987). Fledglings leave the nesting colony for the sea at night and the main fledgling period for shearwaters in Western Australia is reportedly April (Advisian, 2022). Reported mass groundings and mortalities are associated with formerly uninhabited islands and the risk of light pollution from tourism and urban sprawl, and generally occur during adverse weather conditions. This is probably because of the potential for clouds, mist and rain to increase light pollution levels (Kyba et al., 2011), however recent research is revealing added complexity including moon phase, wind strength and direction (see Commonwealth of Australia, 2020b for review).

Potential for overlap of IMMR activities, near the State waters boundary, with the wedge-tailed shearwater fledgling exodus from islands of the Dampier Archipelago in April is possible. Wedge-tail shearwater rookeries have been confirmed at Goodwyn Island and Malus Island (Pendoley Environmental, 2022) and Malus Satellite, Lady Nora and northeast Enderby Island have had rookeries detected post survey by MAC (Pendoley Environmental, 2022). However, given the localised vessel light emissions predicted and existing light sources in the marine waters of the area, vessels are expected to move at varying speeds and the expected, generally benign weather conditions in this region, the potential for wedged-tailed shearwater fledglings leaving burrows at night to collide, ground or become disoriented are considered unlikely. Artificial light from the Petroleum Activities Program is not predicted to disrupt critical breeding behaviours within important nesting habitat or displace seabirds from nesting habitat.

The magnitude of impact to seabirds and migratory shorebirds in the Trunkline Operational Area from artificial light emissions will be 'no lasting effect' given the localised and temporary nature of any effects as described above, plus the incremental increase of vessel lighting in a region that already experiences considerable vessel traffic. For all the PAA, the receptor sensitivity is high and thus the impact significance level has therefore been identified as slight (E).

Marine Reptiles

Exposure of marine turtles to artificial light can result in changes to their natural behaviour. Witherington and Martin (2003) state that light pollution on nesting beaches is detrimental to marine turtles because it alters critical nocturnal behaviours, namely, how turtles choose nesting sites, how they return to the sea after nesting, and how hatchlings find the sea after emerging from their nests.

Offshore Operational Area

There are no sensitive marine turtle habitats near the Offshore Operations Area. Loggerhead, Green, Leatherback, Hawksbill and Flatback turtles all may occur within the 20 km radius from the FPU. The closest known turtle nesting beaches are at the North West Cape and Montebello Islands; the flatback turtle BIA located approximately 165 km from the Offshore Operational Area. Marine turtles generally have a pelagic life stage as juveniles, before returning to nearshore coastal habitats as adults to forage and breed. Marine turtles are not expected to commonly occur within the Offshore Operational Area due to the deep waters (>900 m). Leatherback turtles are an oceanic, pelagic species known to regularly forage within continental shelf waters. While leatherback turtles may occur in the Offshore Operational Area in small numbers, their distribution is widespread in Australia and their presence is unlikely. No turtles were observed during the winter or summer offshore marine surveys in the PAA (ERM, 2013). Artificial lighting may be visible up to 46.6 km away from the FPU (during flaring). The light intensity will be low during normal operations, reaching a maximum intensity during an infrequent blowdown event, which typically last between 1 to 2 hours. Light from flaring will not be visible within the nearest flatback turtle BIA, approximately 165 km away. Although individuals undertaking behaviours such as migration or foraging (adults and pelagic juveniles) may occur within the Offshore Operations Area, marine turtles do not use light cues to guide these behaviours (PENV, 2020). There are no known impact pathways for foraging or migrating marine turtles associated with light emissions (PENV, 2023). As such, it could be inferred light emissions from the FPU and vessels are unlikely to result in displacement of, or behavioural changes to individuals in these life stages (PENV, 2020).

PENV's (2023) line of sight analysis, identified a maximum distance of 46.6 km from which routine flare operations would be visible from the source. Thus, lighting from the FPU would not be visible in sensitive nesting areas such as the Montebellos and the North West Cape, or from the nearest BIA (165 km away). Due to the distance from any identified nesting habitat for marine turtles, impacts associated with hatchlings are considered to be unlikely (PENV, 2023). For

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Detailed Impact Assessment

Assessment of Potential Impacts

any isolated individual potentially attracted to light spill from the FPU, following sunrise, any effect of these light sources on hatchlings will be eliminated allowing dispersal behaviour to resume.

Trunkline Operational Area

The Trunkline Operational Area overlaps habitat critical to the survival for turtles and overlaps various BIAs for flatback, green, hawksbill and loggerhead turtles. Adult female turtles will spend several months in the shallow coastal marine environment in proximity to nesting beaches. Pendoley (2005b) provides details of tracking data for green and hawksbill turtles nesting on Rosemary Island. Results suggested that nesting female hawksbill turtles remained within 1 km of nesting beaches on Rosemary Island (Pendoley, 2005b). Female green turtles travelled greater distances, up to 5 km, but typically remained within shallow, nearshore waters between 0 and 10 m deep (Pendoley, 2005b). The 60 km interesting buffer for flatback turtles in the Recovery Plan for Marine Turtles in Australia (DoEE, 2017) is based primarily on the movements of tagged interesting flatback turtles along the North West Shelf from a 2014 study, which found that flatback turtles may demonstrate interesting displacement distances up to 62 km from nesting beaches (Whitlock et al., 2014). However, these movements were confined to longshore movements in nearshore coastal waters or travel between island rookeries and the adjacent mainland (Whitlock et al., 2014). The flatback turtle interesting habitat along the North West Shelf has since been defined more precisely using satellite tracking of 47 turtles, combined with a range of environmental variables (Whitlock et al., 2016). Suitable interesting habitats were identified at water depths of 0-16 m, within 5-10 km of the coastline.

Seasonality of nesting differs between flatback, green and hawksbill turtle species. Whiting (2018) provides defined seasonality specific nesting data for Rosemary Island and found that hawksbill turtles have a much earlier peak (October/November) compared to flatback turtles (December/January peak). Seasonality for green turtles was not well defined from the available data (Whiting, 2018). Fossette et al. (2021) reported a peak in nesting for green turtles for the period November and December (refer to Table 4-15).

The peak hatchling emergence time for the three turtle species nesting within Dampier Archipelago differs between species, with hawksbill turtles earliest (December to January peak), flatback turtle peak from January to February and green turtle peak from January to March (PENV, 2022) (refer to Table 4-15). Given IMMR activities may occur at any time during the year there is potential for vessels to be operating in the Trunkline Operational Area during these nesting and hatchling seasons.

For measuring the impact of Artificial Light At Night (ALAN) on marine turtles, PENV has developed an approach based on the visibility of the full moon. PENV's (2020, 2022) studies on light impacts from vessels within the Trunkline Operational Area were based on a suite of construction vessels used throughout the seabed intervention and trunkline installation scope (refer to *Scarborough Seabed Intervention and Trunkline Installation EP*) of the Scarborough Project. A single smaller vessel is planned for IMMR activities related to this EP's scope, which would emit far less light than the suite and type of vessels previously studied. For comparison purposes, the least impactful vessel for light from the study (i.e., Trailing Suction Hopper Dredge (TSHD)) will be used whilst still remaining conservative for impacts from Scarborough operations. The distance between turtle nesting beaches and the Trunkline Operational Area at the closest point (6.6 km to Legendre Island and >10 km to closest nesting beach on Legendre Island and 14 km to Rosemary Island) are all greater than the zone where behavioural impacts from vessel lighting are possible: 1.5 km from the TSHD. Therefore, impacts to nesting female turtles, including discouraging females from nesting, or affecting nest site selection and sea-finding behaviour, are not predicted, and females are not expected to be displaced from nesting habitat (PENV, 2022).

Disturbance to transient adult turtles in offshore waters along the Trunkline Operational Area from artificial light is not expected given light emissions are unlikely to result in behavioural change for key life cycle stages such as interesting and nesting.

Impacts to hatchling emergence, including hatchling mis- or dis-orientation, are not predicted and highly unlikely. Impacts to hatchling dispersal resulting from vessel lighting are possible but will be limited as:

- The distance between turtle nesting beaches and the Trunkline Operational Area at the closest point (6.6 km to Legendre Island and >10 km to closest nesting beach on Legendre Island and 14 km to Rosemary Island).
- Nearshore currents would need to carry hatchlings into the zone where behavioural impacts from vessel lighting are possible (1.5 km for the TSHD).
- The density of hatchlings will decrease with distance from the nesting beach as individuals disperse in open ocean.
- Nearshore currents in the region must be weaker than hatchling swimming speed in order for hatchlings to override wave cues and successfully swim toward light sources.
- The potential for attraction to vessel lighting is expected to be overridden by the radiance of the moon during full moon periods.

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Detailed Impact Assessment

Assessment of Potential Impacts

- Vessels within 20 km of nesting beaches will be in the area temporarily (hours to days) during the Petroleum Activities Program, light emissions will not be ongoing.
- Vessels within the Trunkline Operational Area will be continuously moving at varying speeds
- Attraction to light sources will not occur during daylight and hatchling dispersal will resume upon sunrise.

Attraction to artificial lighting may have consequences at the individual level (e.g. energy depletion and increased predation risk), however, the number of marine turtles that could be impacted is likely to be low and undetectable against normal population fluctuations. The desktop lighting assessments by PENV (2020, 2022) concluded that the light emissions from vessel activities in the Trunkline Operational Area would not have significant impact on marine turtles across the whole life cycle. This assessment is highly conservative for the current Petroleum Activities Program as it is based on significantly larger vessels.

Impacts are not expected to be contrary to the priority actions or measures of success criteria outlined in the Recovery Plan for Marine Turtles (Commonwealth of Australia, 2017a) for the relevant marine turtle stocks or management of artificial light.

The magnitude of impact to marine turtles from artificial light emissions will be 'no lasting effect' given the localised and temporary nature of any effects as described for the Trunkline Operational Area, whilst the distance offshore to the FPU and vessels of the Offshore Operational Area will nullify light impacts on the distant turtle nesting and interesting areas. Receptor sensitivity is high. The impact significance level of has therefore been identified as slight (E).

Fish, Sharks and Rays

Experiments using light traps have found that some fish and zooplankton species are attracted to light sources (Meekan et al., 2001), and therefore, lighting from the FPU and vessels may result in localised aggregations of fish around these structures. Krill or plankton may also aggregate around the source of light. The concentration of organisms attracted to light may result in an increase in food source for predatory species and marine predators may subsequently aggregate in these areas (Shaw et al., 2002). The Trunkline Operational Area overlaps with a whale shark foraging BIA, however, potential light disturbance is restricted to infrequent and transient vessels partaking in IMMR activities and span rectification. Presence of other threatened fish species within the PAA is expected to be of a transient nature only. Vessels undertaking IMMR activities and span rectification will be present for short periods only and are not expected to seriously disrupt the lifecycle of an ecologically significant proportion of whale sharks. The more persistent light sources emitted from the external lighting and flare tower of the FPU, in-concert with the vessels of the Offshore Operational Area, will have the greatest light emission footprint, however they are distant from whale shark BIAs (approximately 165 km) and the more densely populated corals reefs and nearshore habitats of the coast and islands, hence will only impart a very localised impact to the fish communities of the open ocean. It is conceivable, that the rare whale shark individual foraging widely outside of their usual area, may display altered behaviour due to increased plankton biomasses around the FPU. These behaviours would be limited to night-time hours and the individual would likely move on during daytime hours as plankton aggregations diminished.

The magnitude of impact to fish from artificial light emissions will be 'no lasting effect' and receptor sensitivity is medium. The impact significance level of has therefore been identified as Negligible (F).

AMPs

The Trunkline Operational Area overlaps the Montebello AMP between KP 108.4 – KP 191.6. The North-west Marine Parks Network Management Plan (DNP, 2018a) lists the natural values of the Montebello AMP as including a range of threatened, migratory, marine or cetacean species listed under the EPBC Act, as well as BIAs that include seasonal breeding habitat for seabirds, internesting habitat for marine turtles and a migratory pathway for humpback whales. The Montebello AMP also includes foraging, mating, and nesting habitat for marine turtles and foraging habitat for whale sharks. The Montebello AMP is overlapped by Habitat Critical to the survival of flatback, green and hawksbill turtles. As described above, there is no evidence, published or anecdotal, to suggest that internesting, mating, foraging or migrating turtles are impacted by light from offshore vessels and the distant FPU at approximately 200 km from the marine park will not be visible, even during emergency flaring events. Although individuals undertaking internesting, migration, mating (adults) or foraging (adults and pelagic juveniles) may occur within the PAA, marine turtles do not use light cues to guide these behaviours, and therefore light emissions from the vessels are unlikely to result in displacement of, or behavioural changes to individuals during these life stages. Hence, light emissions from vessels in the areas where the Trunkline Operational Area overlaps these AMPs will not result in any impacts to internesting female turtles.

The wedge-tailed shearwater, which has a breeding and foraging BIA overlapping the Trunkline Operational Area, occupies offshore islands including the Montebello Islands. For activities occurring within the Montebello AMP, the short-term and transient nature of activities associated with light emissions will not be inconsistent with the objectives of the management plan for the North-west Marine Park Network (DNP, 2018a).

The values identified for both these marine parks including BIAs for marine turtles, seabirds and migratory shorebirds will not be impacted given the significant distance from sensitive locations. Therefore, no impacts are expected to the cultural values of the AMP as those are intrinsically linked to the natural values described above.

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Detailed Impact Assessment				
Assessment of Potential Impacts				
The magnitude of impact to AMPs from artificial light emissions will be 'no lasting effect' given the localised and temporary nature of any effects as described above. Receptor sensitivity is high based on important habitat for marine turtles and seabirds that are sensitive to lighting impacts. The impact significance level has therefore been identified as slight (E).				
Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level
Ambient light	Change in ambient light	Low value (open water)	Slight	Negligible (F)
Seabirds and migratory shorebirds	Change in fauna behaviour	High value species (e.g. wedge-tailed shearwater)	No lasting effect	Slight (E)
Marine reptiles		High value species (e.g. flatback turtle)	No lasting effect	Slight (E)
Fish, sharks and rays		High value species (e.g. Whaleshark)	No lasting effect	Negligible (F)
AMP		High value species (e.g. flatback turtle)	No lasting effect	Slight (E)
Overall Impact Significance Level: The overall impact significance level for routine light emissions is E based on no lasting effect to the high value receptors (seabirds, migratory shorebirds and marine turtles). The impact significance levels for individual receptors are consistent with the level in the OPP.				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
Minimise vessel/FPU lighting to that required for navigational, safety and operational requirements, with the exception of emergency events.	F: Yes. Lighting is typically appropriate for navigation and safety.	Given the potential impacts to turtles during this activity is insignificant, implementation of this control would not result in a reduction in consequence.	While the control does not result in significant reduction of impacts, it is good practice and not at significant cost.	Yes C 3.1
Lighting modifications (shielding, directional lighting) to minimise over water light spill and light emissions during peak turtle hatchling season (Dec to Mar) for vessels operating in the Trunkline Operational Area.	F: Yes, lighting is able to be modified on the IMMR vessel. CS: Financial cost of changes and time associated with implementing these.	Reducing light spill over water and overall light glow from a vessel can reduce the likelihood that hatchling behaviour will be influenced. Previous light modelling undertaken by Woodside of a Pipelay Vessel and	The cost/sacrifice outweighs benefit gained.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		Trailer Suction Hopper Dredge (which is a highly conservative representation of a Support Vessel) has predicted that light emissions will reduce to ambient levels at 5.7 km and 3.2 km, respectively, and hence will not be at levels likely to impact turtle behaviour at nesting beaches.		
Avoid where practicable, IMMR vessel activities within 20km of Wedge-tail Shearwater rookeries, during fledgling synchronised exodus period (April).	F: Yes CS: Minimal cost/sacrifice	Avoiding light emissions within 20km of rookeries during peak exodus period reduces chance of adverse interactions including seabird groundings.	While the control does not result in significant reduction of impacts, it is good practice and not at significant cost.	Yes C 3.2
Implement the Woodside Frontline Offshore Seabird Management Plan (SBMP) on the FPU and all vessels during PAP. For vessels the SBMP is only relevant where activities overlap with a Seabird BIA or will occur within 20 km of a Seabird BIA.	F: Yes. CS: Minimal.	Increased knowledge and awareness of seabird management and care, increasing likelihood of positive outcomes from avifauna interactions and/or appropriate management in the case of avifauna death.	Potential benefits outweigh cost/sacrifice.	Yes C 3.3
Ensure that <i>Woodside Frontline Offshore Seabird Management Plan</i> training or awareness information has been delivered to relevant crew or Woodside personnel, including the information in Section 7.9.9	F: Yes CS: Minimal	Training and awareness in the Seabird Management Plan will ensure Woodside Environment Advisers and relevant vessel crew are aware of their obligations and the appropriate action to take in the event of bird encounters, ultimately increasing the likelihood of positive outcomes for seabirds.	Potential benefits outweigh cost/sacrifice.	Yes C 3.4

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Professional Judgement – Eliminate				
Substitute external lighting with “marine fauna” light sources (reduced emissions in turtle visible spectrum) for all vessels working in close proximity to sensitive habitats.	F: Yes. Replacement of external lighting with marine fauna friendly lighting is technically feasible, although is not considered to be practicable. CS: Significant cost sacrifice. The retrofitting of external lighting on the vessels, etc., would result in considerable cost and time expenditure. Considerable logistical effort to source sufficient inventory of the range of light types onboard the vessels.	Given the potential impacts to marine fauna during this activity is insignificant, implementation of this control would not result in a reduction in consequence.	Grossly disproportionate. Implementation of the control requires considerable cost sacrifice and provides minimal environmental benefit. The costs/sacrifices outweigh the benefit gained.	No
Variation of the timing of the Petroleum Activities Program to avoid IMMR activities on the export trunkline overlapping peak turtle interesting periods (December to January).	F: Yes. It is possible to avoid peak turtle hatchling emergence periods, through scheduling. CS: Significant cost and schedule impacts due to delays in securing vessels for specific timeframes.	Implementation of this control would not result in a reduction in consequence due to the distance of the Trunkline Operational Area from turtle nesting beaches and the small area impacted by vessel light glow.	The cost/sacrifice outweighs benefit gained.	No
Crew transfers which require direction of floodlights outside the vessel will preferentially occur during daylight hours, when vessels within 20 km of islands between December and April ⁴⁵	F: Yes CS: Cost implication and delay of crew transfers.	Reducing light spill onto the water can reduce hatchling attraction to the vessel. Given the distance of the Trunkline Operational Area from known turtle nesting beaches, a reduction in consequence from implementation of this control is not expected.	Implementation would be disproportionate to the risk reduction. While the control may reduce light spill, any crew change activity is expected to be short in duration and infrequent during Trunkline IMMR only.	No
Professional Judgement – Substitute				
Substitute external lighting with “turtle friendly” light sources, (e.g. lights containing short	F: Yes. Replacement of some/all external lighting with turtle friendly lighting is technically feasible.	Substituting external lighting will reduce light emissions in turtles visible	The cost/sacrifice outweighs benefit gained.	No

⁴⁵ Peak turtle hatchling emergence period is December to March, with the wedge-tailed shearwater fledglings emergence in April.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
wavelength, violet/blue light, white LEDs).	<p>CS: Financial cost and time associated with retrofitting external lighting on the vessels. Logistical effort to source sufficient inventory of the range of light types required, and to schedule works required for the vessels.</p> <p>Impacts to safety where lighting no longer performs its function to the full extent intended.</p>	<p>spectrum. Impacts to hatching dispersal resulting from vessel lighting are possible but will be limited by the distance of the PAA from the turtle nesting beaches and the temporary nature of vessel activities associated with the Petroleum Activities Program. Implementation of this control would not result in a reduction in consequence.</p>		
Professional Judgement – Engineered Solution				
None identified.				
ALARP Statement:				
<p>On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.3), Woodside considers the potential impacts from routine light emissions from the vessels to be ALARP. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.</p>				
Demonstration of Acceptability				
Acceptability Criteria and Assessment				
<p>Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.1.1.3 of the Scarborough OPP. The Petroleum Activities Program meets the EP acceptability criteria (Section 2.3.5):</p> <ul style="list-style-type: none"> • Overall impact significance levels for individual receptors are less than the significant impact level defined in the OPP. • EPOs in this EP are aligned with EPOs in the OPP (refer to Table 6 2) • Controls in the OPP that are relevant to this EP Section have been adopted. • There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation. 				
Acceptability Statement:				
<p>The impact assessment has determined that, given the adopted controls, routine light emissions from external lighting from the FPU and vessels is unlikely to result in an impact significance level greater than slight. BIAs for ten EPBC Act listed Threatened or Migratory species overlap or are adjacent to the PAA. Regard has been given to relevant conservation advice and wildlife conservation plans during the assessment of potential impacts and the NLPG were taken into consideration during the impact evaluation. The Petroleum Activities Program is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice (Section 6.9.3).</p> <p>The potential impacts are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 4.3). Therefore, Woodside considers the adopted controls appropriate to, manage the impacts of light emissions to a level that is broadly acceptable; and demonstrate the EPOs are met.</p>				

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>EPO 6 No impacts to marine fauna greater than that caused by minimum required light emissions for safe work / navigation.</p> <p>EPO 7 No displacement of marine turtles from habitat critical during nesting and interesting periods and marine turtles' biologically important behaviour can continue in biologically important areas.</p>	<p>C 3.1 Minimise vessel / FPU lighting to that required for navigational, safety and operational requirements, with the exception of emergency events.</p>	<p>EPS 3.1.1 Lighting will be limited to that required for safe work/navigation. This will include (where applicable) measures such as:</p> <ul style="list-style-type: none"> • Closing blinds on accommodation windows. • Turning lights off in work areas not in use. • Turning crane lights off (not associated with safety requirements). • Ensuring external deck lighting is directed inwards to reduce light glow and light spill on the water; • Vessel crews trained in light reduction measures when operating within 20km of islands. 	<p>MC 3.1.1 Inspection verifies no excessive light being used beyond that required for safe work/navigation. Training records for vessel crews in light reduction measures where applicable.</p>
	<p>C 3.2 Avoid where practicable, IMMR vessel activities within 20km of Wedge-tail Shearwater rookeries, during fledgling synchronised exodus period (April).</p>	<p>EPS 3.2.1 Avoid IMMR vessel activities within 20km of Wedge-tail Shearwater Rookeries during peak fledging emergence (April), where practicable. If avoidance is not practicable, document ALARP or justification for activities and consideration of the need for any additional light reduction measures.</p>	<p>MC 3.2.1 Records demonstrate IMMR vessel activities occur outside of fledgling synchronised exodus period (April), or written ALARP / justification provided why activities in April in proximity to rookeries could not be avoided.</p>
	<p>C 3.3 Implement the Woodside Frontline Offshore Seabird Management Plan (SBMP) on the FPU and all vessels during the PAP. For vessels, the SBMP is only relevant where activities overlap with a Seabird BIA or will occur within 20km of a Seabird BIA.</p>	<p>PS 3.3.1 Implementation of the Woodside Frontline Offshore Seabird Management Plan including:</p> <ul style="list-style-type: none"> • Minimise potential for light attraction. • Standardise and maintain record keeping and reporting of seabird interactions. • Provide procedures on seabird intervention, care and management. • Follow regulatory reporting requirements of seabird (unintentional death of or injury to seabirds that constitute MNES). 	<p>MC 3.3.1 Records demonstrate Seabird Management Plan (SBMP) implemented through:</p> <ul style="list-style-type: none"> • Records of avifauna interactions in accordance with the SBMP • Records of Regulatory reporting of seabird deaths associated with the PAP as required by the SBMP.
	<p>C 3.4 Woodside Frontline SBMP training or awareness</p>	<p>PS 3.4.1 Ensure that Woodside Frontline Offshore Seabird</p>	<p>MC 3.4.1 Evidence of training or awareness of SBMP</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	information delivered to relevant facility, vessel crew and Woodside Environment Adviser(s).	<i>Management Plan</i> training or awareness information has been delivered to relevant crew or Woodside personnel, including the information in Section 7.9.9	amongst relevant facility / vessel crew and Woodside personnel.

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Page 298 of 752

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6.7.4 Routine Acoustic Emissions: Floating Production Unit Hook-up and Commissioning

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.1.4 – Routine Acoustic Emissions														
Context														
Relevant Activities Vessel Operations – Section 3.11 FPU Installation and Mooring Hook-Up – Section 3.6 Offshore Facility Commissioning – Section 3.7 FPU start-up – Section 3.8				Existing Environment Protected Species – Section 4.6				Consultation Consultation – Section 5						
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Generation of noise from vessels during FPU hook-up and commissioning						✓		A	F	-	-	LCS GP	Broadly Acceptable	EPO 8, 9
Generation of acoustic signals from positioning equipment (transponders)						✓								

Description of Source of Impact/Risk
<p>During FPU hook-up and commissioning, sound will be generated from a variety of vessels involved with this phase. Acoustic emissions during routine operations (including IMMR activities) are assessed in Section 6.7.5.</p> <p>Sound will fluctuate based on concurrent vessel activities, with various vessel arrangements specific to the hook-up, commissioning and start-up phases occurring. These acoustic sources will contribute to and have the potential to exceed ambient noise levels in the region. Mean ambient sound levels have been measured as 109 dB re 1 µPa sound pressure level (SPL) and 115 dB re 1 µPa SPL at locations near the Offshore Operational Area (Warren, 2022).</p> <p>Key acoustic sources associated with FPU hook-up and commissioning are described below. Table 6-5 presents likely concurrent activities contributing to cumulative underwater noise levels during FPU hook-up and commissioning. This has been used to inform the worst-case credible sound propagation scenarios for modelling as well as cumulative impact assessment as a result of concurrent operations, discussed below.</p> <p>Vessels and Operation of DP</p> <p>Vessels will generate noise both in the air and underwater, due to the operation of thrusters, engines, propeller cavitation, etc. Vessels may use dynamic positioning (DP) where propellers and thrusters are used to hold position, rather than anchoring.</p> <p>The sound levels and frequencies generated by vessels varies with the size of the vessel, speed, engine type and the activity being undertaken. Larger or more powerful vessels typically produce higher sound levels at lower frequencies than small vessels, although significant variation may be found among vessels within the same group (Jiménez-Arranz et al., 2020). Sound levels tend to be greatest when engaging the throttle or thrusters, such as use of DP or when</p>

Description of Source of Impact/Risk

vessels are operating under load, compared with slow moving or idling vessels (Salgado Kent et al. 2016). The greatest sound levels are likely to be associated with vessels using DP thrusters to maintain position on station.

Vessels produce low frequency sound (i.e. below 1 kHz) from the operation of machinery, hydrodynamic flow sound around the hull and from propeller cavitation, which is typically the dominant source of sound (Ross, 1987, 1993).

Examples of vessels proposed to be used for FPU hook-up and commissioning activities are detailed in **Section 3.11**. These include:

- Light Construction Vessel (LCV)
- Support Vessels
- Accommodation Support Vessel (ASV)
- Anchor Handling Tugs (AHTs).

Source levels for representative vessels that will be used for FPU hook-up and commissioning are described in **Table 6-4**.

Table 6-4: Modelled energy source level spectra (in deci-decade frequency-band) for sound sources associated with proposed Scarborough vessels during floating production unit hook-up and commissioning

Vessel type and operation mode	Energy source level	Basis for source level estimation and source depth
AHTs under DP	194.1 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative vessel (Siem AHTS VS491 CD) (McPherson et al. 2021)
Tug vessel under DP (high thruster power)	192.2 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative vessel (FAR Statesman) estimated using the spectra of the publicly available Siem Sapphire (McPherson et al. 2021). The overall broadband level of the Siem Sapphire has been scaled down based on maximum installed thruster power.
Tug vessel under DP	187.6 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative vessel (FAR Statesman). Based on lower thruster powers associated with DP in comparison to high thruster power, the broadband (10 Hz to 25 kHz) source level has been chosen to match the OSV under DP with the spectral shape of the Siem Sapphire (McPherson et al. 2021) scaled to that level
Tug under transit	171.3 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative vessel (FAR Statesman) represented via scaling the spectra of the Siem Sapphire under slow transit (McPherson et al. 2021)
Support Vessel under transit	177.8 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative Vessel (Fugro Etime) operating at 20% capacity
FPU	173.9 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative surrogate vessel derived from the average of measured levels of two Floating Production Storage Offload (FPSO) vessels, Ngujima and Nganhurra (Erbe et al. 2013).
LCV under DP	180.9 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative vessel (Deep Orient) (Quijano and McPherson, 2021)
Support Vessel under DP	187.6 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative Vessel (Fugro Etime) at 50% capacity
ASV	183.6 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Floatel Triumph based on median noise measurements from a similarly sized but higher powered semi-submersible vessels previously measured by JASCO whilst under DP (Austin et al. 2023), which were scaled down based on maximum installed thruster power

Positioning Equipment

An array of long baseline (LBL) and/or ultra-short baseline (USBL) transponders may be used for underwater positioning. Transponders typically emit pulses (impulsive noise) of medium frequency sound, generally within the range 21 to 31 kHz. The estimated SPL would be 180 to 206 dB re 1 μPa at 1 m (Jiménez-Arranz et al., 2017). Transmissions are not continuous but consist of short ‘chirps’ with a duration that ranges from 3 to 40 milliseconds. Transponders will not emit any sound when on standby. The operating frequency range is above the auditory range of low frequency

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The area over which sound may adversely impact marine species depends upon multiple factors including the extent of sound propagation relative to the location of receptors, and the sensitivity and range of spectral hearing of different species (Slabbekoorn et al., 2010; Popper and Hawkins, 2012).

Sound Propagation

Increasing the distance from the noise source results in the level of noise reducing, due primarily to the spreading of the sound energy with distance. The way that the noise spreads (geometrical divergence) will depend upon several factors such as water column depth, pressure, temperature gradients, and salinity, as well as surface and bottom conditions.

Acoustic Modelling

To assess the potential magnitude and extent of impacts from underwater noise produced during the Petroleum Activities Program, Woodside commissioned JASCO Applied Sciences (JASCO) to model sound propagation for a range of concurrent operations and vessel scenarios. The modelling study (Stephen et al., 2023) considered specific components of the Petroleum Activities Program for representative scenarios within the PAA.

The modelled scenarios presented in Table 6-6, include several permutations of concurrent activities that may occur during FPU installation and hook-up, commissioning and operations. Scenarios 5 to 7 are discussed in the context of routine operations (i.e. long-term acoustic emissions from FPU operations) in Section 6.7.5.

Table 6-6: Summary of modelled scenarios for floating production unit hook-up and commissioning

Scenario Group	Scenario Number	Description
FPU Installation and hook-up (base case)	1	1x AHTs under DP (24hrs)
	2	Silent FPU, 2x AHTs under DP, 1x OSV on standby (24hrs)
FPU Installation and hook-up (worst case)	3	1x tow tug heavy thrusting, under DP (24hrs)
	4	Silent FPU, 2x tow tug heavy thrusting DP, 2x tow tug DP, 2x AHTS, 1x tow tug standby, 1x OSV standby (24hrs) <i>This scenario was remodelled using sound exposure thresholds updated in October 2024 – results presented below</i>
FPU Commissioning	5	FPU operating and anchored (24hrs)
	6	FPU operating and anchored (24hrs), resupply OSV under DP (8hrs)
	7	FPU operating and anchored, ASV under DP (24hrs), LCV under DP (8hr) <i>This scenario was remodelled using sound exposure thresholds updated in October 2024 – results presented below</i>

The modelling study specifically assessed distances from operations where underwater sound levels were predicted to reach thresholds corresponding to potential behavioural response, TTS and PTS. The animals considered here included low-frequency (LF), high-frequency (HF) cetaceans, turtles, and fish including fish larvae and eggs.

The modelling methodology considered the source levels of the individual thrusters for the vessels, as well as environmental properties that effect sound propagation. Estimated underwater acoustic levels are presented as SPL, and accumulated sound exposure levels (SEL) as appropriate for non-impulsive (continuous) noise sources. In this study, the duration of the SEL accumulation was defined as integrated over a 24-hour period (SEL_{24h}).

The SEL_{24h} is a cumulative metric that reflects the dosimetric impact of noise levels within 24 hours based on the assumption that an animal is consistently exposed to such noise levels at a fixed position. The corresponding SEL_{24h} radii represent an unlikely worst-case scenario. More realistically, marine mammals (as well as pelagic fish and turtles) would not stay in the same location for 24 hours. Therefore, a reported radius for SEL_{24h} criteria does not mean that marine fauna travelling within this radius of the source will be impacted, but rather that an animal could be exposed to the sound level associated with impact (TTS or PTS) if it remained in that location for 24 hours. Overall, the impact significance level for ambient noise has been identified as Negligible (F).

Updated acoustic modelling to account for new sound exposure thresholds

In October 2024, the U.S National Oceanic and Atmospheric Administration (NOAA) issued Technical Memorandum NMFS-OPR-71 which was a 2024 update to *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (V 3.0)*. The memo contains updated underwater and in-air criteria for onset of auditory injury and temporary threshold shifts, and relevant to the noise modelling originally conducted for this EP (Stephen et al., 2023) means that thresholds for LF and HF cetaceans changed as shown in Table 6-7.

To better understand the impacts of the change in these sound exposure thresholds, Woodside commissioned Jasco to re-model two of the conservative scenarios (4 and 7) with the new criteria. Scenario 4 was chosen to represent the

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Detailed Impact Assessment

credible worst-case noise scenario for FPU hookup and installation while Scenario 7 was chosen to represent worst-case noise during commissioning. A decision was made to only remodel these two conservative scenarios (instead of remodelling all the scenarios), because they represent the worst case credible noise propagation (as shown by original modelling results in Table 6-8 and reducing impacts based on these noise emissions to ALARP and Acceptable levels means that the other scenarios producing lower noise levels will also be ALARP and Acceptable. The changes to the thresholds are not considered significant enough to warrant remodelling all scenarios, and investigation of the worst case noise scenarios was considered adequate to understand impact of the threshold change.

The new thresholds relate to PTS and TTS onset, with behavioural response thresholds remaining the same for continuous noise. Results for Scenario 4 and 7 using the new thresholds are discussed below, however impact assessment relating to behavioural response remains unchanged.

Sound Frequency and Hearing Sensitivity

Different animals are sensitive to different sound frequencies, which are measured in hertz (Hz) and kilohertz (kHz). For example, some large baleen whales are sensitive to very low frequency sounds (7 Hz to 35 kHz), while other toothed whales and dolphin species are considered more sensitive to mid-high frequency sounds (150 Hz to 160 kHz) with their peak hearing frequency somewhere between these frequency ranges (National Marine Fisheries Service, 2018).

In some cases, a sound level is specified relative to a given frequency range or is weighted according to the auditory sensitivity of an animal (e.g. low-frequency, medium-frequency and high-frequency groups of cetaceans). This has the advantage of placing the sound into a more biologically relevant context for that animal. If a frequency range or weighting is not specified, the frequency of the sound is generally referred to as “broadband” sound i.e. the sound level accounts for sound across all frequencies, noting again that a particular animal may not be able to detect all of the sound frequencies and associated energy that are emitted. Therefore, the frequency of a sound and how sensitive different animals are to sound can make a considerable difference to how loud the sound is perceived to be and any resultant impact.

Marine Mammals/Cetaceans

Eight cetacean species may be present within the PAA, including LF cetaceans such as pygmy blue whales, and HF cetaceans such as sperm whales and orcas (Section 4.6.3). There are no BIAs overlapping the Offshore Operational Area.

Species Sensitivity and Sound Exposure Thresholds

Marine mammals and especially cetaceans rely on sound for important life functions including individual recognition, socialising, detecting predators and prey, navigation and reproduction (Weilgart, 2007; Erbe et al., 2015; Erbe et al., 2018). Underwater noise can affect marine mammals in various ways including interfering with communication (masking), behavioural changes, a shift in the hearing threshold (PTS and TTS), physical damage and stress (Erbe, 2012; Rolland et al., 2012). There is little information available regarding call masking in whales (Richardson et al., 1995), although it has been suggested that an observed lengthening of calls in response to low-frequency noise in humpback whales and orcas may be a response to auditory masking (Fristrup et al., 2003; Foote et al., 2004).

The thresholds that could result in a behavioural response, TTS and PTS for cetaceans as a result of noise sources are presented in Table 6-7. These thresholds have been adopted by the United States National Oceanic and Atmospheric Administration (NOAA) (National Marine Fisheries Service [NMFS], 2014, 2018; Southall et al., 2019; NOAA, 2019), and were updated in October 2024 (NMFS, 2024). The adopted thresholds are based on best data available and published in peer-reviewed literature and represent conservative internationally accepted and applied impact evaluation thresholds for impulsive and continuous (non-impulsive sound sources).

Table 6-7: Thresholds for permanent and temporary threshold shift and behavioural response onset for low-frequency and high-frequency cetaceans for impulsive and continuous noise

Hearing group	Impulsive			Continuous		
	PTS onset thresholds: SEL _{24h} (dB re 1 μPa ² .s)	TTS onset thresholds: SEL _{24h} (dB re 1 μPa ² .s)	Behavioural response (dB re 1 μPa)	PTS onset thresholds: SEL _{24h} (dB re 1 μPa ² .s)	TTS onset thresholds: SEL _{24h} (dB re 1 μPa ² .s)	Behavioural response (dB re 1 μPa)
LF cetaceans	183	168	160	199	179	120
Updated Threshold*	No change	No change		197	177	
HF cetaceans	185	170		198	178	
Updated Threshold*	193	178		201	181	

Source: NMFS (2014, 2018; Southall et al., 2019; NOAA, 2019).

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Detailed Impact Assessment

* Source Updated Thresholds: NMFS 2024

Results – Acoustic Modelling

Modelling of cumulative sound propagation from a range of vessel scenarios is presented in (Table 6-8). These results relate to the outputs from the original modelling report (Stephen et al., 2023) which were based on thresholds in Southall et al. (2019). Updated permanent and temporary threshold shift and behavioural response thresholds in cetaceans for Scenarios 4 and 7 are presented separately below. Modelling of sound propagation loss under the worst-case scenario during FPU hook-up and installation within the Offshore Operational Area, predicted that noise levels would drop below 120 dB re 1 µPa (behavioural response threshold for continuous noise sources) within 43.4 km (Scenario 4). Considering the NMFS (2018) SEL_{24h} TTS threshold criteria for LF cetaceans (179 dB re 1 µPa².s), TTS onset could occur within 7.4 km under the same scenario (Stephen et al., 2023). For LF cetaceans, the maximum distance to the PTS onset threshold was 210 m for Scenario 4.

For HF cetaceans, TTS onset could occur at a distance of up to 90 m for the various scenarios, and the PTS threshold for HF cetaceans was not reached within the limits of the modelled resolution (20 m) for any scenario modelled.

The SEL_{24h} criterion used for calculating the potential for TTS and PTS impacts is a cumulative metric that reflects the dosimetric impact of sound energy accumulated over a 24-hour period and assumes that an animal is consistently exposed to such noise levels at a fixed location. The radii that correspond to SEL_{24h} therefore represent an unlikely worst-case scenario for SEL-based exposure since, more realistically, marine fauna would not stay in the same location or at the same range for 24-hours (Stroot et al., 2023). It is highly unlikely that PTS and TTS thresholds would be exceeded and furthermore it is highly unlikely given the known movement behaviour of cetaceans including key migrating LF whale species such as the PBW transiting through the PAA.

Table 6-8: Maximum predicted horizontal distances (R_{max}) to permanent and temporary threshold shift and behavioural response thresholds in cetaceans

Hearing group	Sound exposure threshold	Scenario 1 (AHTS)	Scenario 2 (2x AHTS, OSV)	Scenario 3 (tow tug)	Scenario 4 (2x AHTS, 5x tow tug, OSV)	Scenario 5 (FPU)	Scenario 6 (FPU, OSV)	Scenario 7 (FPU, ASV, LCV)
		R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)
PTS								
LF cetaceans	199 dB re 1 µPa ² .s (SEL _{24h})	0.17	0.17	0.15	0.21	-	0.06	0.05
HF cetaceans	198 dB re 1 µPa ² .s (SEL _{24h})	-	-	-	-	-	-	-
TTS								
LF cetaceans	179 dB re 1 µPa ² .s (SEL _{24h})	1.75	4.52	1.36	7.4	0.1	0.49	0.74
HF cetaceans	178 dB re 1 µPa ² .s (SEL _{24h})	0.09	0.09	0.08	0.09	-	0.06	0.02
Behavioural response								
LF/HF cetaceans	120 dB re 1 µPa (SPL)	17.0	25.7	13.3	43.4	0.68	4.91	5.02

A dash indicates the level was not reached within the limits of the modelled resolution (20 m).

Results – Updated Acoustic Modelling for Scenarios 4 and 7

Modelling of cumulative sound propagation for Scenarios 4 and 7 is presented in Table 6 9. The results show that the radius from the activity at which a LF cetacean could be exposed to temporary threshold shift after 24 hours continuous exposure increased from 7.4 km under previous thresholds, to 11.7 km using the new threshold value. The new

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Detailed Impact Assessment

thresholds predict TTS onset at 177 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$, previously this value was 179 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$. This means that there is a greater area over which LF cetaceans could be exposed to PTS/TTS associated with FPU installation and hookup. However, it continues to remain unlikely that cetaceans will spend 24hrs in close proximity to noise generating activities within this PAP, as any cetacean activity in the operational area would be migratory in nature. The offshore Operational Area is not associated with any cetacean BIAs (with the PBW migration corridor being ~35km to the East).

Modelling results showed that this increase of 37% for distance to LF cetacean TTS for Scenario 4 is similar in magnitude to the increase in distance for Scenario 7, which increased from 740m to 940m (or 27%). With the revision of PTS threshold for LF cetaceans from 199 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ to 197 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$, the maximum horizontal distance at which PTS exposure could occur increased for both Scenario 4 and Scenario 7; from 210m to 590m for Scenario 4 (2.8 times greater) and from 50m to 70m for Scenario 7.

While the threshold changes have resulted in increases to PTS and TTS maximum horizontal distances for both Scenario 4 and Scenario 7, due to the location of the Offshore Operational Area and nature of cetacean use of the area; the conclusion of the impact assessment conducted based on results of the original modelling remain valid for all scenarios.

Table 6-9: Maximum predicted horizontal distances (Rmax) to updated permanent and temporary threshold shift and behavioural response thresholds in cetaceans for Scenarios 4 and 7:

Hearing group	Sound exposure threshold	Scenario 4 (2x AHTS, 5x tow tug, OSV)	Scenario 7 (FPU, ASV, LCV)
		<i>R_{max}</i> (km)	<i>R_{max}</i> (km)
PTS			
LF cetaceans	197 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ (SEL _{24h})	0.59	0.07
HF cetaceans	201 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ (SEL _{24h})	0.04	-
TTS			
LF cetaceans	177 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ (SEL _{24h})	11.7	0.94
HF cetaceans	181 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ (SEL _{24h})	1.09	0.17
Behavioural response			
LF/HF cetaceans	120 dB re 1 μPa (SPL)	43.4	5.02

A dash indicates the level was not reached within the limits of the modelled resolution (20 m).

Impact Assessment – Vessel Activities

The Blue Whale Conservation Management Plan (Action Area 2) states that anthropogenic noise in BIAs should be managed such that any blue whale continues to utilise the area without injury (Commonwealth of Australia, 2015a). Although TTS in cetaceans has previously been regarded as hearing impairment, not injury, advice issued by DCCEEW is that TTS should be considered a form of injury to PBW and this should be prevented within the BIAs (DAWE 2021).

As described in Section 4.6.3, the PBW migration BIA represents the area of core migratory routes for pygmy blue whales. The migration BIA is about 35 km from the Offshore Operational Area. There is no potential for PTS or TTS impacts from FPU hook-up and commissioning activities from the Offshore Operational Area in the PBW migration BIA as demonstrated by the modelling presented, given the maximum distance to TTS impact is 11.7 km (using the updated sound exposure thresholds) for the worst case scenario (Scenario 4).

As demonstrated by the acoustic modelling, it is reasonable to expect that cetaceans may demonstrate avoidance or attraction behaviour to the noise generated by the Petroleum Activities Program (behavioural response). With respect to the western extent of the pygmy blue whale distribution range that overlaps the Offshore Operational Area, as described in Section 4.6.3, the likelihood of encountering migrating or foraging PBWs is considered low. There is likely to be occasional individual or small groups transiting through the distribution range during the northbound or southbound migration seasons. The worst-case cumulative vessel scenarios modelled (e.g. Scenario 4) predict potential behavioural disturbance beyond 40 km from the source; however, these only represent short-term activities. Further, the Offshore Operational Area is surrounded by open water, with no restrictions (e.g. shallow waters, embayments) to an animal's ability to avoid the activities. Consequently, any PBWs transiting through the area, may deviate slightly from their

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migration route, but can continue on their migration pathway without any likely biologically significant impacts. Potential behavioural disturbance to PBWs within the distribution range is most likely to occur during migratory periods, with the highest likelihood of impacts occurring during the peak northbound (April to July [peak: May and June]) and southbound (October to January [peak: November]) migratory seasons.

To account for the potential presence of blue pygmy whales within the distribution range (and possibly west of the migratory BIA) in the peak northbound migratory season, adaptive management procedures will be implemented during FPU hook-up and commissioning to manage potential impacts to pygmy blue whales (refer to ALARP table below) and to ensure the activity is not inconsistent with the CMP (Action Area 2 and 3 see **Section 6.9.3**). Other marine mammals may be periodically present in the Offshore Operational Area during FPU hook-up and commissioning activities. As described above, PTS and TTS impacts are highly unlikely for individuals passing through the area. Avoidance behaviours may be expected resulting in deviation around the activities. However, hook-up and commissioning activities are short-term and given the deep, open water location of the FPU, impacts are expected to be minor.

The National Recovery Plan for the Southern Right Whale (DCCEEW, 2024b) also identified anthropogenic noise as a threat, however the BIAs and habitat critical to the survival are over 190km away, well outside the area where behavioural responses are expected to extend from the Operational Area and as such, there is not expected to be any anthropogenic noise from the PAA that could displace or interfere with life cycle activities within, or near, the reproduction or migration BIAs and habitat critical to the survival.

Impact Assessment – Non-vessel Activities

Positioning transponders (USBL, LBL) produce mid to high frequency sound, which may only be audible to dolphins and other mid-frequency cetaceans. The USBL has lower source levels than the other instruments proposed for geophysical surveys and is not expected to result in any injury or hearing impairment. Some localised behavioural effects may occur in close proximity to the USBL, but the extent of any effect is expected to be smaller than that of other survey instruments and so the effects are considered to be negligible. Based on empirical spreading loss estimates measured by Warner and McCrodan (2011), received levels from USBL transponders are expected to exceed the cetacean behavioural response threshold for impulsive sources out to about 42 m. Given the short-duration chirps and the mid frequencies used by positioning equipment, the acoustic noise from a single transponder is unlikely to have any substantial effect on the behavioural patterns of marine fauna. Therefore, potential impacts from transponder noise are likely to be restricted to temporary and localised avoidance behaviour of individuals transiting through the PAA, and therefore are considered localised with no lasting effect. Overall, the impact significance level for marine mammals has been identified as Slight (E).

Marine Reptiles

Five species of marine turtle may occur in the PAA: flatback, green, hawksbill, loggerhead and leatherback turtles. However, marine turtle presence within the Offshore Operational Area is expected to be infrequent as described above.

Species Sensitivity and Thresholds

There is a paucity of data regarding responses of marine turtles to underwater noise. However, turtles have been shown to respond to low frequency sound, with indications that they have the highest hearing sensitivity in the frequency range 100–700 Hz (Bartol and Musick, 2003). Lenhardt (1994) observed marine turtles avoiding low-frequency sound.

McCauley et al. (2000) observed the behavioural response of caged sea turtles—green (*Chelonia mydas*) and loggerhead (*Caretta caretta*)—to an approaching seismic airgun. For received levels above 166 dB re 1 µPa (SPL), the turtles increased their swimming activity and above 175 dB re 1 µPa (SPL) they began to behave erratically, which was interpreted as an agitated state. No numerical thresholds have been developed for impacts of continuous sources (e.g., vessel noise) on marine turtles. A Popper et al. (2014) review assessed thresholds for marine turtles and found qualitative results that the risk of behavioural disturbance was high for near field exposure, moderate for intermediate exposure and low for far field exposure (refer to Table 6-10).

Sound exposure thresholds and criteria for continuous sound sources (e.g. vessel noise) and impulsive sources (e.g. transponders) applicable to marine turtles are summarised in Table 6-10. There was no change to sea turtle thresholds for permanent and temporary threshold shift in the updated NMFS-OPR-71.

Table 6-10: Thresholds for permanent and temporary threshold shift and behavioural response onset in marine turtles for impulsive and continuous noise

Hearing group	Impulsive			Continuous		
	PTS onset thresholds: SEL _{24h} (dB re 1 µPa ² .s)	TTS onset thresholds: SEL _{24h} (dB re 1 µPa ² .s)	Behavioural response (dB re 1 µPa)	PTS onset thresholds: SEL _{24h} (dB re 1 µPa ² .s)	TTS onset thresholds: SEL _{24h} (dB re 1 µPa ² .s)	Behavioural response (dB re 1 µPa)
Marine turtles	204	189	166* 175+	220	200	(N) High (I) Moderate (F) Low [#]

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Detailed Impact Assessment

Source: PTS and TTS thresholds (Finneran et al., 2017), * behavioural response threshold (impulsive) (NSF 2011), + behavioural disturbance threshold (impulsive) (McCauley et al. 2000), # behavioural response threshold (continuous) (Popper et al. 2014),

Note: The sound units provided in the table above for continuous noise include: relative risk (high, medium and low) is given for marine turtles at three distances from the source defined in relative terms as near (N – tens of metres), intermediate (I – hundreds of metres) and far (F – thousands of metres) (after Popper et al. 2014).

Results – Acoustic Modelling

As described in the acoustic modelling for cumulative vessel noise, based on the application of the multiple SEL_{24h} thresholds (Finneran et al., 2017), PTS for turtles was not predicted to occur within the modelling resolution (20 m), and turtles could potentially experience TTS within 140 m in the worst case scenario (Scenario 4) (Table 6-11). However, marine turtles within the Offshore Operational Area are expected to be transient, and unlikely to remain with 140 m of the vessels for 24-hours, and therefore PTS and TTS thresholds are not expected to be reached. Behavioural impacts to marine turtles from continuous noise sources generated by the Petroleum Activities Program are expected to be short-term and localised as described below.

Table 6-11: Maximum predicted horizontal distances (R_{max}) to permanent and temporary threshold shifts in marine turtles

Hearing group	Sound exposure threshold	Scenario 1 (AHTs)	Scenario 2 (2x AHTs)	Scenario 3 (tow tug)	Scenario 4 (2x AHTs, 5x tow tug, OSV)	Scenario 5 (FPU)	Scenario 6 (FPU, OSV)	Scenario 7 (FPU, ASV, LCV)
		R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)
PTS								
Marine Turtles	220 dB re 1 μPa ² .s (SEL _{24h})	-	-	-	-	-	-	-
TTS								
Marine Turtles	200 dB re 1 μPa ² .s (SEL _{24h})	0.13	0.13	0.11	0.14	-	0.06	0.05

N.B. A dash indicates the threshold was not reached within the limits of the modelling resolution (20 m).

Impact Assessment

The Recovery Plan for Marine Turtles (Commonwealth of Australia, 2017) notes there is limited information available on the impact of noise on marine turtles and that the impact of noise on turtle stocks may vary depending on whether exposure is short (acute) or long-term (chronic). However, given the thresholds outlined in Table 6-10, it is reasonable to expect that marine turtles may demonstrate avoidance or attraction behaviour to the noise generated by the Petroleum Activities Program.

There are no marine turtle BIAs or Habitat Critical within 160 km of the Offshore Operational Area, and given the water depths and distance from shore, this area does not represent suitable foraging or interning habitat. Marine turtle presence the Offshore Operational Area is therefore expected to be infrequent, and potential impacts from predicted noise levels from the vessels during FPU hook-up and commissioning activities are not considered to be ecologically significant at a population level. Overall, the impact significance level for marine reptiles has been identified as Slight (E).

Fish, Sharks and Rays

A number of demersal and pelagic fish species will be present within the PAA. However, given species richness has been shown to correlate with habitat complexity (Gratwicke and Speight, 2005), it is unlikely that the sand/silt sediments that comprise the largest proportion of the PAA will support a wide diversity of species. Migratory species such as whale sharks may be present, however, it should be noted the BIA for foraging is a distant 194 km south of the Offshore Operational Area where the hook-up and commissioning activities will be occurring.

Species Sensitivity and Thresholds

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Detailed Impact Assessment

The majority of fish species detect sounds from <50 Hz up to 500-1500 Hz (Popper and Hawkins, 2019). A smaller number of species can detect sounds over 3 kHz, while very few species can detect ultrasound over 100 kHz (Ladich and Fay, 2013). The critical issue for understanding whether an anthropogenic sound will affect the hearing of a fish is whether it is within the hearing frequency range of the fish and loud enough to be detectable above background ambient noise.

Fish perceive sound through the ears and the lateral line, which are sensitive to vibration. Some species of teleost or bony fish (e.g. herring) have a structure linking the gas-filled swim bladder and ear, and these species usually have increased hearing sensitivity. These species are considered to be more sensitive to anthropogenic underwater noise sources than species such as cod (*Gadus sp.*), which do not possess a structure linking the swim bladder and inner ear. Fish species that either do not have a swim bladder (e.g. elasmobranchs (sharks and rays) and scombrid fish (mackerel and tunas)) or have a much-reduced swim bladder (e.g. flat fish) tend to have a relatively low auditory sensitivity.

Considering these differences in fish physiology, Popper et al. (2014) developed sound exposure guidelines for fish; these are presented in Table 6-12 and are considered appropriate to assess continuous acoustic discharges to fish from the Petroleum Activities Program.

Table 6-12: Impact thresholds to fish, sharks and rays for continuous noise

Hearing group	Impulsive			Continuous		
	PTS onset thresholds: SEL _{24h} (dB re 1 µPa ² .s)	TTS onset thresholds: SEL _{24h} (dB re 1 µPa ² .s)	Behavioural response (dB re 1 µPa)	PTS onset thresholds: SEL _{24h} (dB re 1 µPa ² .s)	TTS onset thresholds: SEL _{24h} (dB re 1 µPa ² .s)	Behavioural response (dB re 1 µPa)
Fish: no swim bladder	216	186	(N) High (I) Moderate (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Moderate (F) Low
Fish: swim bladder not involved in hearing	203	186	(N) High (I) Moderate (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Moderate (F) Low
Fish: swim bladder involving hearing	203	186	(N) High (I) High (F) Moderate	170 dB rms SPL for 48-hours	158 dB rms SPL for 12-hours	(N) High (I) Moderate (F) Low

Impulsive noise: All criteria are presented as sound pressure, even for fish without swim bladders, since no data for particle motion exist.

Continuous noise: rms SPL: root mean square of time-series pressure level, useful for quantifying continuous noise sources.

Relative risk (high, moderate, or low) is given for animals at three distances from the source defined in relative terms as near (N), intermediate (I), and far (F).

Source: Popper et al. (2014).

Impact Assessment

The acoustic modelling of cumulative vessel noise in the Offshore Operational Area did not find any scenarios with the potential to cause injury to fish species with a swim bladder involved in hearing. TTS effects could occur within 70 m of the vessels if the fish remained within this distance for 12-hours in the worst-case scenario, however this is highly unlikely given the mobility of fish species and known behaviours that would reduce long exposure periods required to cause TTS.

The potential for injury or TTS effects to fish resulting from single impulse PK or accumulated exposures to SBP, MBES and SSS sound is limited to within 1–2 m beneath or to the side of the sound source (Zykov, 2013; McPherson and Wood 2017). Single impulse exposures at this range are highly unlikely to occur and accumulated exposures over several hours at this range are not credible.

Potential impacts to demersal and pelagic fish and sharks/rays are expected to be limited to a behavioural response. Behavioural responses are expected to be short-lived, with duration of effect less than or equal to the duration of exposure. While fish may initially be startled and move away from the sound source, once the source moves on fish would be expected to move back into the area. Potential impacts from predicted noise levels from the vessels and transponders are not considered to be ecologically significant at a population level.

Detailed Impact Assessment

Commercial Fish Spawning

Depth ranges and key spawning periods for six key indicator commercial fish on the NWS are as follows:

- red emperor – depth range 10–180 m, spawns Sept–June (bimodal peaks Sept–Nov and Jan–Mar)
- rankin cod – depth range 10–150 m, spawns June–Dec and Mar (peak Aug–Oct)
- goldband snapper – depth range 50–200 m, spawns Oct–May
- bluespotted emperor – depth range 5–110 m, spawns Jul–Mar
- ruby snapper – depth range 150–480 m, spawns Dec–Apr (peak Jan–Mar)
- Spanish mackerel – depth range 1 m to at least 50 m, spawns Sept–Jan.

It is understood that all of these species undergo group spawning throughout their range, rather than aggregating at specific locations. The PAA overlaps the depth ranges for these key indicator commercial fish species. However, as described above, the potential impact of acoustic emissions on demersal and pelagic fishes is expected to be limited to a short-lived behavioural response confined to a few hundred metres from the vessels. As such, the potential for the Petroleum Activities Program to impact spawning of key indicator commercial fish species is assessed as being extremely low.

Potential impacts from acoustic emissions on fish, sharks and rays are likely to be restricted to localised and temporary avoidance behaviour while transiting through the PAA, and individuals impacted are unlikely to represent a significant proportion of the population with the PAA and the NWS region overall. As such, the impact significance level for Fish, Sharks and Rays has been identified as Slight (E).

Cumulative impacts

Cumulative impacts for activities within the scope of this Petroleum Activities Program have been assessed above.

As described in Section 6.2.1, there is potential for drilling operations conducted in accordance with the Scarborough Drilling and Completions EP to occur within the Offshore Operational Area. The MODU plus a support vessel (from Scarborough D&C activities) are conservatively estimated to have a maximum combined broadband source level of 192 dB re 1 $\mu\text{Pa}^2\text{m}^2\text{s}$. Within the Scarborough WA-61-L and WA-62-L Subsea Infrastructure Installation Environment Plan, modelling of cumulative effects of a MODU operating concurrently with a sequence of subsea installation activities had a maximum radius to 120db SPL of less than 29.6 km. This simulation has been used to inform this cumulative impact assessment.

In a worst-case scenario, D&C activities may occur simultaneously with FPU hook up activities (as per Scenario 4 in Table 6-6) for a period of up to 30 days (as per Table 6-5). Modelling outlined above predicts noise from the hook up scenario attenuating to less than 120db (the lowest impact threshold for any species) at a distance of 43.4 km. Underwater noise is not additive and noise propagation from a conservative worst case cumulative activity scenario is estimated to result in underwater noise that attenuates to below 120 db at no more than 50% more than the relevant activities occurring in isolation, or approximately 65km away. In the more likely, but still temporary activity where commissioning relies on the use of a smaller number of vessels (as per Scenario 2 in Table 6-6), noise would attenuate to below the 120db threshold at no more than 25% further than that modelled for the highest noise activity (D&C) which was modelled at the same location as resulting in noise attenuating to below 120db by 30km from the source – resulting in attenuation to below the 120 db threshold at no more than 45km from the source.

The pygmy blue whale migration BIA is about 35 km from the Offshore Operational Area. There is no potential for PTS or TTS impacts from FPU hook-up and commissioning activities occurring at the same time as D&C activities due to the maximum distance to TTS impact for each of the activities being <10 km for D&C and 11.7km for the worst-case FPU hook-up scenario (Scenario 4).

As demonstrated by the acoustic modelling, it is reasonable to expect that cetaceans may demonstrate avoidance or attraction behaviour to the noise generated by these activities occurring concurrently. With respect to the western extent of the pygmy blue whale distribution range that overlaps the Offshore Operational Area, as described in Section 4.6.3, the likelihood of encountering migrating or foraging PBWs is considered low. There is likely to be occasional individual or small groups transiting through the distribution range during the northbound or southbound migration seasons.

The concurrent activity scenario (D&C and FPU hookup occurring at the same time) predicts potential behavioural disturbance beyond 40 km from the source (45km – 65km away); however, these only represent short-term activities. Further, the Offshore Operational Area is surrounded by open water, with no restrictions (e.g. shallow waters, embayments) to impede an animal's ability to avoid the activities. Consequently, any PBWs transiting through the area, may deviate slightly from their migration route, but can continue on their migration pathway without any likely biologically significant impacts. Potential behavioural disturbance to PBWs within the distribution range is most likely to occur during migratory periods, with the highest likelihood of impacts occurring during the peak northbound (April to July [peak: May and June]) and southbound (October to January [peak: November]) migratory seasons.

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Detailed Impact Assessment				
Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level
Ambient noise	Change in ambient noise	Low value (open water)	No lasting effect	Negligible (F)
Marine mammals	Change in fauna behaviour	High value species (i.e. pygmy blue whale)	No lasting effect	Slight (E)
Marine reptiles	Change in fauna behaviour	High value species (i.e. flatback, green, hawksbill or loggerhead turtles)	No lasting effect	Slight (E)
Fish, Sharks and Rays	Change in fauna behaviour Hearing impairment to fauna	High value species	No lasting effect	Slight (E)

Overall Impact Significance Level: The overall impact significance level for routine acoustic emissions is Slight (E) based on no lasting effect to the high value receptors (marine mammals, reptiles and fish). The impact significance levels for individual receptors are consistent with the level in the OPP.

Based on the assessment above, the implementation of controls and the absence of any TTS effects within the pygmy blue whale migration BIA, and no impact to the foraging BIA, the potential impacts of noise emissions from the activity on cetaceans are considered to be slight and short-term. Impacts to cetaceans are likely to be restricted to temporary behavioural changes (avoidance) in individuals moving through the PAA, with predicted noise not considered likely to cause injury effects. This is not inconsistent with the Blue Whale Conservation Management Plan (Section 6.9.3).

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures ⁴⁶ : <ul style="list-style-type: none"> Vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone) and not approach closer than 100 m from a whale. Vessels will not approach closer than 50 m for a dolphin and/or 100 m for a whale 	F: Yes. CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around cetaceans can potentially reduce the underwater noise footprint of a vessel and lower the likelihood of interaction above significant thresholds.	Controls based on legislative requirements – must be adopted.	Yes C 4.1

⁴⁶ For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability e.g. lifting, loading, back-loading, bunkering, close standby cover for overside working and emergency situations.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
(with the exception of animals bow riding). <ul style="list-style-type: none"> If the cetacean shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. 				
Good Practice				
Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	F: Yes. CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around whale sharks can potentially reduce the underwater noise footprint of a vessel.	Legislative control for State waters, Whale Shark Interaction Protocol, being adopted for the Petroleum Activities Program.	Yes C 4.2
Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.	F: Yes CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around turtles can potentially reduce the underwater noise footprint of a vessel.	Benefits outweigh cost/sacrifice. Good Practice.	Yes C 4.3
Prior to commencing FPU installation and hook-up activities, use trained vessel crew on Project Vessels (LCV and AHTs) to watch for cetaceans when vessels are in the Operational Area and record presence/activity to the limit of visibility.	F: Yes CS: Time/cost associated with training and implementation.	Vessel crew trained in fauna observation and identification can increase sighting ability and accuracy, with sightings able to inform management actions if required, and contribute to understanding of cetacean presence in the area.	Benefits outweigh cost/sacrifice.	Yes C 4.4
Where activities are undertaken during Pygmy Blue Whale migration periods (April to July inc. and Oct to Jan inc.), only commence FPU positioning activities and mooring chain hook-up when	F: Yes CS: Time/Cost associated with delay to start of activity execution.	Only commencing operations when there have been no sightings reduces the likelihood of Pygmy Blue Whales being within close proximity of vessels during commencement of activities.	Benefits outweigh cost/sacrifice.	Yes C 4.5

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
there have been no sightings of Pygmy Blue Whales for a period of at least 30 minutes.				
Communicate known or probable sightings of pygmy blue whales to other Scarborough vessels in the area.	F: Yes CS: Time/Cost associated with persons used for communications.	Sharing information on PBW presence and behaviour may assist in reducing risks associated with Scarborough vessels. By making crews aware of PBWs in the area, management actions can be effectively implemented.	Benefits outweigh cost/sacrifice.	Yes C 4.6
A SIMOPs management plan will be implemented during the installation, commissioning and start-up phase (not applicable during normal operations when vessel presence is minimal). The SIMOPs management plan will consider the scheduling of and distances between Scarborough activities, to reduce the behavioural response exposure range for cumulative noise.	F: Yes CS: Time/cost in delay or interruption to activity execution.	Consideration of project schedule to reduce concurrent activities within the PAA can help reduce likelihood of underwater noise impacts to cetaceans from cumulative noise.	Benefits outweigh cost/sacrifice.	Yes C 4.7
Use of adaptive management actions should PBW be sighted (known or possible) during FPU installation and hook-up activities.	F: No. Once operations commence for installation and hook-up of the FPU, it is not possible to stop operations to implement adaptive management actions. CS: Not considered, control not feasible.	Adjusting operations to limit increases in cumulative vessel noise and preventing sudden changes in movement may help reduce likelihood of underwater noise impacts to cetaceans, by providing adequate time and space for cetaceans to move away if disturbed by the noise.	Not considered – control not feasible.	No
Use of aircraft to carry out visual observations for pygmy blue whale	F: Yes. CS: Increases potential likelihood of environmental, health and safety impacts to	Aerial surveys could assist in identifying pygmy blue whale foraging activity over	Cost/sacrifice outweighs benefit. Due to distance of PAA from pygmy blue whale	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
foraging activity (aerial survey).	<p>personnel due to aircraft in the field.</p> <p>Unacceptable risk to personnel in operating aircraft at this distance offshore.</p> <p>Significant cost of aircraft and personnel. Aircraft range limits observation time at WA-61-L requiring multiple aircraft/crew to cover daylight periods.</p>	a larger monitoring zone.	migration and foraging BIAs, presence of PBWs carrying out opportunistic foraging activities in the area is expected to be low.	
Professional Judgement – Eliminate				
Eliminate generation of noise from vessels or equipment.	<p>F: No. The generation of noise from these sources cannot be eliminated due to operating requirements. Note that vessels operating on DP may be a safety critical requirement.</p> <p>CS: Inability to conduct the Petroleum Activities Program. Loss of project.</p>	Not considered – control not feasible.	Not considered – control not feasible.	No
Stop DP operations if a PBW is sighted.	<p>F: This may be possible for vessels transiting between activity locations, but when undertaking installation and hook-up activities, the generation of noise from these sources cannot be eliminated due to operating requirements. Note that vessels operating on DP may be a safety critical requirement.</p> <p>CS: Time/Cost associated with interrupting construction activities.</p>	Ceasing Vessel DP operations will reduce the potential for TTS effects to occur if a PBW stays within range of vessels for an extended period.	<p>Grossly disproportionate. Implementation of the control requires considerable cost with minimal environmental benefit, given that PTS and TTS are not credible. Evidence suggests that the likelihood of encountering a migrating or foraging PBW within the Operational Area is considered low, and it is highly unlikely that PBW would spend sufficient time within range of vessel operations to encounter PTS or TTS.</p> <p>The cost/sacrifice outweigh the benefit gained.</p>	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Professional Judgement – Substitute				
Management of vessel noise by varying the timing of the Petroleum Activities Program to avoid migration periods.	<p>F: Yes. It is possible to vary the timing of the Petroleum Activities Program to avoid migration periods, however the risk of potential impacts from routine acoustic emissions is considered to be low and limited to a behavioural response.</p> <p>CS: Significant cost and schedule impacts due to delays in securing vessels for specific timeframes. A variation in timing to avoid migration periods would result in significant delays to the project. Ideal (calm) sea states for subsea installation occur over the summer months.</p>	<p>Given the potential impacts to migrating fauna during this activity is low, implementation of this control would not result in a reduction in consequence.</p> <p>Additionally operating outside of migration periods does not guarantee the absence of individuals in the PAA and therefore doesn't eliminate possibility of impacts all together.</p>	<p>Grossly disproportionate. Implementation of the control requires considerable cost with minimal environmental benefit.</p> <p>While activities may result in a behavioural disturbance to PBWs, this is likely to affect a small portion of individuals travelling outside of the Migration and Foraging BIAs and will not have a population level impact on the species.</p> <p>The cost/sacrifice outweigh the benefit gained.</p>	No
Professional Judgement – Engineered Solution				
Reduce vessel speed in the Operational Area to reduce vessel noise propagation.	<p>F: Yes.</p> <p>CS: Increased vessel transit times, potential schedule delays and impact to subsequent activities.</p>	<p>The Offshore Operational Area does not overlap with any cetacean BIAs or critical habitat and the presence of marine fauna is likely to be limited to infrequent occurrences of individuals or small groups. Therefore, there is no further risk reduction from the application of this control.</p>	<p>Given the slow speeds at which vessels operate, the likely presence of marine fauna in the Operational Area and the controls currently in place the adoption of this control offers no further reduction in risk.</p>	No
Passive Acoustic Monitoring (PAM).	<p>F: No. PAM has limited ability to detect calls from baleen whales such as the pygmy blue whale, particularly with added background noise from vessel activities and known reliability and practicality limitations of the technology.</p> <p>CS: Costs associated with PAM technology acquisition and implementation.</p>	<p>Not considered – control not feasible.</p>	<p>Not considered – control not feasible.</p>	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Use of thermal imaging equipment at night or periods of low visibility to identify cetacean presence.	F: Yes. Some technology may be feasible to install on vessels such as automated vessel mounted camera systems that employ machine learning algorithms to detect cetaceans. Other technology such as hand-held thermal imaging binoculars are not feasible for use due to limitations in ability to be used open ocean sea states. CS: Costs associated with acquisition and implementation of vessel mounted camera systems are significant.	Some thermal imaging equipment if effective, can increase likelihood of identifying cetacean presence - however limitations on detection distance/depth, interpretation of data (identification of cetacean type for example) and practicality exist. The open ocean sea states and conditions (i.e., high winds and rough seas) of the PAA may decrease the rate of marine mammal detection. This is in addition to the already low numbers, cryptic nature, and often solitary and distribution of PBW.	Cost/sacrifice outweighs benefit. Lack of proven application in detection of cetaceans in deep water environment and limitations of the technology reduce potential benefit gained when compared with low likelihood of expected cetacean activity and low likelihood of vessel movement at night.	No
Use of Autonomous Underwater Vehicle (AUV) to monitor for presence of pygmy blue whales using detection of their vocalisations.	F: Yes. Could be deployed from Support Vessel. CS: Costs associated with obtaining and operating the technology. Schedule delays while data is collected and interpreted (not real time monitoring).	Limited benefit as the technology relies on pygmy blue whale vocalisation, which is currently not well understood, particularly during foraging activities. Technology and applications still under development and not widely tested in field. Application limited due to lack of real time capability.	Cost/sacrifice outweighs benefit. Due to distance of PAA from pygmy blue whale migration and foraging BIAs, presence of PBWs carrying out opportunistic foraging activities in the area is expected to be low. It is not expected that an AUV would add significantly more value than opportunistic observations, to warrant deployment.	No
Manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the Trunkline Operational Area.	F: Yes. It is possible to carry out for vessels transiting within the Operational Area CS: will impact with longer transit times for vessels.	There is mounting evidence that reduction of vessel speeds can reduce vessel underwater noise emissions and increase the likelihood that fauna will be seen by vessels (and have more time to react) thereby	Benefits outweigh cost/sacrifice	C 4.8

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		reducing possibility of vessel strike. Where this control prevents impacts to humpback and pygmy blue whales at a population level, it maintains a culturally significant resource to a level that results in no observable change to coastal communities (migratory pathways maintained).		

ALARP Statement:

On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.1), Woodside considers the adopted controls appropriate to manage the potential impacts from noise emissions. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.1.4.3 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):

- Overall impact significance levels for individual receptors are less than the significant impact level defined in the OPP.
- EPOs in this EP are aligned with EPOs in the OPP (refer to Table 6 2)
- Controls in the OPP that are relevant to this EP Section have been adopted.
- Additional guidance on key terms within the CMP was issued in September 2021 and these were considered in the assessment against relevant actions in the CMP. The Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.
- There are no additional changes to internal/external context specific to this risk from the OPP, including issues raised during consultation.

Acceptability Statement:

The impact assessment has determined that the generation of noise from Project Vessels and positioning equipment is unlikely to result in an impact significance level greater than slight. EPBC Act requirements (principles of ESD; MNES significant impact guidelines; recovery plans, conservation advice and marine park management plans) have been considered during the impact assessment. The Petroleum Activities Program is not considered to be inconsistent with any relevant EPBC Act requirements, including the objectives, overall recovery objectives and actions of relevant recovery plans, conservation advice and management plans (Section 6.8.11).

The potential impacts are considered broadly acceptable if the adopted controls are implemented and EPO 10 has been applied to demonstrate the activities are not inconsistent with the Blue Whale Conservation Management Plan. Activities do not have a significant impact on MNES (Section 2.4.2). Therefore, Woodside considers the adopted controls appropriate to, manage the impacts of acoustic emissions to a level that is broadly acceptable; and demonstrate the EPOs are met.

Environmental Performance Outcomes, Standards and Measurement Criteria

EPO	Adopted Control(s)	EPS	MC
EPO 8	C 4.1	PS 4.1.1	MC 4.1.1

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>No injury of, or mortality to, EPBC Act 1999 and WA Biodiversity Conservation Act 2016 listed marine fauna as a result of noise generated by the Petroleum Activities Program.</p> <p>EPO 9 No displacement of marine turtles or pygmy blue whales from habitat critical during nesting/breeding (inc. interesting periods for turtles) and ensure biologically important behaviour can continue in biologically important areas.</p>	<p>EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures⁴⁷:</p> <p>vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone) and not approach closer than 100 m from a whale.</p> <ul style="list-style-type: none"> Vessels will not approach closer than 50 m for a dolphin and/or 100 m for a whale (with the exception of animals bow riding). If the cetacean shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. 	<p>Compliance with EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.05 and 8.06) Interacting with cetaceans.</p>	<p>Records demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans.</p> <p>MC 4.1.2 Records demonstrate reporting cetacean ship strike incidents to the DCCEEW.</p>
	<p>C 4.2 Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.</p>	<p>PS 4.2.1 When within 250 m of a whale shark, vessels will not travel greater than 6 knots and vessels will not approach closer than 30 m to a whale shark.</p>	<p>MC 4.2.1 Records demonstrate no breaches of speed requirements when within 250 m of a whale shark.</p>
	<p>C 4.3 Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.</p>	<p>PS 4.3.1 When within 300 m of a turtle, vessels will not travel greater than 6 knots.</p>	<p>MC 4.3.1 Records demonstrate no breaches of speed requirements when within 300 m of a turtle.</p>
	<p>C 4.4 Prior to commencing FPU installation and hook-up activities, use trained vessel crew on project vessels (LCV</p>	<p>PS 4.4.1 Trained vessel crew on LCV and AHTs vessels observe and record cetacean presence/activity when</p>	<p>MC 4.4.1 Records of sightings and locations of cetaceans.</p>

⁴⁷ For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability e.g. lifting, loading, back-loading, bunkering, close standby cover for overside working and emergency situations.

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	and AHTs) to watch for cetaceans when vessels are in the Operational Area and record presence/activity to the limit of visibility.	vessels in the Operational Area.	
	C 4.5 Where activities are undertaken during pygmy blue whale migration periods (April to July inc. and Oct to Jan inc.), only commence FPU positioning activities and mooring chain hook-up when there have been no sightings of pygmy blue whales for a period of at least 30 minutes.	PS 4.5.1 Commence FPU positioning activities and mooring chain hook-up only following no sightings of pygmy blue whales for a period of at least 30 minutes. <ul style="list-style-type: none">Observations to be made by trained vessel crew acting as MFO, carrying out a dedicated watch for 30 minutes in the area of planned activities.	MC 4.5.1 Records show dedicated PBW observation periods carried out as required.
	C 4.6 Communicate known or probable sightings of pygmy blue whales to other Scarborough vessels in the area.	PS 4.6.1 Sightings of known or possible pygmy blue whales communicated to other Scarborough vessels in the area.	MC 4.6.1 Records of communications kept in bridge log or similar.
	C 4.7 A SIMOPs management plan will be implemented during the FPU hook-up, commissioning and start-up phase (not during normal operations when vessel presence is minimal). The SIMOPs management plan will consider the scheduling of and distances between Scarborough activities, to reduce the behavioural response exposure range for cumulative noise.	PS 4.7.1 SIMOPS plan implemented during the FPU hook-up, commissioning and start-up phase.	MC 4.7.1 Records show SIMOPS plan implemented as required.
	C 4.8 Manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the Trunkline Operational Area.	PS 4.8.1 Vessel speeds in the Trunkline Operational Area are restricted ≤10kn: <ul style="list-style-type: none">When in the pygmy blue whale migration BIA during PBW migration periods (Apr-Jul & Oct-Jan inclusive)	MC 4.8.1 Records demonstrate vessel speeds, in the Trunkline Operational Area, transiting in whale BIAs in migratory seasons, were ≤ 10 knots or relevant vessel crew (i.e. vessel master, first officer / mate) were aware of and could comply with this requirement.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
		<ul style="list-style-type: none">When in the humpback whale migration BIA during migration periods (May – Aug and Aug – Oct inclusive).	

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Page 319 of 752

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6.7.5 Routine Acoustic Emissions: Routine Operations

Scarborough OPP – Relevant Impact Assessment Section																
Section 7.1.4 – Routine Acoustic Emissions																
Context																
Relevant Activities Vessel Operations – Section 3.11 FPU Operations – Section 3.9.7 IMMR Activities – Section 3.9.1.6				Existing Environment Protected Species – Section 4.6					Consultation Consultation – Section 5							
Impact/Risk Evaluation Summary																
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation								
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome		
Generation of noise from vessels and helicopters						✓		A	E	-	-	LCS GP	Broadly Acceptable	EPO 8, 9		
Generation of noise from FPU and subsea facilities during normal operations						✓										
Generation of acoustic signals from positioning equipment (transponders)						✓										
Generation of acoustic signals from geophysical sources during IMMR surveys						✓										

Description of Source of Impact/Risk
<p>Routine operation of the FPU will comprise a number of different acoustic emissions sources, primarily associated with infield vessel operations and support activities, such as geophysical surveys and other IMMR activities. Sound will also be associated with the operation phase of the FPU and subsea facilities. Acoustic emissions during FPU hook-up and commissioning are assessed in Section 6.7.4.</p> <p>Sound levels will fluctuate over the course of the Petroleum Activities Program; this will largely depend upon concurrent vessel activities. Generally, sound associated with steady state operations will be limited, with periodic and short-term increases in sound associated with IMMR, supply operations or gravimetry surveys.</p> <p>These acoustic sources will contribute to and have the potential to exceed ambient noise levels in the region. Mean ambient sound levels have been measured as 109 dB re 1 µPa sound pressure level (SPL) and 115 dB re 1 µPa SPL at locations near the Offshore Operational Area and at the continental shelf edge along the Trunkline Operational Area, respectively (Warren, 2022).</p>

Description of Source of Impact/Risk

Key acoustic sources associated with the Petroleum Activities Program are described below. Table 6-14 presents likely concurrent activities contributing to cumulative underwater noise levels. This has been used to inform the worst-case credible sound propagation scenarios for modelling as well as cumulative impact assessment as a result of concurrent operations, discussed below.

Continuous (Non-Impulsive) Sources

Support Vessels and Operation of DP

The Support Vessels will generate noise both in the air and underwater, due to the operation of thrusters, engines, propeller movement, etc (as described in Section 6.7.4).

Examples of vessels proposed to be used during routine operations are detailed in Section 3.11 Table 6-13. Those involved with FPU Operations, IMMR and Gravimetry Surveys include the FPU, support vessels, USV, and LCV.

Source levels for representative vessels are described in Table 6-13.

Table 6-13: Modelled broadband sound source levels for PAP during routine operations.

Vessel type and operation mode	Energy source level	Basis for source level estimation and source depth
Support Vessel under transit	177.8 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative Vessel (Fugro Etive) operating at 20% capacity
FPU	173.9 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative surrogate vessel derived from the average of measured levels of two Floating Production Storage Offload (FPSO) vessels, Ngujima and Nganhurra (Erbe et al. 2013).
LCV under DP	180.9 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative vessel (Deep Orient) (Quijano and McPherson, 2021)
Support Vessel or USV under DP	187.6 dB re 1 $\mu\text{Pa}^2\text{m}^2.\text{s}$	Representative Vessel (Fugro Etive) at 50% capacity

Operating FPU

The FPU will have machinery mounted on the decks raised above sea level. Machinery noise may be radiated into the underwater environment via the hull, with noise emitted to the air having limited input to underwater noise levels due to impedance at the sea surface (air/water boundary). Underwater source levels for the FPU were derived from the average of measured levels of two moored Floating Production Storage Offload (FPSO) vessels, Ngujima and Nganhurra, when thrusters and offtake activities were absent (Table 6-13).

The HP and LP flare system generate noise from combustion. Noise from flaring is emitted at the top of the flare tower, which is approximately 150 m above sea level. Noise from the tip of the flare is not constrained and spreads in all directions. Received levels from airborne propagation modelling were used to ascertain the underwater received levels during flaring activities for a drilling and subsea installation activity (Woodside, 2019b). Only a very small fraction of the acoustic energy produced from flaring will transmit through the air/water boundary due to the surface of water acting as a reflective plane and a significant component of acoustic energy reflecting back into the air. While underwater received sound pressure level during flaring is estimated to be 136 dB re 1 μPa at 1m below the sea surface it is estimated to attenuate to ambient levels within a very short distance (e.g. metres) and therefore is not considered further in the impact assessment.

Operating Wellheads, Export Trunkline and Subsea Infrastructure

The noise produced by an operational wellhead was measured by McCauley (2002). The broadband noise level was very low, 113 dB re 1 μPa , which is comparable to ambient noise levels. For a number of nearby wellheads, the sources would have to be in very close proximity (< 50 m apart) before their signals summed to increase the total noise field (with two adjacent sources only increasing the total noise field by three dB). Hence for multiple wellheads in an area, the broadband noise level in the vicinity of the wellheads would be expected to be of the order of 113 dB re 1 μPa and this would drop very quickly to ambient conditions on moving away from the wellhead, falling to background levels within 200 m from the wellhead.

Based on the measurements of wellhead noise discussed in McCauley (2002), which included flow noise in pipelines, noise produced along the trunkline may be expected to be similar to that described for wellheads, with the radiated noise field falling to ambient levels within 200 m of the trunkline.

Woodside has undertaken acoustic measurements on the noise generated by the operation of choke valves associated with the Angel facility on the North West Shelf (JASCO, 2015). These measurements indicated choke valve noise is continuous, and the frequency and intensity of noise emitted is dependent on the rate of production from the well. Noise intensity at low production rates (16% and 30% choke positions) were approximately 154-155 dB re 1 μPa , with higher production rates (85% and 74% choke positions) resulting in lower noise levels (141-144 dB re 1 μPa). Noise from

Description of Source of Impact/Risk

choke valve operation was broadband in nature, with the majority of noise energy concentrated above 1 kHz. Noise from choke valve operation was considered minor compared to noise generated by vessels using thrusters in the area. Given the low levels of noise emitted by subsea infrastructure such as wellheads, choke valves and pipelines, no significant impacts to marine fauna from these noise sources are expected. Measurements of noise generated by choke valves indicated it is relatively high frequency (>1 kHz), and hence it attenuates over relatively short distances in the water column; significant impacts to marine fauna are not considered credible and therefore not considered further in the impact assessment.

Helicopter Transfers

Helicopter activities will occur in the PAA, including landing and take-off on the FPU or vessel helidecks. Sound emitted from helicopter operations is typically below 500 Hz (Richardson et al., 1995). The peak received level diminishes with increasing helicopter altitude, but the duration of audibility often increases with increasing altitude. Richardson et al. (1995) reports that helicopter sound is audible in air for four minutes before it passed over underwater hydrophones, but detectable underwater for only 38 seconds at 3 m depth and 11 seconds at 18 m depth. Noise levels reported for a Bell 212 helicopter during fly-over was reported at 162 dB re 1 µPa and for Sikorsky-61 is 108 dB re 1 µPa at 305 m (Simmonds et al. 2004). Water has a very high acoustic impedance contrast compared to air, and the sea surface is a strong reflector of noise energy (i.e. very little noise energy generated above the sea surface crosses into and propagates below the sea surface (and vice versa) – the majority of the noise energy is reflected). The angle at which the sound path meets the surface influences the transmission of noise energy from the atmosphere through the sea surface, angles >13° from vertical being almost entirely reflected (Richardson et al., 1995). Given this, and the typical characteristics of helicopter flights within the PAA (duration, frequency, altitude and air speed), the opportunity for underwater noise levels to exceed the behavioural thresholds is not considered credible and is not assessed further in the impact assessment.

Non-routine Impulsive Noise Sources

Geophysical Surveys During IMMR Activities

The noise emitted during IMMR survey activities is generated by a combination of the survey equipment and the Support vessel. Geophysical survey activities may occur within the PAA during commissioning and routine operations. A range of geophysical sources can emit pulses (impulsive noise) with frequency outputs ranging from 10 Hz (low end of refraction system) to 900 kHz (side scan sonar). The survey methods may include multibeam echo sounders (MBES), side scan sonar (SSS) and sub-bottom profiler (SBP).

Most commercial SBPs are small, low-powered, high-resolution and shallow-penetrating systems, producing electrical pulses across a range of frequencies (Salgado Kent et al., 2016; Jiménez-Arranz et al., 2017). The instruments that could be used for the survey are expected to produce pulses of sound between approximately 50 Hz and 30 kHz with source levels between approximately 192 and 220 dB re 1µPa SPL at 1 m.

MBES and SSS are very high-frequency and high-resolution systems, producing short micro-pulses of sound at frequencies in the tens or hundreds of kilohertz. The high-frequency pulses of sound produced by MBES are focused within multiple highly directional and narrow beams, which form a fan shape directed at the seabed (Salgado Kent et al., 2016; Jiménez-Arranz et al., 2017). SSS also produces sound in a focussed swath directed at the seabed. The pulses of sound produced by these instruments are of such high frequency that they rapidly attenuate outside of the beam (Zykov, 2013).

An array of long baseline (LBL) and/or ultra-short baseline (USBL) transponders may be used for underwater positioning. Transponders typically emit pulses (impulsive noise) of medium frequency sound, generally within the range 21 to 31 kHz. The estimated SPL would be 180 to 206 dB re 1 µPa at 1 m (Jiménez-Arranz et al., 2017). Transmissions are not continuous but consist of short ‘chirps’ with a duration that ranges from 3 to 40 milliseconds. Transponders will not emit any sound when on standby. The operating frequency range is above the auditory range of low frequency cetaceans (peak hearing at 0.2-19 kHz; NMFS 2018), marine turtles and the majority of fish species (<1 kHz; Ladich, 2000; Popper et al., 2014), however dolphins have the capacity to hear the sound produced from LBL/USBL.

Cumulative Noise Sources

Concurrent activities contributing to cumulative underwater noise from vessel activities during routine operations are outlined in Table 6-14. The FPU will be supported by an offshore Support Vessel on an ongoing basis (Scenario 1), with the addition of an LCV during IMMR activities (Scenario 2). Other activities utilising single vessels (i.e. gravimetry survey) are not expected to contribute significantly to the cumulative noise footprint, due to their relatively small size, short activity duration and separation distances from other activities.

Table 6-14: Concurrent activities contributing to cumulative underwater vessel noise

Planned Concurrent Activities	Approximate Timing & Duration	Vessels/sources
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Description of Source of Impact/Risk		
FPU normal operations Support Vessel	Following start-up, vessels supporting the facility vary depending on vessel schedules and availability (duration: for the life of this EP)	FPU Offshore Support Vessel
FPU normal operations and IMMR activities Support vessels Subsea IMMR Activities	Subsea inspections. Approximate campaign length of 2 weeks at the FPU location (500 m radius) Maintenance: Intervention for repair or replacement must be carried out when equipment fails in service Repairs: From 105 to over 548 days Flowline pigging: Duration ~1 week per flowline; start date ~ 1 year after start-up Export trunkline pigging: Duration ~ 2 weeks; start date approximately ~ 1 year after start-up Gravimetry ~55 days per survey; approximately; 18-24 months post RFSU, and subsequently every 2-3 years	FPU Offshore Support Vessel Light Construction Vessel (LCV) Uncrewed Surface Vessel (USV)

Detailed Impact Assessment
Assessment of Potential Impacts
<p>Receptors</p> <p>The PAA comprises the Offshore Operational Area and the Trunkline Operational Area. The Offshore Operational Area is located in water depths of approximately 900–1000 m (refer to Section 3.3). The fauna associated with this area will be predominantly pelagic species of fish, with migratory species such as cetaceans and marine turtles potentially occurring in the area seasonally (Section 4.6). Fauna associated with the Trunkline Operational Area includes both pelagic and demersal species of fish. Noise interference is a key threat to a number of migratory and threatened cetaceans and marine turtles identified as potentially occurring within the Offshore Operational Area, including the pygmy blue whale (PBW). The Trunkline Operational Area extends from the Offshore Operational Area, across Commonwealth Waters to the boundary with WA State Waters. The fauna associated with the Trunkline Operational Area includes both pelagic and demersal species of fish. Additional migratory species associated with the Trunkline Operational Area include migrating humpback whales, and marine turtle aggregation areas near to State waters and the coastline (Section 4.6). Relevant actions included in recovery plans for these species are outlined in Section 6.9.3. The key BIAs within the PAA include:</p> <ul style="list-style-type: none"> • PBW migration BIA (overlapping the Trunkline Operational Area; 35 km east of the Offshore Operational Area) • Humpback whale migration BIA (overlapping the Trunkline Operational Area; 156 km south-east of the Offshore Operational Area) • a number of marine turtle interesting BIAs and Habitat Critical areas (overlapping the Trunkline Operational Area; greater than 165 km east of the Offshore Operational Area). <p>Potential effects of sound on marine fauna, including hearing sensitivity are described in Section 6.7.4.</p> <p>Acoustic Modelling</p> <p>As described in Section 6.7.4, to assess the potential magnitude and extent of impacts from underwater noise produced during routine operations, Woodside commissioned JASCO Applied Sciences (JASCO) to model sound propagation for a range of concurrent operations and vessel scenarios. The modelling study (Stephen et al., 2023) considered specific components of the Petroleum Activities Program for representative scenarios within the PAA. The modelled scenarios presented in Table 6-6 (Section 6.7.4), include several permutations of concurrent activities that may occur during routine operations (Scenarios 5 to 7) as follows:</p> <ul style="list-style-type: none"> • Scenario 5: FPU operating and anchored (24 hrs) • Scenario 6: FPU operating and anchored (24hrs), resupply OSV under DP (8hrs) • Scenario 7: FPU operating and anchored, ASV under DP (24hrs), LCV under DP (8hrs). <p>The modelling study specifically assessed distances from operations where underwater sound levels were predicted to reach thresholds corresponding to potential behavioural response, TTS and PTS. The animals considered here included low-frequency (LF), high-frequency (HF) cetaceans, turtles, and fish including fish larvae and eggs. Further details on the modelling methodology are provided in Section 6.7.4.</p>

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Detailed Impact Assessment

Marine Mammals/Cetaceans

Eight cetacean species may be present within the PAA, including LF cetaceans such as pygmy blue whales, and HF cetaceans such as sperm whales and orcas (Section 4.6.3).

Species with BIAs (Section 4.6.3) that intercept the Trunkline Operational Area are:

- pygmy blue whale – migration BIA occurs in deeper waters of the Trunkline Operational Area
- humpback whale – migration BIA occurs in the nearshore waters of Trunkline Operational Area.

Species Sensitivity and Sound Exposure Thresholds

Thresholds that could result in a behavioural response, TTS and PTS for cetaceans as a result of continuous and impulsive noise sources are presented in Table 6-7 in Section 6.7.4.

Results – Acoustic Modelling

Modelling of cumulative sound propagation from all modelled scenarios are presented in Section 6.7.4. Results for Scenarios 5 to 7 of relevance to routine operations are also presented below for ease of reference (Table 6-15). As described in Section 6.7.4., in October 2024, the U.S National Oceanic and Atmospheric Administration (NOAA) issued Technical Memorandum NMFS-OPR-71 which was a 2024 update to *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (V 3.0)*. The memo contains updated underwater and in-air criteria for onset of auditory injury and temporary threshold shifts, and relevant to the noise modelling originally conducted for this EP (Stephen et al., 2023) means that thresholds for LF and HF cetaceans changed as shown in Table 6-7.

To better understand the impacts of the change in these sound exposure thresholds, Woodside commissioned Jasco to re-model two of the conservative scenarios (4 and 7) with the new criteria. Scenario 4 was chosen to represent the credible worst-case noise scenario for FPU hookup and installation while Scenario 7 was chosen to represent worst-case noise during commissioning and is also a scenario that may be realised during operations.

A decision was made to only remodel these two conservative scenarios (instead of remodelling all the scenarios), because they represent the worst case credible noise propagation (as shown by original modelling results in Table 6-8 and reducing impacts based on these noise emissions to ALARP and Acceptable levels means that the other scenarios producing lower noise levels will also be ALARP and Acceptable. The changes to the thresholds are not significant enough to warrant remodelling all scenarios, and investigation of the worst case noise scenarios was considered adequate to understand impact of the threshold change.

The new thresholds relate to PTS and TTS onset, with behavioural response thresholds remaining the same for continuous noise. Results for Scenario 7 using the new thresholds are discussed below, however impact assessment relating to behavioural response remains unchanged.

The results from the remodelled scenarios are presented in Table 6-9: Maximum predicted horizontal distances (Rmax) to updated permanent and temporary threshold shift and behavioural response thresholds in cetaceans for Scenarios 4 and 7:

Scenarios 5 and 6 are representative of normal operations, with Scenario 7 representative of IMMR activities in proximity to the FPU. The three scenarios recorded a maximum distance to behavioural disturbance onset of 680 m, 4.91 km and 5.02 km respectively for LF and HF cetaceans. For LF cetaceans the modelling predicted a TTS onset distance of 100 m, 490 m and 740 m respectively for Scenarios 5, 6 and 7 and a PTS onset distance of 60 m and 50 m respectively for Scenarios 6 and 7 only.

Remodelling of Scenario 7 using the new thresholds for PTS and TTS onset showed that distance to LF cetacean TTS for Scenario 7 increased from 740m to 940m (or 27%). With the reduction in PTS threshold for LF cetaceans from 199 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ to 197 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$, the maximum horizontal distance to threshold increased for Scenario 7 from 50m to 70m (a 40% increase).

While the threshold changes have resulted in increases to PTS and TTS maximum horizontal distances, due to the location of the Offshore Operational Area and nature of cetacean use of the area; impact assessment carried out for results from the original modelling is still valid (described below). Scenario 7 is still representative of the worst case credible scenario for noise propagation during normal operations.

For HF cetaceans, TTS onset could occur at a distance of up to 60 m for Scenario 6.. The PTS threshold for HF cetaceans was not reached within the limits of the modelled resolution (20 m) for any scenario modelled.

The SEL_{24h} criterion used for calculating the potential for TTS and PTS impacts is a cumulative metric that reflects the dosimetric impact of sound energy accumulated over a 24-hour period and assumes that an animal is consistently exposed to such noise levels at a fixed location. The radii that correspond to SEL_{24h} therefore represent an unlikely worst-case scenario for SEL-based exposure since, more realistically, marine fauna would not stay in the same location or at the same range for 24-hours (Stroot et al., 2023). It is highly unlikely that PTS and TTS thresholds would be exceeded and furthermore it is highly unlikely given the known movement behaviour of cetaceans including key migrating LF whale species such as the PBW transiting through the PAA.

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Table 6-15: Maximum predicted horizontal distances (R_{max}) to permanent and temporary threshold shift and behavioural response thresholds in cetaceans

Hearing group	Sound exposure threshold (Southall et al., 2019)	Updated Sound exposure thresholds (NMFS 2024)	Scenario 5 (FPU)	Scenario 6 (FPU, OSV)	Scenario 7 (FPU, ASV, LCV)	Scenario 7 Updated thresholds (NMFS 2024)
			R _{max} (km)	R _{max} (km)	R _{max} (km)	R _{max} (km)
PTS						
LF cetaceans	199 dB re 1 μPa ² .s (SEL _{24h})	197 dB re 1 μPa ² .s (SEL _{24h})	-	0.06	0.05	.07
HF cetaceans	198 dB re 1 μPa ² .s (SEL _{24h})	201 dB re 1 μPa ² .s (SEL _{24h})	-	-	-	-
TTS						
LF cetaceans	179 dB re 1 μPa ² .s (SEL _{24h})	177 dB re 1 μPa ² .s (SEL _{24h})	0.1	0.49	0.74	0.94
HF cetaceans	178 dB re 1 μPa ² .s (SEL _{24h})	181 dB re 1 μPa ² .s (SEL _{24h})	-	0.06	0.02	0.17
Behavioural response						
LF/HF cetaceans	120 dB re 1 μPa (SPL)	120 dB re 1 μPa (SPL)	0.68	4.91	5.02	5.02

A dash indicates the level was not reached within the limits of the modelled resolution (20 m).

Impact Assessment – Vessel Noise Impacts

Pygmy Blue Whale BIAs

The Blue Whale Conservation Management Plan (Action Area 2) states that anthropogenic noise in BIAs should be managed such that any blue whale continues to utilise the area without injury (Commonwealth of Australia, 2015a). Although TTS in cetaceans has previously been regarded as hearing impairment, not injury, advice from DCCEW (DAWE 2021) is that TTS should be considered a form of injury to PBW and this should be prevented within the BIAs.

As described in **Section 4.6.3**, the PBW migration BIA represents the area of core migratory routes for pygmy blue whales. The migration BIA is about 35 km from the Offshore Operational Area where ongoing operational noise from the FPU will occur. There is no potential for PTS or TTS impacts from FPU noise in the migration BIA as demonstrated by the modelling presented above, given the maximum distance to TTS impact is 940 m for the worst-case scenario (Scenario 7), using updated TTS thresholds.

As demonstrated by the acoustic modelling, it is reasonable to expect that cetaceans may demonstrate avoidance or attraction behaviour to the noise generated by the Petroleum Activities Program. With respect to the western extent of the pygmy blue whale distribution range that overlaps the Offshore Operational Area, as described in **Section 4.6.3**, the likelihood of encountering migrating or foraging PBWs is considered low. There is likely to be occasional individual or small groups transiting through the distribution range during the northbound or southbound migration seasons. The worst-case cumulative vessel scenarios modelled for FPU operations (e.g. Scenario’s 5 to 7) predict potential behavioural disturbance up to 5 km from the source. The Offshore Operational Area is surrounded by open water, with no restrictions (e.g. shallow waters, embayments) to an animal’s ability to avoid the activities. Consequently, any PBWs transiting through the area, may deviate slightly from their migration route, but can continue on their migration pathway without any likely biologically significant impacts. Potential behavioural disturbance to PBWs within the distribution range is most likely to occur during migratory periods, with the highest likelihood of impacts occurring during the peak northbound (April to July [peak: May and June]) and southbound (October to January [peak: November]) migratory seasons.

Impact Assessment – IMMR Activities

Acoustic modelling of sub-bottom profilers by Zykov (2013), MacGillivray et al. (2013) and McPherson and Wood (2017), indicates limited horizontal sound propagation outside of the main directional beams of sound. The modelling studies also indicate that PK and SEL_{24h} thresholds for PTS are not exceeded. The potential for TTS resulting from single pulse PK pressure exposure is not predicted to occur, while the potential for TTS resulting from SEL_{24h} exposures is limited

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Detailed Impact Assessment

to a few metres from the moving sound source (Zykov, 2013; McPherson and Wood 2017), which is not considered to be a credible exposure for mobile marine fauna. Exceedance of the 160 dB re 1 μ Pa SPL behavioural response threshold for impulsive sound is limited to within a few tens of metres in most instances, or up to a maximum of 150 m depending upon which instrument is used, water depth and the seabed sediment characteristics (Zykov, 2013; McPherson and Wood 2017).

The very high-frequency micro-pulses of sound produced by MBES and SSS during seabed surveys rapidly attenuate outside of the beam (MacGillivray et al., 2013; Zykov, 2013). The high operating frequencies of these instruments also places the majority of sound frequencies above the principal auditory range of most marine fauna species. Dolphins and other mid-frequency cetaceans, which have peak hearing sensitivity up to 110 kHz, with potential for some limited hearing ability up to approximately 160 kHz (NMFS 2018), may be able to detect a small amount of the sound energy from some survey instruments in the lower operating frequency ranges (MacGillivray et al., 2013; Zykov, 2013). The propagation of the high frequency sound from MBES and SSS has been undertaken by Zykov (2013) and MacGillivray et al. (2013). The modelling results indicate that the sound emissions outside of the main beams are below the threshold levels for potential injury, PTS or TTS. Sound levels that may result in behavioural effects are likely limited to within tens of metres, but potentially up to a few hundreds of metres from the sound source for some mid-frequency cetaceans such as dolphins (Zykov, 2013; MacGillivray et al., 2013). Varghese et al. (2020) recently studied the foraging behaviours and vocalisations of beaked whales (mid-frequency cetaceans) to 12 kHz MBES surveys and concluded there was not a consistent change in foraging behaviour during the MBES surveys that would suggest a clear response. The animals did not leave the area nor stop foraging during MBES activity. Geophysical and other survey activities using this technology or similar are therefore expected to result in temporary behavioural effects to marine mammals within tens or hundreds of metres from the survey activities. Such localised effects are smaller than those expected from the vessels and are not expected to be biologically significant.

Positioning transponders (USBL, LBL) also produce mid to high frequency sound, which may only be audible to dolphins and other mid-frequency cetaceans. The USBL has lower source levels than the other instruments proposed for geophysical surveys and is not expected to result in any injury or hearing impairment. Some localised behavioural effects may occur in close proximity to the USBL, but the extent of any effect is expected to be smaller than that of other survey instruments and so the effects are considered to be negligible. Based on empirical spreading loss estimates measured by Warner and McCrodan (2011), received levels from USBL transponders are expected to exceed the cetacean behavioural response threshold for impulsive sources out to about 42 m. Given the short-duration chirps and the mid frequencies used by positioning equipment, the acoustic noise from a single transponder is unlikely to have any substantial effect on the behavioural patterns of marine fauna. Therefore, potential impacts from transponder noise are likely to be restricted to temporary and localised avoidance behaviour of individuals transiting through the PAA, and therefore are considered localised with no lasting effect.

Pygmy Blue Whale BIAs

The Trunkline Operational Area intersects the PBW migration BIA (from KP200 to KP375), and also overlaps with the broader pygmy blue whale distribution range. Considering the overlap with the Trunkline Operational Area, as well as the recorded presence and satellite tracking of both north and south bound tagged individuals in the area (Thums et al. (2022), it is likely that transient individuals or small groups are occasionally in and around the Trunkline Operational Area during migratory north and south seasons (April to July and October to January, respectively) (McCauley, 2011; Gavrilov et al., 2018; Thums et al., 2022). Significant numbers of pygmy blue whales are not expected to be encountered, particularly outside peak periods for northbound or southbound migrations (Figure 4 10).

While the Trunkline Project Area overlaps part of the PBW migration BIA, there is no overlap with known or possible foraging areas for the species, as defined in the Blue Whale Conservation Management Plan (CMP). In September 2021, the Department of Agriculture, Water and the Environment (DAWE) (now known as DCCEEW) published guidance on key terms within the CMP, which provided a definition of 'a foraging area' and noted the potential for opportunistic foraging and feeding to occur outside these designated foraging areas. PBW's may engage in opportunistic foraging during both northbound and southbound migrations, so there is the potential for this activity to occur in the Trunkline Project area, particularly where it overlaps the migration BIA.

While a PTS or TTS impact is possible in close proximity to a single IMMR vessel operating within the PBW migration BIA within the Trunkline Operational Area, PTS and TTS criteria exceedances are based upon exposure for 24-hours by a stationary receptor, which is not a realistic scenario. As described above, the SEL_{24h} criterion is a cumulative metric that reflects the dosimetric impact of sound energy accumulated over a 24-hour period and assumes that an animal is consistently exposed to such noise levels at a fixed location. The radii that correspond to SEL_{24h} therefore represent an unlikely worst-case scenario for SEL-based exposure since, more realistically, marine fauna would not stay in the same location or at the same range for 24-hours (Stroot et al., 2023). PTS and TTS thresholds are therefore unlikely to be exceeded for cetaceans transiting through the PAA. This aligns with The Blue Whale Conservation Management Plan (Action Area 2), which states that anthropogenic noise in BIAs should be managed such that any blue whale continues to utilise the area without injury (Commonwealth of Australia, 2015a).

Behavioural disturbance from an IMMR vessel operating along the trunkline may also result in some behavioural disturbance resulting in slight deviation of individuals. However, effects are expected to be minimal based on a single vessel operating for a short period in any given area along the trunkline route.

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Detailed Impact Assessment

Humpback Whale BIA

Humpback whales are expected to be encountered during IMMR activities along the trunkline, particularly should these activities occur during annual migrations (July [northbound] and late August/September [southbound]). PTS and TTS impacts are not considered credible, as discussed above for PBWs. Behavioural response may result in a deviation in course during migration, which is expected to be insignificant in the context of the long distances over which individuals migrate (thousands of kilometres). Marine mammals that are frequently exposed to sounds such as vessel noise may also habituate and adapt to this noise (Richardson et al. 1995; NRCC, 2003). This may be the case for the humpback whale population that regularly passes through areas of significant shipping traffic during their migrations. Overall, the impact significance level for Marine mammals/Cetaceans has been identified as Slight (E).

Marine Reptiles

Five species of marine turtle may occur in the PAA: flatback, green, hawksbill, loggerhead and leatherback turtles. The Trunkline Operational Area overlaps interinteresting Habitat Critical and interinteresting buffer BIAs for the flatback, green and hawksbill turtle around the Dampier Archipelago and Montebello Islands (Section 4.6.2).

Species Sensitivity and Thresholds

As discussed in Section 6.7.4, turtles have been shown to respond to low frequency sound, with indications that they have the highest hearing sensitivity in the frequency range 100–700 Hz (Bartol and Musick, 2003). Lenhardt (1994) observed marine turtles avoiding low-frequency sound.

Sound exposure thresholds and criteria for continuous sound sources (e.g. vessel noise) and impulsive sources (e.g. transponders) applicable to marine turtles are summarised in Table 6-10 of Section 6.7.4.

Results – Acoustic Modelling

Modelling of cumulative sound propagation from all modelled scenarios are presented in Section 6.7.4. Results for Scenarios 5 to 7 of relevance to routine operations are also presented below for ease of reference (Table 6-16).

As described in the acoustic modelling for cumulative vessel noise, based on the application of the multiple SEL_{24h} thresholds (Finneran et al., 2017), PTS for turtles was not predicted to occur within the modelling resolution (20 m), and turtles could potentially experience TTS within 60 m in the worst case scenario (Scenario 6) which is limited to the Offshore Operational Area (Table 6-16). However, marine turtles within the Offshore Operational Area are expected to be transient, and unlikely to remain with 60 m of the vessels for 24-hours, and therefore PTS and TTS thresholds are not expected to be reached. Behavioural impacts to marine turtles from continuous noise sources generated by the Petroleum Activities Program are expected to be short-term and localised as described below.

Table 6-16: Maximum predicted horizontal distances (R_{max}) to permanent and temporary threshold shifts in marine turtles

Hearing group	Sound exposure threshold	Scenario 5 (FPU)	Scenario 6 (FPU, OSV)	Scenario 7 (FPU, ASV, LCV)
		R _{max} (km)	R _{max} (km)	R _{max} (km)
PTS				
Marine Turtles	220 dB re 1 μPa ² .s (SEL _{24h})	-	-	-
TTS				
Marine Turtles	200 dB re 1 μPa ² .s (SEL _{24h})	-	0.06	0.05

N.B. A dash indicates the threshold was not reached within the limits of the modelling resolution (20 m).

Impact Assessment – Vessel Noise Impacts

The Recovery Plan for Marine Turtles (Commonwealth of Australia, 2017) notes there is limited information available on the impact of noise on marine turtles and that the impact of noise on turtle stocks may vary depending on whether exposure is short (acute) or long-term (chronic). However, given the thresholds outlined in Table 6-16, it is reasonable to expect that marine turtles may demonstrate avoidance or attraction behaviour to the noise generated by the Petroleum Activities Program.

There are no marine turtle BIAs or Habitat Critical within 160 km of the Offshore Operational Area, and given the water depths and distance from shore, this area does not represent suitable foraging or interinteresting habitat. Marine turtle presence the Offshore Operational Area is therefore expected to be infrequent, and potential impacts from predicted noise levels from the Vessels and transponders are not considered to be ecologically significant at a population level.

Helicopter noise when on the sea surface may impact turtles (e.g. when basking or breathing). Typical startle responses occur at relatively short ranges (tens of metres) (Hazel et al., 2007) and as such, startle responses during typical

Detailed Impact Assessment

helicopter flight profiles are considered to be remote. In the event of a behavioural response to the presence of a helicopter, turtles are expected to exhibit diving behaviour, which is of no lasting effect.

Potential impacts from routine acoustic emissions on marine turtles are expected to be limited to behavioural impacts within a localised area around the FPU and Vessels, with no lasting effect.

Impact Assessment – IMMR Activities

Turtles may occasionally be present in deeper waters of the Trunkline Operational Area but are more likely to be encountered closer to the Dampier Archipelago where they may be present foraging year-round. Increased numbers of marine turtles may be present, albeit still in low numbers within the Trunkline Operational Area, during interesting periods. Vessel activities within the Trunkline Operational Area are limited to IMMR (**Section 3**), which typically does not involve cumulative noise sources and are performed infrequently with a limited duration (e.g. weeks) reducing the potential for impacts at the individual and population level.

The islands of Dampier Archipelago provide nesting beaches for flatback, green, hawksbill and loggerhead turtles, with Rosemary Island being a major rookery for hawksbill turtles in WA. A study of interesting movements of individuals nesting on the Dampier Archipelago has not been conducted, however, tracking studies at other islands (Barrow and Thevenard) suggest interesting flatback turtles remain in shallow water, close (< 3 km) to nesting beaches (Whitlock et al., 2014). The Trunkline Operational Area overlaps interesting Habitat Critical to the survival of flatback turtles, which is also designated a BIA. However, it is noted that the defined BIA and Habitat Critical are considered very conservative as they are based on the maximum range of interesting females and many marine turtles are more likely to remain near their nesting beaches. There is no evidence to date to indicate flatback turtles swim out into deep offshore waters during the interesting period.

PTS and TTS impacts are not considered credible as a result of vessel IMMR activities in the Trunkline Operational Area as turtles are expected to be transient and unlikely to remain in close proximity to a vessel for long periods. Behavioural impacts to marine turtles from continuous noise sources generated by the Petroleum Activities Program are expected to be short-term and localised.

Sound levels that are likely to be produced by various different SBP instruments are predicted to fall below the 166 dB re 1 µPa SPL threshold within a few metres or tens of metres (Zykov, 2013; McPherson and Wood 2017). The high-frequency sounds produced by the MBES, SSS and USBL are expected to be above the auditory range of marine turtles and so behavioural impacts are not expected to occur.

Potential impacts from predicted noise levels from IMMR Support Vessels and activities are not considered to be ecologically significant at a population level. Overall, the impact significance level for Marine reptiles has been identified as Slight (E).

Fish, Sharks and Rays

A number of demersal and pelagic fish species will be present within the PAA. However, given species richness has been shown to correlate with habitat complexity (Gratwicke and Speight, 2005), it is unlikely that the sand/silt sediments that comprise the largest proportion of the PAA will support a wide diversity of species. Migratory species such as whale sharks may be present, particularly given a BIA for foraging overlaps the Trunkline Operational Area (~KP 72 to KP 199).

Species Sensitivity and Thresholds

A detailed description of fish acoustic sensitivity and thresholds is presented in Section 6.7.4. As fish physiology is closely correlated with acoustic sensitivities, Popper et al. (2014) has developed sound exposure guidelines for fish; these are presented Table 6-12 in Section 6.7.4 and are considered appropriate to assess continuous acoustic discharges to fish from the Petroleum Activities Program.

Impact Assessment – Vessel Noise Impacts

The acoustic modelling of cumulative vessel noise in the Offshore Operational Area did not find any scenarios with the potential to cause injury to fish species with a swim bladder involved in hearing. TTS effects could occur within 70 m of the vessels if the fish remained within this distance for 12-hours in the worst-case scenario, however this is highly unlikely given the mobility of fish species and known behaviours that would reduce long exposure periods required to cause TTS.

Potential impacts to demersal and pelagic fish and sharks/rays are expected to be limited to a behavioural response. Behavioural responses are expected to be short-lived, with duration of effect less than or equal to the duration of exposure. While fish may initially be startled and move away from the sound source, once the source moves on fish would be expected to move back into the area. Potential impacts from predicted noise levels from the Vessels and FPU Operations are not considered to be ecologically significant at a population level.

Impact Assessment – IMMR Activities

The potential for injury or TTS effects to fish resulting from single impulse PK or accumulated exposures to SBP, MBES and SSS sound is limited to within 1–2 m beneath or to the side of the sound source (Zykov, 2013; McPherson and Wood 2017). Single impulse exposures at this range are highly unlikely to occur and accumulated exposures over several hours at this range are not credible.

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Detailed Impact Assessment

Transponders used for positioning during IMMR activities typical operate at frequencies of 21 to 31 kHz which is well outside the hearing frequency range of fish. Therefore, no impacts are considered credible.

The Trunkline Operational Area overlaps a small proportion of the foraging BIA for whale sharks between about KP 72 and KP 199 and therefore they may be seasonally present between March and November (with the annual peak aggregation at Ningaloo Reef between April and May), as demonstrated by acoustic detections of tagged whale sharks at the North Rankin A and Goodwyn A platforms during two periods—June to July and October to January (Thomson et al. 2021). This overlap represents a very small proportion of the overall area of the BIA (0.22%), and the Trunkline Operational Area is located at least 215 km from the whale shark foraging (high density prey) BIA adjacent to Ningaloo Reef. Behavioural disturbance to whale sharks as a result of vessel or survey noise from IMMR activities along the export trunkline may result in a temporary deviation on their migration route, which covers a wide area and is not spatially restricted.

Commercial Fish Spawning

Key spawning periods for key indicator commercial fish on the NWS are described in Section 6.7.4. The potential impact of acoustic emissions on demersal and pelagic fishes is expected to be limited to a short-lived behavioural response confined to a few hundred metres from the Vessels. As such, the potential for the Petroleum Activities Program to impact spawning of key indicator commercial fish species is assessed as being extremely low.

Potential impacts from acoustic emissions on fish, sharks and rays are likely to be restricted to localised and temporary avoidance behaviour while transiting through the PAA, and individuals impacted are unlikely to represent a significant proportion of the population with the PAA and the NWS region overall. As such, the impact significance level for Fish, Sharks and Rays has been identified as Slight (E).

AMPs

The North-west Marine Parks Network Management Plan (DNP, 2018a) lists the natural values of the Montebello AMP as including a range of threatened, migratory, marine or cetacean species listed under the EPBC Act, as well as BIAs that include seasonal breeding habitat for seabirds, internesting habitat for marine turtles, a migratory pathway for humpback whales and foraging habitat for whale sharks. The Montebello AMP also includes foraging, mating, and nesting habitat for marine turtles.

For IMMR activities occurring along the export trunkline within the Montebello Marine Park the short-term and transient nature of activities associated with acoustic emissions will not be inconsistent with the objective of the Multiple Use Zone (VI) to provide for ecologically sustainable use and the conservation of ecosystems, habitats and native species, or for the Habitat Protection Zone (IV) to provide for the conservation of ecosystems, habitats and native species in as natural a state as possible, while allowing activities that do not harm or cause destruction to seafloor habitats. The values identified for the Montebello AMP, including BIAs, for marine turtles will not be impacted given the significant distance from sensitive locations. Additionally, the approved conservation advice for whale sharks (TSSC 2015) does not list acoustic emissions as a potential threat to whale sharks. Therefore, no impacts are expected to the cultural values of the AMP as those are intrinsically linked to the natural values described above. Impacts from acoustic emissions are therefore not inconsistent with the objectives of the North-west Marine Parks Network Management Plan or the zoning of the Montebello AMP (DNP, 2018a). As such, the impact significance level for Fish, Sharks and Rays has been identified as Slight (e).

Cumulative impacts

Cumulative impacts for activities within the scope of this Petroleum Activities Program have been assessed above.

As described in Section 6.2.1, there is potential for drilling operations related to the Scarborough Drilling and Completions EP to occur at the same time as routine FPU operations, within the Offshore Operational Area.

As described in Section 6.7.5, underwater noise from a MODU and any supporting vessels associated with the Scarborough D&C activities are expected to have an overall combined source level of 192 dB re μ Pa (rms SPL). When considered cumulatively with activities planned to occur as part of routine operations (e.g., FPU, support vessel and Gravimetry or IMMR vessel under DP), no cumulative noise scenario was assessed as having the potential to result in impacts greater than those described as part of the FPU Hook up and Commissioning Noise, assessed in Section 6.7.5. Refer to this assessment for worst-case credible cumulative noise impact from concurrent operations.

Any cumulative impacts will be limited to the temporary duration of the D&C activities.

Summary of Assessment Outcomes

<i>Receptor</i>	<i>Impact</i>	<i>Receptor Sensitivity Level</i>	<i>Magnitude</i>	<i>Impact Significance Level</i>
Ambient noise	Change in ambient noise	Low value (open water)	No lasting effect	Negligible (F)

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Detailed Impact Assessment				
Marine mammals	Change in fauna behaviour.	High value species (i.e. pygmy blue whale)	No lasting effect	Slight (E)
Marine reptiles		High value species (i.e. flatback, green, hawksbill or loggerhead turtles)	No lasting effect	Slight (E)
Fish, sharks and rays	Change in fauna behaviour.	High value species	No lasting effect	Slight (E)
AMPs	Hearing impairment to fauna	High value species	No lasting effect	Slight (E)
<p>Overall Impact Significance Level: The overall impact significance level for routine acoustic emissions is Slight (E) based on no lasting effect to the high value receptors (marine mammals, reptiles and fish). The impact significance levels for individual receptors are consistent with the level in the OPP.</p> <p>Based on the assessment above, the implementation of controls and the absence of any TTS effects within the pygmy blue whale migration BIA, and no impact to the foraging BIA, the potential impacts of noise emissions from the activity on cetaceans are considered to be slight and short-term. Impacts to cetaceans are likely to be restricted to temporary behavioural changes (avoidance) in individuals moving through the PAA, with predicted noise not considered likely to cause injury effects. This is not inconsistent with the Blue Whale Conservation Management Plan (Section 6.9.3).</p>				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures ⁴⁸ : <ul style="list-style-type: none"> Vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone) and not approach closer than 100 m from a whale. Vessels will not approach closer than 50 m for a dolphin and/or 100 m for a whale (with the exception of animals bow riding). If the cetacean shows signs of being disturbed, Vessels will immediately withdraw from the caution zone at a 	F: Yes. CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around cetaceans can potentially reduce the underwater noise footprint of a vessel and lower the likelihood of interaction above significant thresholds.	Controls based on legislative requirements – must be adopted.	Yes C 4.1

⁴⁸ For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability e.g. lifting, loading, back-loading, bunkering, close standby cover for overside working and emergency situations.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
constant speed of less than 6 knots.				
Good Practice				
Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	F: Yes. CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around whale sharks can potentially reduce the underwater noise footprint of a vessel.	Legislative control for State waters, Whale Shark Interaction Protocol, being adopted for the Petroleum Activities Program.	Yes C 4.2
Vessels will not travel greater than 6 knots within 300m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.	F: Yes CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around turtles can potentially reduce the underwater noise footprint of a vessel.	Benefits outweigh cost/sacrifice. Good Practice.	Yes C 4.3
Have a dedicated experienced and trained Marine Fauna Observer (MFO) onboard vessels to undertake marine fauna observations.	F: Yes CS: Cost of MFO hire and occupancy of bed-space on vessel(s) which may be limited or displace required crew.	Use of a dedicated MFO may detect fauna in the area, however, benefit of increased sightings is limited by follow-on controls to be carried out by vessel.	Limited benefit due to no adaptive management or sightings-based vessel action.	No
Professional Judgement – Eliminate				
Stop DP operations if a PBW is sighted.	F: This may be possible for vessels transiting between activity locations, but when undertaking activities, the generation of noise from these sources cannot be eliminated due to operating requirements. Note that vessels operating on DP may be a safety critical requirement. CS: Time/Cost associated with interrupting construction activities.	Ceasing vessel DP operations will reduce the potential for TTS effects to occur if a PBW stays within range of vessels for an extended period.	Grossly disproportionate. Implementation of the control requires considerable cost with minimal environmental benefit, given that PTS and TTS are not credible. Evidence suggests that the likelihood of encountering a migrating or foraging PBW within the Operational Area is considered low, and it is highly unlikely that PBW would spend sufficient time within range of vessel operations to encounter PTS or TTS.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
			The cost/sacrifice outweigh the benefit gained.	
Professional Judgement – Substitute				
None identified				
Professional Judgement – Engineered Solution				
Reduce vessel speed in the Operational Area to reduce vessel noise propagation.	F: Yes. CS: Increased vessel transit times, potential schedule delays and impact to subsequent activities.	During operations, vessels undertaking IMMR or supply activities will already be subject to operational speed restrictions when within proximity of the FPU for safety reasons. Additionally, whilst vessels are operating in the trunkline operational area vessels will operate on DP or at low speeds for safety. During transit to and from the operational area, vessels will often transit by the shortest and most efficient direct route from which is outside of the operational area and is therefore outside the scope of this EP. There is no further risk reduction from the application of this control.	Given the slow speeds at which vessels operate, the likely presence of marine fauna in the Operational Area and the controls currently in place the adoption of this control offers no further reduction in risk.	No
Manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the Trunkline Operational Area.	F: Yes. It is possible to carry out for vessels transiting within the Operational Area CS: will impact with longer transit times for vessels.	There is mounting evidence that reduction of vessel speeds can reduce vessel underwater noise emissions and increase the likelihood that fauna will be seen by vessels (and have more time to react) thereby reducing possibility of vessel strike. Where this control prevents impacts to humpback and pygmy blue whales at a population level, it maintains a culturally significant resource to a level that results in no observable change to coastal communities (migratory pathways maintained).	Benefits outweigh cost/sacrifice	C 4.8

ALARP Statement:

On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, **Section 2.3.3**), Woodside considers the adopted controls appropriate to manage

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
the potential impacts from noise emissions. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.				
Demonstration of Acceptability				
Acceptability Criteria and Assessment				
<p>Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.1.4.3 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):</p> <ul style="list-style-type: none"> • Overall impact significance levels for individual receptors are less than the significant impact level defined in the OPP. • EPOs in this EP are aligned with EPOs in the OPP (refer to Table 6 2) • Controls in the OPP that are relevant to this EP Section have been adopted. • Additional guidance on key terms within the CMP was issued in September 2021 and these were considered in the assessment against relevant actions in the CMP. The Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan. • There are no additional changes to internal/external context specific to this risk from the OPP, including issues raised during consultation. 				
<p>Acceptability Statement:</p> <p>The impact assessment has determined that the generation of noise from Vessels and positioning equipment is unlikely to result in an impact significance level greater than slight. EPBC Act requirements (principles of ESD; MNES significant impact guidelines; recovery plans, conservation advice and marine park management plans) have been considered during the impact assessment. The Petroleum Activities Program is not considered to be inconsistent with any relevant EPBC Act requirements, including the objectives, overall recovery objectives and actions of relevant recovery plans, conservation advice and management plans (Section 6.9.3).</p> <p>The potential impacts are considered broadly acceptable if the adopted controls are implemented and EPO 10 has been applied to demonstrate the activities are not inconsistent with the Blue Whale Conservation Management Plan. Activities do not have a significant impact on MNES (Section 2.4.2). Therefore, Woodside considers the adopted controls appropriate to manage the impacts of acoustic emissions to a level that is broadly acceptable and demonstrate the EPOs are met.</p>				

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>EPO 8 No injury of, or mortality to, EPBC Act 1999 and WA Biodiversity Conservation Act 2016 listed marine fauna as a result of noise generated by the Petroleum Activities Program.</p> <p>EPO 9 No displacement of marine turtles or pygmy blue whales from habitat critical during nesting/breeding (inc.</p>	<p>C 4.1 EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures⁴⁹: vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone) and not approach closer than 100 m from a whale.</p> <ul style="list-style-type: none"> • Vessels will not approach closer than 50 m for a dolphin 	<p>PS 4.1.1 Refer to Section 6.7.4</p>	<p>MC 4.1.1 Refer to Section 6.7.4</p>
			<p>MC 4.1.2 Refer to Section 6.7.4</p>

⁴⁹ For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability e.g. lifting, loading, back-loading, bunkering, close standby cover for overside working and emergency situations.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
interesting periods for turtles) and ensure biologically important behaviour can continue in biologically important areas.	and/or 100 m for a whale (with the exception of animals bow riding). If the cetacean shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.		
	C 4.2 Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	PS 4.2.1 Refer to Section 6.7.4	MC 4.2.1 Refer to Section 6.7.4
	C 4.3 Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.	PS 4.3.1 Refer to Section 6.7.4	MC 4.3.1 Refer to Section 6.7.4
	C 4.8 Manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the Trunkline Operational Area.	PS 4.8.1 Refer to Section 6.7.4	MC 4.8.1 Refer to Section 6.7.4

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6.7.6 Routine and Non-routine Greenhouse Gas Emissions

Scarborough OPP – Relevant Impact Assessment Section																
Section 7.1.3 – Routine Greenhouse Gas (GHG) Emissions																
Context																
Relevant Activities Vessel Operations – Section 3.11 FPU Installation, Hook-up and Commissioning – Section 3.7 FPU Start-up and Operations – Section 3.8 Gravimetry Surveys – Section 3.10				Existing Environment Regional Context – Section 4.2 Protected Species – Section 4.6				Consultation Consultation – Section 5								
Impact/Risk Evaluation Summary																
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation								
	Soil and Groundwater	Marine Sediment	Water Quality	Global atmospheric GHG concentration	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome		
Operational flaring, exhaust emissions from fuel combustion, fugitive emissions from the FPU				✓				A	F	-	-	LCS GP PJ	Broadly Acceptable	EPO 3, 10, 11, 12, 29		
Exhaust emissions from internal combustion engines on vessels and helicopters				✓												
GHG emissions associated with onshore processing of Scarborough gas, third party transportation, regasification and combustion by end users				✓				B				LCS GP PJ RBA CV SV				
Description of Source																
<p>Climate change is caused by the net global concentration of greenhouse gases in the atmosphere. Greenhouse gas (GHG) refers to those gases within the atmosphere that absorb long-wave radiation, and thus trap heat reflected from the Earth's surface. The main gases responsible for this effect include carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Other greenhouse gases include perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF₆).</p> <p>Human-caused climate change is a consequence of more than a century of net GHG emissions from energy use, land use change, lifestyle patterns of consumption, and production (IPCC 2023). The IPCC has stated that observed increases in GHG concentrations since 1750 leading to climate change are unequivocally caused by human activities and that there's a near linear relationship between cumulative anthropogenic CO₂ emissions and the global warming they cause (IPCC 2023).</p> <p>In this Section greenhouse gas emissions are estimated using the <i>National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008 (Cth)</i> (as amended including the 100-year Global Warming Potential). The following Section has been separated into Direct Emissions (Scope 1) and Indirect Emissions (Scope 3), aligned with the definitions of the GHG Protocol Corporate Standard (GHG Protocol 2015) and NGERs. The emission sources described in this Section are consistent with the sources described in the Scarborough OPP.</p>																

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The main sources of GHG emissions associated with the PAP are shown in Table 6-17. GHG emissions sources that are not part of the PAP (e.g. GHG emissions from the onshore processing of Scarborough gas) are included for completeness. In the context of this EP, GHG emissions are classified as Direct and Indirect Emissions.

Table 6-17: Direct and indirect greenhouse gas emissions from the Scarborough facility floating production unit and supply chain

Emission type	Emissions source	Location	Jurisdiction	Process
Direct	Scarborough FPU operations	Offshore	Commonwealth	GHG emissions from fuel, flares and fugitives
Indirect	Support vessels and helicopters	Offshore	Commonwealth	GHG emissions from engines on vessels and helicopters under control of contractors
	Onshore processing*	Onshore	State	GHG emissions from venting reservoir CO ₂ , combustion of gas as fuel, flares and fugitives associated with processing gas to LNG and domestic gas
	Transport, regasification, distribution and combustion by third party users	Transit and Market	Subject to consumer location	GHG emissions from transport of products to market, including regasification and distribution of LNG, combustion of products as part of power generation and other energy solutions within the final market

*The GHG Protocol defines indirect GHG emissions as *emissions that are a consequence of the activities of the reporting entity but occur at sources owned or controlled by another entity*. For the purposes of this EP the “reporting entity” is the Scarborough facility and therefore, onshore processing and support vessel/helicopter operations are considered indirect emissions sources.

Direct GHG Emissions – Scarborough FPU

Fuel Use Emissions

On the Scarborough FPU, both fuel gas and diesel are used. Fuel gas consumption for export compression and power generation are the largest sources of combustion emissions from the FPU. Diesel is used for Main Power Generators when fuel gas is not available during commissioning, start-up and shutdowns, and for firewater pumps, emergency generators and other temporary equipment.

Diesel usage is expected to be highest during the period from FPU installation through to operations due to the availability and reliability of the fuel gas system being established during commissioning and start-up. Diesel usage during the first year of operations will also be higher than average due to the establishment of steady operations and increased facility testing. Consumption will remain relatively stable throughout operations after this period. Diesel consumption is estimated at 14,800 m³ total during installation through to operations, 1900 m³ during the first year of operations and 600 m³ per year thereafter. These figures were calculated based on predicted equipment usage and their associated diesel consumption rates.

The greenhouse gases CO₂, CH₄, N₂O, expressed as CO₂e, were estimated using the *National Greenhouse and Energy Reporting Measurement Determination 2008 (Cth)* (NGER Determination). These are derived from the National Greenhouse Accounts Factors.

Table 6-18: Estimated direct annual GHG emissions from fuel combustion during commissioning and start-up, and under steady state operations (excluding support vessels)

Component	Estimated annual emissions from fuel gas combustion during operations (tonnes) ¹	Estimated annual emissions from diesel combustion, during commissioning and start up (tonnes)	Estimated annual emissions from diesel combustion during operations (tonnes) ²
Fuel quantity (m ³)	272,145,000	14,800	600
CO ₂	549,738	39,932	1,619
CH ₄	1,070	57	2
N ₂ O	321	114	5

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Total CO ₂ eq	551,129	40,104	1,626
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¹ Based on estimated annual operational emissions within this EP period. Variance within the period may occur.

² Based on the estimated annual diesel use within this EP period. Variance within the period may occur. Specifically, the first year of operations post-start-up is estimated to result in 1,900 m³ of fuel used due to increased facility testing.

Key Assumptions – Fuel Consumption

Fuel Gas

The FPU will utilise fuel gas to power the compressor turbines and power generator turbines during normal operations. Fuel Gas usage for compressor turbines is calculated based on the available compressor power, modelled in chemical process simulation software (HYSYS). In early field life this is based on operating three compressors. In mid field life the turbines may be upgraded for increased available output power, pending technical and financial evaluation of installing the new technology, which will result in higher fuel gas usage (and is factored into the emissions estimates). Timing of this potential upgrade is currently uncertain, due to unknown reservoir decline rates and other production variables. Based on the most current information available, this upgrade may take place around the year 2039. In later field life as the field declines further, operation with two compressors is possible resulting in a lower fuel gas usage assumed. The export gas compressor turbines (model PGT25+G4) have an ISO rated output power 34MW and the maximum turbine output power is approximately 30 MW, though actual output will vary based on reservoir pressure and onshore demand/availability. The potential future turbine upgrade would be to PGT25+G5 (ISO rated output power 38MW), with turbine output power limited to 34MW to remain within the original package design limits.

Fuel Gas usage for power generator turbines has been estimated assuming two 4.6 MW turbines. Individual fuel rate has been assumed from measured data from the factory testing.

Diesel

Diesel is planned to be used intermittently on the FPU during normal operations for the main power generators, emergency generator, black start generator, firewater pump generators, fast rescue craft and temporary equipment. During commissioning and start-up, diesel will be required to run generators prior to the fuel gas system being made available. As such, diesel use has been calculated based on the following:

- Equipment fuel use rates:
 - Main Power Generators – 8 m3/hr
 - Black Start Generator – 0.55 m3/hr
 - Emergency Power Gen – 0.55 m3/hr
 - Firewater Pump – 0.55 m3/hr.
- For commissioning and start-up: estimates for duration of days of Commissioning from Takeover to RFSU has been assumed as 6 months using 1 generator, and Days of Commissioning from RFSU to Fuel Gas Introduction has been assumed as 2 months using 2 generators.
- For normal operations:
 - 10% yearly shutdown requiring Main Power Gen (year 1 only).
 - 3.41% yearly shutdown requiring Main Power Gen (year 2 onwards)
 - 18 hours usage per year for Black Start Generator and Emergency Power Gen
 - 8 hours per year usage for Firewater Pumps
 - 2 full tanks per year for the Fast Rescue Craft.

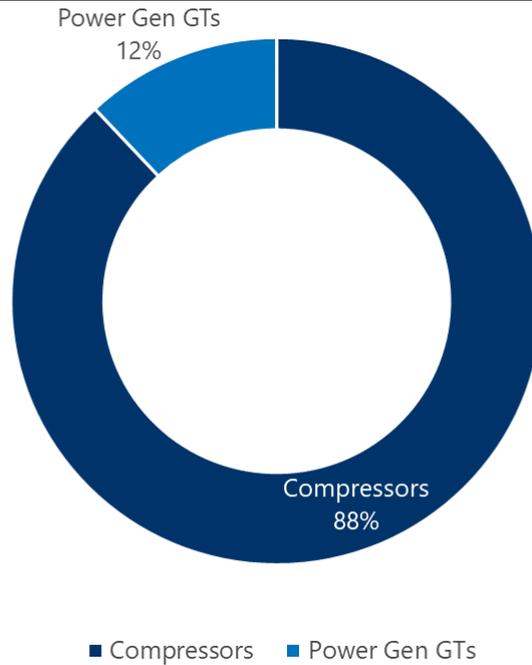


Figure 6-1: Fuel gas greenhouse gas emissions by source during normal operations

Flaring

The release of hydrocarbon gas to atmosphere by flaring is an essential practice to meet safety requirements. The FPU has been designed to have no continuous operational flaring, consistent with Woodside’s implementation of the World Bank Zero Routine Flaring Initiative. In line with Woodside’s implementation of the World Bank Zero Routine Flaring Initiative (ZRFI), definitions for sources exempt from “routine flaring” are as follows:

- non-routine flaring is considered flaring for intermittent and short duration non-routine activities (e.g. start-up) and rectification of unplanned issues (e.g. equipment failure).
- safety flaring is gas flared to ensure the safe operation of the facility, including flaring for immediate and short term purposes to make the facility safe (e.g. blowdown/PSV), as well as minimum flare purge and pilot gas.
- small source flaring is flaring from an individual source that contributes less than 1kt per annum.
- poor quality source flaring is flaring from an individual source that has a high degree of non-hydrocarbon contamination, and therefore cannot be recovered back into the process.

When flaring is required, hydrocarbon gas is flared via the HP and LP flare systems (**Section 3.9.8**). Gas flaring emits GHG to atmosphere and consumes natural gas, a non-renewable resource. Emissions and combustion products include water vapour, CO₂, NO_x, methane, particulates, and VOCs. Incomplete combustion under certain scenarios may also generate dark smoke.

Flaring is expected to occur during start-up, maintenance, process upsets and emergencies, when it is required to protect the integrity of the facility and to prevent harm to personnel, environment and equipment. These are considered non-routine activities, and include:

- pressure relief and emergency blowdown, including planned and unplanned shutdowns – to protect the integrity of the facility and prevent loss of containment
- manual blowdown – to safely depressurise equipment before maintenance activities
- process upset – i.e. an unplanned event, such as gas exceeding the necessary dewpoint specification for export, requiring it to be flared to protect the integrity of the SCAETL
- pigging – to inspect the flowlines/trunkline
- process start-up – to get gas to the correct specifications for processing. Refer to Section 3.7.3 for further detail.

Non-routine flaring events are minimised through facility design (with equipment sparing/redundancy to maintain production during unplanned outages), operating procedures developed to minimise flaring upon facility restart, equipment maintenance for reliability, and adaptive processes to addresses cases of non-routine flaring found to emerge during operations (GHG Emissions and Energy Management Procedure (Section 7.2.4.1) and the Production Optimisation and Opportunity Management Procedure (POOMP) (Section 7.2.4.2). Flaring during the initial start-up phase is describes below.

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The start-up program will continually aim to minimise flaring where practicable. During the initial start-up phase, flaring is required until operation of several systems has been fully established. Flaring is planned during activities such as well clean up and multi-rate testing, when wells are flowing but the gas is not yet fully utilised as fuel gas or exported to the trunkline. Once the first compressor has been started-up flaring will be largely reduced, as gas will be directed to the trunkline instead of partially to the flare. Flare pilots will remain on propane until the fuel gas system is commissioned and a stable fuel gas supply has been established. Likewise, topsides systems will be run off diesel until a stable fuel gas supply has been established.

In operations, some smaller volume, low-pressure sources of hydrocarbons are continuously routed to the flare. These sources are not practicable to capture and route back into the process, due to low pressure, low quality or negligible volume, and flaring provides a better alternative than venting. This approach is consistent with the World Bank Zero Routine Flaring Initiative for oil projects, which states that “some flare gas sources... are so small and at such low pressure that it is environmentally more beneficial to utilize resources to reduce other flaring sources and other types of emission.” Such sources of flaring (<1ktpa) on the FPU include instrument tubing, level gauges, sample points, LP MEG flash vessel, closed drains waste drum, riser annulus vent, export gas compressor seal gas primary vent.

The annual atmospheric emissions from flaring were estimated using the NPI EET and GHG estimates using NGER Determination and summarised in Table 6-19.

Table 6-19: Estimated emissions from flaring at the facility

Component	Estimated annual routine flaring emissions during normal operations (tonnes)	Estimated annual non-routine flaring emissions during normal operations (tonnes) ¹	Estimated flaring emissions from Scarborough commissioning and initial start up (tonnes)
Flared gas quantity	1,100	4,400	83,600
CO ₂	2,970	11,880	225,720
CH ₄	146	585	11,119
N ₂ O	29	114	2,174
Total CO _{2eq}	3,145	12,580	239,012

¹ Based on estimated annual operational emissions within this EP period. Variance within the period may occur. Specifically, the first year of operations post-start-up is estimated to result in ~8,600t of non-routine flared gas due to increased facility testing.

Emissions as a result of flaring have been calculated from the inputs of:

- pilot and purge gas
- facility trips and restarts
- smaller volume, low-pressure sources of hydrocarbons routine flaring
- facility commissioning and start up, including well clean up

Non-routine Venting of Process Hydrocarbons via Flare System

In the unlikely event the flares are extinguished (for example during a tropical cyclone) or unavailable (such as after a major shutdown prior to system start-up), the hydrocarbon gas discharged via the flare system may initially not be combusted during the period required to purge the flare and re-establish flare ignition. This may result in the short term (hours) low-rate release of methane to atmosphere, at a rate of approximately 125 kg/h (rate of routine flaring). The measures described below have been implemented to reduce the risk of such an occurrence to ALARP.

Flare gas ignition is maintained by continuously burning pilot flames. Three pilots are provided for HP flare tip and two pilots are provided for LP flare tip. Fuel gas is used for pilot burning gas with permanent backup of propane. The propane skid is suitable for cylinders required for 12 hours of HP and LP flare pilot burning. The pilot ignition is with high energy spark ignition (primary) with back-up (secondary) of Flame Front Generator. Both the ignition systems can be used automatically and remotely, and minimise the risk of venting uncombusted hydrocarbons.

Monitoring of the flare pilot flames to assure effective operation will be achieved using dual thermocouples monitoring temperature on the individual pilot heads (Primary). Secondary monitoring will be available with a dedicated thermal (spectral analysis) camera system that will allow control room operators to confirm the status of the pilot flames and alert them if a pilot flameout occurs. This redundancy built into the flare ignition and monitoring systems minimises time spent cold venting, should a flame-out occur.

Before the ignition of the flare, the LP and HP flare headers will be purged to ensure no oxygen is present in the system. This purging operation will be carried out with a nitrogen and fuel gas mix for HP flare and with the fuel gas or nitrogen (as a back-up) for LP flare during the start-up.

Intermittent venting from the facility is expected to represent a minor source of atmospheric emissions and is not considered to pose a risk beyond the routine air emissions described in this Section.

Non-routine Venting from Scarborough Trunkline via Flare System

During the initial start-up of the Scarborough system, following connection of the Scarborough Trunkline to Onshore, the trunkline will contain nitrogen (~95% nitrogen and ~5% oxygen) at atmospheric pressure. The introduction of hydrocarbons into the trunkline from onshore will push the nitrogen offshore where it may be directed to the FPU HP flare. This would occur post-RFSU and the HP flare pilots will be ignited during the venting of the nitrogen. Once the nitrogen is removed, hydrocarbons will arrive at the flare tip with the visible change in flare indicating that the nitrogen has been removed and flaring can be stopped. The total mass of nitrogen in the trunkline to be vented/flared at the FPU is estimated to be around 270 tonnes.

Fugitive Emissions

Fugitive emissions can occur from pressurised equipment, and are inherent in design, emitted by infrequent operational activities, or can be caused by unintentional equipment leaks. Sources can include valves, flanges, pump seals, relief valves, vents, sampling connections, process drains, open-ended lines, casing, tanks and other potential leak sources from pressurised equipment. Fugitive emissions are, by their nature, difficult to quantify and are estimated by application of methods from the NGER Determination.

As much of the safe operation of the facility relies on the effective containment of hydrocarbons, the volume of routine and non-routine fugitive emissions negligible in comparison to GHG emissions from other sources (refer to Section 6.8.4 for potential atmospheric unplanned hydrocarbon releases associated with accidents, incidents and emergency situations).

According to the National Greenhouse and Energy Reporting (Measurement) Determination 2008 (Cth), estimates of fugitive emissions from deep water offshore platforms (e.g. Scarborough FPU) are:

Table 6-20: Fugitive emissions

Component	Estimated annual fugitive emissions (tonnes) ¹
CO ₂	2
CH ₄	21,105
N ₂ O	0
Total CO ₂ eq	21,107

¹ Variance within the period for this EP may occur.

Fugitive emissions are calculated using NGER Determination factors:

- For offshore platforms (Subdivision 3.3.6B.1): [Number of platforms x factor] * [share of gas type (by volume)/default share of gas type] for CO₂ and CH₄. This component makes up 21,038 tCO₂-e per year.
- For Produced formation water component (Subdivision 3.73NB): used an assumed factor of 2 tCO₂-e/m³, and a Produced Water discharge rate of 4.08 m³/h. 2 tCO₂-e/m³. This component makes up 69 tCO₂-e per year.

The NGER framework provides a consistent and accurate methodology to estimate annualised methane emissions. It permits a variety of methods to report methane emissions with varying uncertainty and complexity. Method 1 factors are based on industry averages linked to facility type which is how Woodside reports fugitive emissions compliantly within the framework.

Discrete relatively small volumes of packed gases and charged systems, including non-ozone depleting refrigerant gases, are used across the facility and vessels which have potential for small volume leaks (typically less than 100 kg per isolatable inventory). Such gases are used in the HVAC and refrigerant systems on the facility and vessels.

The facility is fitted with portable and wheeled fire extinguishing units utilising CO₂. Fire suppression systems utilise water mist or NOVEC1230. NOVEC 1230 has zero ozone depleting potential and a low global warming potential; it is used to protect the electrical rooms and requires manual activation for release.

There are no sources of continues process (hydrocarbon) venting on the facility. Some venting may occur in order to depressurise systems for safety purposes, e.g. fuel gas pockets in equipment piping vented on shutdown. These sources are unable to be routed to the flare, due to technical constraints associated with flare back pressure. The total volume of vented hydrocarbon gas is considered to be negligible.

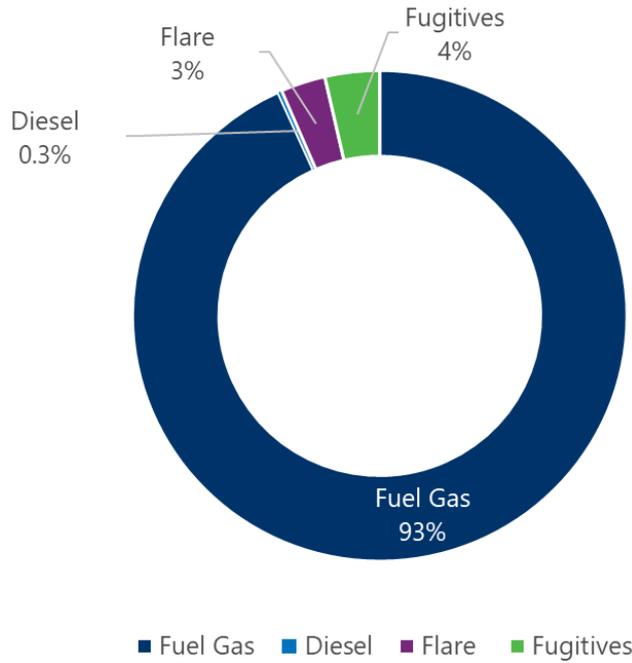


Figure 6-2: Direct greenhouse gas emissions by source during normal operations

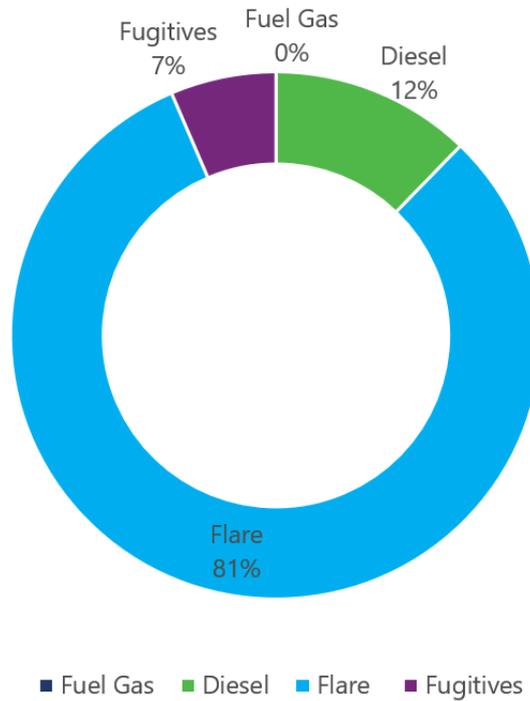


Figure 6-3: Direct greenhouse gas emissions by source during hook-up and commissioning

Indirect Emissions

Indirect emissions associated with the PAP result from offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regasification, distribution and combustion by end users.

Vessels and Helicopters during HUC and Start-up

A number of vessels and vessel types will perform activities in the PAA during the Installation, Hook-up, Commissioning and Start-up phase of the Petroleum Activities Program. Vessels are described in Section 3.11 and activity durations in Section 3.4.

Vessels are powered via the use of on-board generators (diesel-powered and/or LNG). Vessel operations require the use of marine diesel to undertake daily activities functions such as dynamic positioning, crane movements, desalination, sewage treatment, etc. Atmospheric emissions will be generated by the vessels from internal combustion engines (including all equipment and generators) and incineration activities (including onboard incinerators).

GHG will be emitted from vessels involved in the activity consuming marine diesel fuel, and by helicopters transferring personnel. Using vessel fuel consumption rates estimated by contractors, internal helicopter fuel consumption data and emission factors from the National Greenhouse and Energy Reporting Scheme, GHG emissions have been estimated and are presented in Table 6-22.

These figures are estimates only. The actual consumption of fuel varies based on factors such as the nature of activity being undertaken by vessels, metocean conditions etc. While Woodside may influence via contracting approaches, in-field day to day operations including fuel consumption is under the control of vessel masters.

Support Vessels and Helicopters during Operations

GHG emissions will be generated by vessels supporting the FPU during steady state operations, undertaking gravimetry, performing IMMR activities and by helicopters being used for crew and other transport needs. Vessel emissions include those from internal combustion engines and fugitives. Atmospheric and GHG emissions from support vessels vary depending on the nature of activities being undertaken; for example, travelling or “steaming” to a destination at low speed uses less fuel and generates lower atmospheric and GHG emissions than high speed steaming. Emissions generated during safety related vessel standby activities, holding station using DP during loading and unloading of materials to the facility or undertaking IMMR work also vary. Vessel Masters control day to day operations that determine Support Vessel emissions. Woodside has the potential to influence fleet level approach to Support Vessel emissions through contracting activities. Refrigerant gases are used onboard supply vessels in small quantities.

Expected annual GHG emissions for vessel and helicopter activities during steady state operations have been estimated and are presented in Table 6-22.

Indirect emissions from these sources are expected to be relatively constant throughout the EP period and until EOFL.

Onshore Processing

Onshore processing GHG emissions will principally be generated by:

- processing: fuel combustion, flaring and fugitives
- venting of reservoir CO₂.

GHG emissions associated with processing of gas at onshore facilities will be subject to regulation under State and Commonwealth legislation. GHG emissions associated with onshore processing of Scarborough gas (fuel, flare and fugitive emissions) have been estimated by using emission factors appropriate to the likely processing facility, Pluto LNG. A smaller volume of Scarborough gas may also be processed at Karratha Gas Plant.

The Emission Factor used to estimate onshore processing GHG emissions is 0.33 tCO₂-e/tLNG. This factor includes reservoir CO₂ emissions. Reference for this factor can be found in the publicly available *Pluto Greenhouse Gas Abatement Program Rev 3a* (Woodside 2021), approved by the Western Australian Minister for Environment in August 2021. It also aligns with the LNG processing intensity of Karratha Gas Plant as defined in the publicly available *NWS Project Extension Greenhouse Gas Management Plan Rev 1* (Woodside 2019a), which excludes emissions of reservoir CO₂. To account for the different approach taken regarding reservoir emissions between these factors, the Scarborough reservoir emissions have been calculated based on reservoir composition and separately added to the gross emissions estimate associated with onshore processing, which is a conservative approach.

It is acknowledged that factors used to estimate emissions intensity in the Pluto GGAP and NWS Project Extension GHGMP are subject to change, for example via updates to the NGER Determination. Assumptions for onshore processing emissions will be verified when production commences, and the EP change management process (section 7.2.7) applied.

An assessment of the total quantity of reservoir CO₂ likely to be emitted over the life of the activities has been completed, based on the expected CO₂ composition of the Scarborough reservoir and assuming that all reservoir CO₂ must be removed prior to liquefaction of the gas at the relevant onshore facility.

CO₂ content in the hydrocarbon reservoir is a naturally occurring geological phenomenon that is typically treated as a waste product during LNG liquefaction.

A number of contemporary large operating and proposed developments off the west coast of Australia have levels of CO₂ in the reservoir which are comparatively higher (at an average of 10–20 mol%) compared to Scarborough. Examples of approximate reservoir CO₂ concentrations for recent developments are given below:

- Barossa Development (under construction): 16–20 mol%
- Gorgon LNG Development (operating): <1-14 mol%
- Ichthys Project (operating): 8-17 mol%
- Prelude FLNG (operating): 9 mol%
- Pluto Project (operating): 2 mol%.
- Scarborough, Thebe and Jupiter: 0.1 mol%.

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The negligible expected CO₂ concentration in greater Scarborough reservoirs (Scarborough, North Scarborough, Thebe and Jupiter gas fields) means that the emissions associated with venting of reservoir CO₂ will be small in comparison with these other projects and not considered to be a major source of GHG emissions for Scarborough. The expected annual emissions from reservoir CO₂ venting during onshore processing is 0.1 MtCO_{2e} per annum throughout the EP period. Variance within the period may occur.

Emissions from the combustion of fuel and flaring as part of onshore processing have been estimated based on apportioning GHG emissions associated with the processing of Scarborough feed gas. For Pluto LNG, emissions were initially described in the Pluto LNG Development Public Environment Review (Pluto PER). The Pluto LNG Facility was approved under Ministerial Statement 757 and Commonwealth Approval Decision EPBC 2006/2968. The Pluto PER is available for review on the WA EPA website⁵⁰.

The total GHG emissions described in the PER were 4.1 MtCO_{2e}/yr. The Pluto LNG Facility currently emits approximately 2 MtCO_{2e}/yr (Woodside 2021). The proportion of gas from the Scarborough reservoirs and Pluto, Xena or other reservoirs processed at the Pluto LNG Facility will vary over time, but are subject to relevant approvals and regulatory frameworks. Similarly, any potential volumes of Scarborough gas processed at the Karratha Gas Plant will be subject to the limits set by the relevant approvals for the Karratha Gas Plant.

An annual production of 8.55 t LNG and 1.35 t Domgas is assumed as input for both Onshore hydrocarbon processing and third-party transport of products, regasification, distribution and end use GHG emissions estimates. These figures are estimates only and reflect expected maximum production rates. Variance within the period may occur.

Third Party Consumption

Indirect GHG emissions associated with the PAP have been estimated in Table 6-22. Key influences impacting indirect GHG emissions from Scarborough include:

- Total production – indirect GHG emissions are proportional to total production, which varies with shutdown activity, well performance and reservoir performance.
- Split of saleable products from Pluto LNG– the proportion of hydrocarbons from Scarborough sold as LNG and domestic gas varies. Each product requires differing amounts of energy to process to the point of sale and varies based on reservoir composition, field contribution and commercial reasons.
- Efficiency of end user – sold product may be used in a variety of ways by the customer, with the energy efficiency of their transport and processing contributing to the GHG emissions released.

For the consumption of LNG anticipated to be produced from Scarborough, which is expected to predominately occur internationally, an emissions factor has been sourced from the Ecoinvent v3.5 database (Table 6-21). This emissions factor considers the transport, regasification, distribution and final combustion of LNG. The factor used in the Pluto PER is also presented for comparison. The difference between these factors is primarily due to the PER factor not considering emissions associated with regasification and distribution.

For the consumption of domestic gas anticipated to be produced from Scarborough, an emissions factor has been developed based on NGRS. This emissions factor considers the distribution in a pipeline system in Western Australia and final combustion of natural gas. Emissions related to other potential uses, e.g. chemical feedstock, have been estimated based on Perdaman Environment Management Plan Greenhouse Gas Emissions (2021), and are lower than the estimates presented here. Therefore, they are not discussed further.

For each source, the estimate of CO₂-e emissions is based on the quantity of product, multiplied by the respective emissions factor. The same annual production rate is assumed for estimating emissions associated with third party consumption as for onshore processing

Table 6-21: Emissions factors for Scarborough gas customer use and transport emissions

Source	Units	Value	Reference
Third Party – LNG (1a)	kgCO ₂ -e/kg product	2.78	Pluto PER Factor includes transport and combustion. – Reference only, not used in final GHG emissions estimates.
Third Party – LNG (1b)	kgCO ₂ -e/kg product	3.32	Ecoinvent 3.5⁵¹ Factor includes transport, regasification, distribution and combustion. Factor has been updated from 3.13 kgCO ₂ -e/kg product in the OPP to account for updated assumptions used in emissions estimates. Refer to Appendix J Concordance Table for further detail.

⁵⁰ http://www.epa.wa.gov.au/sites/default/files/PER_documentation/1632-PER-PLUTO%20LNG%20PER.pdf

⁵¹ EcoInvent v3.5 represents a large collection of inventory data. It has been recognised as emission factor source for the European Union Renewable Energy Directive greenhouse gas methodology and is aligned to the principles of the NGRs methodology.

Third Party – Domgas	kgCO ₂ -e/GJ	58.06	NGER Determination Factor includes distribution and combustion. This factor is equivalent to the factor included in OPP 2.99 kgCO ₂ /kg product, expressed in different units.
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Summary of GHG Emissions

For the first five years of operations, direct GHG emissions from the FPU are estimated to follow the profile shown in Figure 6-4.

Direct GHG Emissions by source

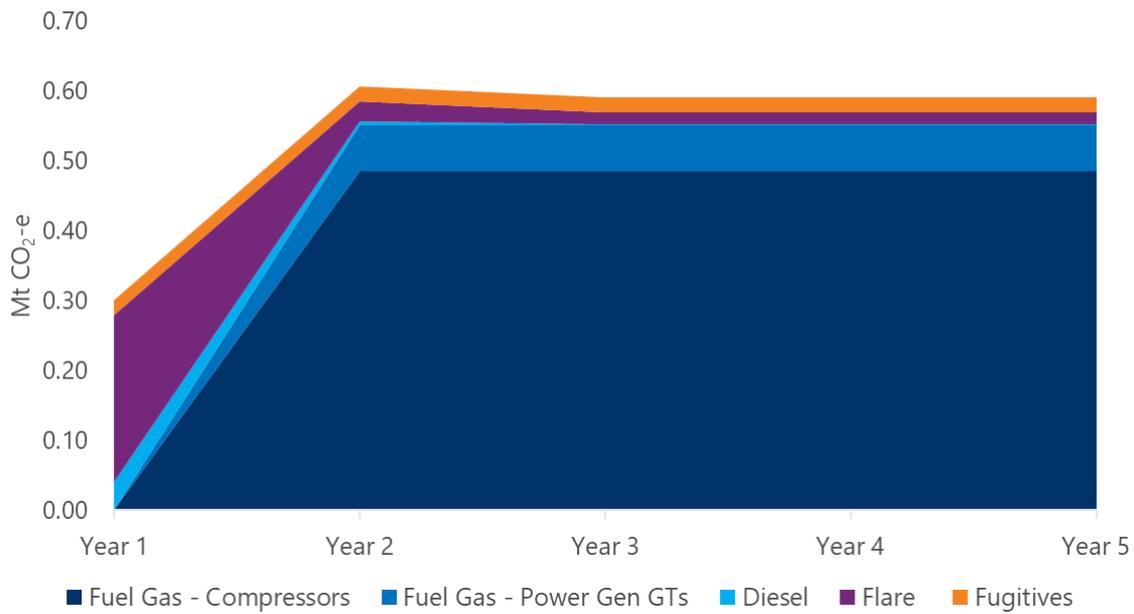


Figure 6-4: Direct greenhouse gas emissions by source during the period of this Environmental Plan

The split of indirect GHG Emissions is shown in Figure 6-5. *Third-Party Transport, Regasification, Distribution and End Use* of both LNG and Domgas is the major contributor. Note: Emissions from vessel & helicopters, including the ASV, are negligible in comparison to other sources (<1%).

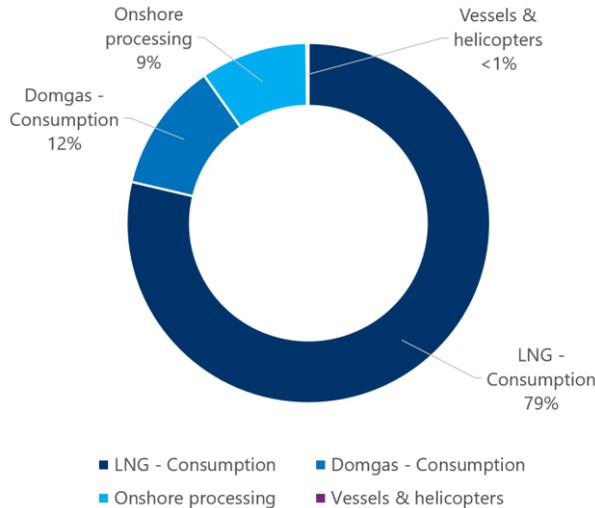


Figure 6-5: Indirect greenhouse gas emissions by source over the life of this Environment Plan

Based on the estimates provided above, the total GHG emissions for the EP period are provided in **Table 6-21**. The Annual estimated emissions column represents the year with highest GHG emissions in the duration of this EP (5 years). All estimates are sensitive to production rate, which is subject to uncertainty associated with reservoir and process performance and will change over the life of the facility. Relatively high initial “plateau” production rates are expected to extend beyond the duration of this EP, however will eventually decrease as reservoir/s are depleted, and emissions associated with onshore processing and third party consumption which are highly sensitive to produced volumes are expected to decline accordingly over field life. Estimates over Development Life are inclusive of potential future fields which may be tied back to the Scarborough offshore infrastructure, subject to future approvals.

Differences between the estimates presented in Table 6-22 and the Scarborough Offshore Project Proposal are explored in Appendix J, Concordance Table.

Table 6-22: Indirect and direct greenhouse gas emissions associated with Scarborough production

Source	Annual estimated emissions (MtCO ₂ e)	Total 5 years of EP (MtCO ₂ -e)	Development life (MtCO ₂ -e)
Direct Emissions			
Offshore processing (fuel, flaring and fugitives)	0.61	3	12
Net direct emissions	0.1	0.5	2.6
Indirect Emissions			
Project vessels and helicopters during Installation, Hook-up and Commissioning	0.04	0.04	0.04
Vessels and helicopters during Operations	0.005	0.02	0.14
Onshore hydrocarbon processing	2.90	14.5	88
Third party transport of products, regasification, distribution and end use	32	162	778
Totals	36	179	878

Emissions estimates will be tracked/reviewed monthly to monitor progress against energy use and flare targets and prepare for annual NGERs reporting. Any material deviations will be managed under the MOC process as required (Section 7.2.7). Material deviations from the emissions estimates presented in the EP would be any deviation that is beyond the basis of the risk assessment. Material deviations may be caused by, for example, significant inefficient fuel consumption or equipment failure causing unplanned flaring. Such deviations are managed through technical MOC and POOMP processes, which includes analysis of environmental impact and consideration by the environment team of whether it puts at risk exceedance of emissions targets and basis of the EP risk assessment.

GHG emissions associated with onshore hydrocarbon processing are regulated under both Commonwealth and State legislation. The National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 is the primary mechanism for the management of GHG emissions from facilities with direct emissions over 100,000 tonnes CO₂e,

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including the Pluto LNG Facility (Pluto) and North West Shelf Karratha Gas Plant (KGP). The Safeguard Mechanism imposes a declining baseline (limit) on these facilities, consistent with achieving Australia's emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050.

The Western Australian Environmental Protection Authority (EPA) also assesses GHG emissions under the Environmental Protection Act 1986, with GHG conditions for Pluto and KGP outlined in Ministerial Statements 1208 and 1233 respectively.

GHG emissions data made publicly available, for example from regulatory reporting requirements outlined above, will be used to verify the onshore hydrocarbon processing emission estimates for Scarborough gas.

Net direct emissions are provided above based on the current requirements of the Federal Safeguard Mechanism. These are described in the Management and Abatement section below.

Management and Abatement

Management and Abatement for Scarborough (Direct) GHG Emissions

In accordance with Woodside's decarbonisation strategy as relevant to Scope 1 GHG emissions, a scope of work has been ongoing through multiple project phases to design and operate out direct GHG emissions. This commenced in the Concept Definition phase with application of Woodside engineering standards and drafting of the project Basis of Design and setting expectations for EPC contractors. These considerations included:

- specifying no normal or routine operational flaring
- specifying waste heat recovery
- requiring rotating equipment (eg turbines) and auxiliaries to be selected and designed to be efficient and minimise emissions
- requiring the principal design contractor to undertake studies focused on energy efficiency and emissions minimisation.

As design work on the facility was ongoing, Woodside held a multi-disciplinary Energy Efficiency Workshop in Q1 2019, in early FEED phase. This workshop was facilitated by a specialist third party consultant with access to early design documents and information. Through a process of considering expected energy use and GHG emissions generation on a system-by-system level, a total of 37 emissions abatement/energy efficiency opportunities were identified.

These identified opportunities formed the basis of the Scarborough Carbon Opportunity Register, which has been added to through multiple other opportunity identification workshops and processes. The most recent workshop was held in Q3 2023 and focused specifically on the start-up and operate phase, and identified 10 new opportunities for the team to consider and screen. This register remains a live document for the project design, execute and start-up phases. Opportunities identified for future implementation will be carried into the facility Decarbonisation Plan, and ongoing opportunity identification will occur via the POOMP. In total 79 opportunities to reduce direct GHG emissions or reduce direct emissions intensity have been identified and screened to date, 30 are implemented via design and/or operational planning, and 20 remain under investigation. An estimated 13% reduction of emissions compared to reference case design has been achieved through design phase, and Woodside aims to continue reducing operate phase emissions by minor design changes and embedding GHG emissions reductions through operations readiness and planning.

The most significant opportunities which have been implemented are described below.

Avoid

Complete avoidance of GHG emissions from gas from the Scarborough project is not considered practicable. As described above, direct GHG emissions will result from various sources during the PAA. As a readily accessible energy source at the offshore processing location, gas will be used to power the facility in the form of fuel gas and will be flared when required (non-routine) to maintain safe operations. The measures to reduce direct GHG emissions from the PAP are described below.

Reduce

Design and Operations Planning Phase

Following an extensive opportunity identification and screening process as described above, a number of energy efficiency and GHG abatement measures have been incorporated in project design. Examples of these measures, categorised by emissions source is provided in Table 6-23. Estimates are based on engineering calculations and provided as indicative values only. Not all measures listed have benefit calculated, and in most cases, verification of the actual abatement benefit of opportunities is not possible:

Table 6-23: Emissions reduction measures incorporated into FPU and Scarborough Project design.

Source:	Measures:
Fuel Gas	Waste heat recovery, which draws heat for process requirements from turbine exhaust in heat exchangers rather than gas fired heating in boilers. This is expected to reduce fuel gas use on the facility and reduce total direct GHG emissions by approximately 5%.

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	<p>An internally flow coated trunkline to reduce pressure loss associated with transporting gas to shore through the Scarborough Trunkline. This reduces requirements for gas compression on the facility and could reduce total direct GHG emissions by approximately 3%.</p> <p>Since the majority of direct GHG emissions are a result of fuel gas combustion, ongoing process optimisation from base case throughout the detailed design phase of the project has resulted in material GHG emissions abatement. Examples achieving a combined estimated reduction of 2% include:</p> <ul style="list-style-type: none"> • compressor efficiency optimisation to improve design efficiency in context of updated early/mid field life arrival conditions. This aligns with the engineering design requirement to consider thermal efficiency of turbines. • removal of continuous bypass around gas/gas exchanger, increasing efficiency of gas pre-cooling. • gas/gas exchanger <p>Inclusion of a battery energy storage system, which removes the requirement to run an additional power generation turbine (powered by fuel gas) in “spinning reserve” while not powering anything, in case one of the duty generators trips. As such, there will be two operational turbines and one offline (cold standby). Operating the BESS could reduce total direct GHG emissions by approximately 2%. The BESS is sized for 4.6 MW for 2 minutes and 2.8MW for 30 minutes.</p> <p>Reliability/availability of the BESS has been factored into the reliability, availability, maintainability (RAM) for the facility, which constitutes part of the emissions estimates. Specifically, the BESS works in unison with the black start generator and the GTG, so the RAM model assesses the intersection of critical events to register an RAU (reliability, availability, utilisation) impact.</p> <p>The BESS is designed for high reliability with parallel inverters and batteries to provide redundancy. This means that even if one set of inverter/battery groups and associated controls are out of service, the BESS will still meet its power requirements. Common components such as the transformer and master Programmable Logic Controller (PLC) are considered high reliability and are not expected to significantly impact BESS reliability or availability. The parallel design also allows most maintenance to be performed without taking the BESS offline. It can be expected that the BESS will always be available in the event of a GTG trip.</p> <p>Precooling of incoming gas stream using a gas-gas heat exchanger with export gas to increase liquid removal efficiency.</p> <p>Selection of aeroderivative gas turbines, which are more efficient than industrial type equivalents. This aligns with the engineering design requirement to consider thermal efficiency of turbines. The export gas compressor (model BCL455/B) has a measured polytropic efficiency of 83.4% at the guaranteed condition. The export gas compressor turbines (model PT25+G4) are a high efficiency aero-derivative gas turbine with a thermal efficiency of about 41.3%. The main power generation turbines (model Taurus 60) are a light industrial gas turbine with a thermal efficiency of about 31.6%.</p> <p>Enabling common export gas compressor mode operation, allowing number of compressors in operation to be optimised where arrival conditions and export requirements are conducive, such as late field life.</p> <p>Use of electric cranes rather than diesel, approximately 50% more efficient.</p>
Flaring	<p>Implementation of the World Bank Zero Routine Flaring initiative in design. The facility design has been verified to have no continuous operational flaring (exemptions listed above).</p> <p>Maximising use of nitrogen in flare purge rather than fuel gas, reducing amount of hydrocarbon gas sent to flare. Flare purge is required to keep a positive pressure in the flare system, avoiding oxygen ingress which could potentially cause a flammable atmosphere inside the flare system.</p> <p>Blanketing MEG tank with nitrogen instead of fuel gas, which would then need to be sent to flare or vented.</p>
Fugitives	<p>Selection of minimally attended concept which reduces living quarters requirements and drives process simplification.</p> <p>Adoption of the Methane Guiding Principles Best Practice Guide – Engineering Design and Construction. An internal review of design against this standard was undertaken, and initiatives such as increasing valve tightness and reducing number of connections were supported by Woodside’s alignment with MGP.</p>
Venting	<p>Directing riser annulus gas to flare rather than venting direct to atmosphere, reducing methane emissions. This is a very low rate of gas which passes through the flexible riser carcass into the surrounding annulus space.</p>

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Initial Start-Up Phase

During the initial start-up phase, flaring is required until operation of several systems has been fully established. Flaring is planned during activities such as well clean up and performance testing, when wells are flowing but the gas is not yet fully utilised as fuel gas or exported to the trunkline. Once the first compressor has been started-up flaring will be largely reduced, as gas will be directed to the trunkline instead of partially to the flare. Flare pilots will be fuelled by propane until the fuel gas system is commissioned and a stable fuel gas supply has been established. Likewise, topsides systems will be run off diesel until a stable fuel gas supply has been established.

In planning for start-up of the Scarborough facility, a Start-Up Strategy has been developed to consider schedule, risks, opportunities and environmental parameters, including the minimisation of flaring and fuel use. Multiple opportunities have been implemented to achieve this, including:

- Prioritisation of fuel gas system start-up to reduce facility diesel use
- Alignment of activity sequencing (**Section 3.8**) to maximise utilisation of gas for equipment start-up and trunkline pressurisation, instead of directing to flare
- Pressurising the trunkline to the minimum pressure required for compressor start-up, in order to expedite the process the redirection of gas from flare to the trunkline via the compressor
- Well clean up via the FPU, rather than via the MODU, which reduces the volume of gas required to be flared and the emissions associated with MODU presence in-field
- Sparing of major equipment in facility design, to allow switching if issues are encountered (e.g. the common suction and discharge headers of the EGCs allow switching between the 3 units, should significant issues/delays occur during the first EGC commissioning)
- Alignment of FPU initial startup activities with onshore readiness to receive gas

Additional fuel and flare minimisation opportunities will continue to be considered as part of start-up planning and will be implemented if feasible from environmental, safety and technical perspectives. These are documented and tracked in the Carbon Opportunity Register.

If target exceedances are foreseen based on daily tracking or variations to the proposed start-up process, measures will be implemented to manage the risk of exceedance via the fuel and flare target setting procedure (detailed in Section 7.2.4.4).

Notably, the onshore plant is expected to be ready to receive the FPU export gas upon start-up. However, if this is not the case, the CSU of the FPU will continue until the trunkline is filled to its maximum capacity. At that point, a decision will be made on turning wells down or off, depending on the expected time to achieve onshore readiness, with considerations and process as per Section 7.2.4.4.

If any of the receiving onshore users reduces gas intake (e.g. due to a train trip), gas export from the FPU can continue for a number of hours (i.e. 4-5 hours at full export rate, or longer with a reduced export rate), increasing the pressure in the trunkline, before action at the FPU is required (e.g. well turn down or flaring). With the trunkline providing this large buffer volume, any offshore flaring is not expected for the majority of onshore trip scenarios, as this provides time to shut down the FPU without the need to flare from the FPU.

If extension of the initial start-up phase beyond indicated timelines (Table 3-3) is foreseen, the EP Management of Change Process will be enacted (Section 7.2.7), including consideration of additional control measures to limit flaring to ALARP and prevent further unplanned flaring (as per Figure 7-4). Commissioning and initial start-up phase controls (including fuel and flare target setting) will continue to apply until facility final acceptance, after which they will be replaced by operational phase controls. Fuel and flare targets are aligned with the estimates set out in this EP, hence deemed to be ALARP and acceptable.

Upset cases have been considered in the estimates of flared emissions during initial start-up, and will be subject to the flare target process.

No additional allowance is provided in Federal Safeguarding Mechanism (SGM) Baseline for the emissions associated with initial start-up of the facility. This means that emissions associated with this phase will be aligned with “international best practice” for operation of the facility. The SGM and Scarborough’s compliance are further described in the ‘Offset’ section below.

Operate Phase

Woodside’s requirements for GHG emissions in the operate phase will be applied to continue the identification and evaluation of emission reduction opportunities. This includes implementation of the following Woodside protocols, described in Section 7:

- The GHG Emissions and Energy Management Procedure
- The Production Optimisation and Opportunity Management Procedure (POOMP)
- The facility Decarbonisation Plan
- The Flare Management Framework
- The Greenhouse Gas, Energy and Flare Target Setting Guideline

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- The methane management strategy
- Environmental Performance Procedure

These protocols enable continued reduction of direct GHG emissions to ALARP, including systems of continual review and improvement of key emissions sources from Scarborough FPU and downstream processing, and ongoing identification, screening and implementation of opportunities to reduce emissions.

Opportunities identified for implementation in design will continue to be applied and maintained in operations for ALARP purposes, for example via inclusion in operating procedures and maintenance planning.

Offset

The Federal Safeguarding Mechanism (SGM)⁵² requires Australia's highest greenhouse gas emitting facilities to reduce or limit their emissions in line with Australia's emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050. Direct GHG emissions from the Scarborough project, indirect emissions associated with onshore processing of gas from the Scarborough project as well as indirect emissions associated with the transportation and end use of gas within Australian safeguard facilities are subject to the SGM, and net emissions from these sources must be kept below a specified limit or baseline.

The SGM baseline parameters set for new facilities such as the Scarborough FPU are based on "international best practice" emissions intensity values. The baseline gives no allowance for reservoir CO₂ emissions from processing Scarborough gas associated with arrangements for new gas fields supplying LNG facilities. Additionally, an annual decline rate of 4.9% has been set to 2030. Post 2030 decline rates are intended to be set in predictable five-year blocks, after updates to Australia's Nationally Determined Contribution (NDC) under the Paris Agreement. This means that net direct emissions from the Scarborough FPU will be lower than current international best practice from start-up, and decline thereafter. If a baseline is calculated to be less than 100 ktCO₂-e per annum, a minimum baseline rule takes effect and the annual compliance baseline is rounded up to 100 ktCO₂-e (CER 2024).

The SGM baseline related to onshore processing of Scarborough gas is expected to be based on facility specific and industry-average emissions intensities transitioning to be based on industry-average values only in 2030. These baselines will also be subject to the same requirements noted above. The Scarborough net direct GHG emissions considering these requirements are summarised in Table 6-22.

Safeguard facilities that exceed their baseline must manage their excess emissions, such as by surrendering Australian Carbon Credit Units (ACCU) or Safeguard Mechanism Credits (SMCs), which are representative of one tonne of CO₂-e per credit, so that net emissions are brought in line with the baseline. So that sufficient credits are available and that there is a means to comply, safeguard facilities that exceed their baseline are able to buy Government-held ACCU from the Clean Energy Regulator via the Cost Containment Measure implemented as part of recent reforms.

Safeguard Mechanism (SGM) obligations for the Scarborough facility will be met by emissions abatement via operational controls as first preference (described above for both operations phase and initial start-up). Options to manage residual net emissions in excess of baseline include surrendering ACCU or SMCs, applying to become a trade-exposed baseline-adjusted facility, applying to borrow baseline from the following year or applying for a multi-year monitoring period. Surrendered carbon credits may be generated from Woodside projects, purchased from the market or purchased from the Government through the Cost-Containment Mechanism.

Carbon Management – Business Context

Woodside established a Carbon Business in 2018 in order to develop a portfolio of carbon credits and skills and expertise in managing carbon credit integrity. Total expenditure to date has been split between approximately one-third on origination of new Woodside projects, and the remainder on purchase of credits. In the future, focus is expected to shift towards project origination.

Woodside recognises that assessing integrity of carbon credits and managing a diverse portfolio of credits is important. In addition to regulatory requirements associated with the SGM, management of carbon credits is informed by current and emerging external frameworks such as the Integrity Council for the Voluntary Carbon Market's Core Carbon Principles, the Investor Group on Climate Change's guidance, and the Oxford Principles for Net Zero Aligned Offsetting. More information on Woodside's approach and management of carbon credits can be found in section 3.4 of the 2024 Climate Transition Action Plan.

Woodside Climate Targets

Woodside is targeting a reduction of net equity Scope 1 and 2 GHG emissions of 15% by 2025 and 30% by 2030, with an aspiration of net zero by 2050 or sooner. The net equity Scope 1 and 2 emissions reduction targets are relative to a starting base of 6.32 MtCO₂-e which is representative of the gross annual average equity Scope 1 and 2 GHG emissions over 2016-2020. This starting base may be adjusted (up or down) for potential equity changes in producing or sanctioned assets with a final investment decision prior to 2021. Net equity emissions include the utilisation of carbon credits as offsets.

⁵² Further information about the SGM and SGM Baselines can be found at the Clean Energy Regulator website: <https://cer.gov.au/schemes/safeguard-mechanism> and <https://cer.gov.au/schemes/safeguard-mechanism/safeguard-baselines>

The targets mean that total portfolio net equity Scope 1 and 2 emissions for the 12 month period ending December 2025 are targeted to be 15% lower than the starting base, and that net equity Scope 1 and 2 emissions for the 12 months period ending 31 December 2030 are targeted to be 30% lower than the starting base.

There is no direct mapping of these corporate level Scope 1 targets to Scarborough operations. The Scarborough Project was not operational in 2016-2020 during which the starting baseline was established; and therefore estimated GHG emissions from the operation of Scarborough were not included in the baseline, but will nonetheless be part of Woodside's total global GHG emissions, which the targets apply to. Abatement of these emissions may come from other facilities with more cost-effective or impactful abatement opportunities, or from offsets. Meeting these targets may mean additional net voluntary abatement beyond that required by the SGM described above.

Management and Abatement for Onshore Processing (Indirect) GHG Emissions

As described above, indirect GHG emissions will be generated by the onshore processing of gas from the Scarborough project. Onshore processing facilities are also subject to GHG emissions management frameworks and relevant regulatory approvals. As outlined above, the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 is the primary regulation mechanism for the management of GHG emissions from facilities with direct emissions over 100,000 tonnes CO₂e. Both Pluto and KGP are subject to the requirements of the Safeguard Mechanism and net emissions from these sources must be kept below a specified limit or baseline.

The Western Australian EPA have also assessed GHG emissions from Pluto and KGP under the Environmental Protection Act 1986. Ministerial Statement 757 for Pluto required the development of a Greenhouse Gas Abatement Program (Pluto GGAP), prior to the commencement of construction, in order to:

- ensure that the plant is designed and operated in a manner which achieves reductions in GHG emissions as far as practicable
- provide for onshore GHG emissions reductions over time
- ensure that, through the use of best practice measures, the total net GHG emissions and/or GHG emissions per unit of product from the project are minimised.

The Pluto GGAP for the initial Pluto train 1 development was updated to incorporate Pluto train 2 and included interim and long-term emission reduction targets approved by the Minister for Environment in August 2021. Ministerial Statement 1208, issued in August 2023, updates the Greenhouse Gas Abatement conditions from Ministerial Statement 757 and includes net GHG emission limits reflected in the approved Pluto GGAP targets in addition to ongoing review and reporting of GHG emissions and updates to the Pluto GGAP. The Pluto GGAP Revision 3A is currently applicable and in-force under MS1208 and is subject to annual compliance reporting provided to the WA EPA and published on the Woodside website.

Following EPA assessment of the North West Shelf Project Extension Proposal, which allows for continued operation of the NWS Project and processing of third party gas (such as from Scarborough via the Interconnector pipeline) at KGP, Ministerial Statement 1233 was issued in December 2024, approving the proposal with conditions relating to the management of GHG emissions (Condition 2-1 to 2-5). The GHG conditions require:

- notifying the relevant state government department if implementation of the proposal will not be or is not expected to be regulated under Safeguard legislation and of the implications of any changes to Federal Safeguard Legislation including obligations to reduce net Scope 1 GHG emissions.
- within 12 months of publication of the Ministerial Statement, and thereafter at five yearly intervals, to carry out a review of best practice design and operational measures that could be implemented to reduce GHG emissions, and provide to the relevant state government department a report which:
 - identifies practicable and reasonable options to reduce GHG emissions from the proposal
 - explains the assessment of both technical and economic feasibility of these options, and identifies which are considered feasible
 - includes an independent peer-review report of this options analysis
 - considers reasonably practicable options for reductions in scope 3 emissions

On 15 October 2024, the WA State Government released its updated greenhouse gas emissions policy for major projects (State policy) assessed by the EPA. Recognizing reforms that strengthened the Commonwealth SGM in 2023, the State policy describes that conditions to reduce net greenhouse gas emissions will no longer be applied to major proposals assessed under Part IV of the Environmental Protection Act 1986 where the proposals are subjected to alternative regulatory measures such as the current SGM.

In November 2024, the EPA updated its Environmental Factor Guideline: Greenhouse Gas Emissions with consideration of 'rapidly evolving' climate science and policy and the updated State Policy. In its updated guideline, the EPA states that 'emission reductions required under the SGM are now likely to represent an "as far as practicable" reduction of, and in most cases meet its factor expectation for, covered emissions.'

The WA Minister for Environment has recently requested the EPA to inquire into and report on the matter of changing the implementation conditions relating to the management of GHG emissions at Pluto. It is anticipated that Ministerial Statement 1208 will be amended to align with conditions of other major projects, recognizing the SGM declining baseline, and other conditions such as those outlined for Ministerial Statement 1233 (summarised above), to achieve the EPA's objective to minimise the risk of environmental harm associated with climate change by reducing GHG

emissions as far as practicable. For Pluto, the trajectory of net GHG emission limits under the SGM is substantially lower than the net GHG limits currently specified in Ministerial Statement 1208.

These regulatory frameworks, which are designed so that GHG emissions from onshore processing of Scarborough gas are managed consistent with Australia's emission reduction targets, routinely publicly reported and emission reduction opportunities periodically reviewed, ensure that GHG emissions associated with the onshore processing of Scarborough gas are ALARP and Acceptable.

Management and Abatement for Third Party Consumption (inc. Transport, Regasification, Distribution, Combustion) (Indirect)

Woodside continues to pursue a range of management and abatement measures relevant to GHG emissions associated with third party consumption of gas from the Scarborough project. These are appropriate and practicable given that Woodside does not have operational control over third party GHG emissions. Examples of initiatives we are involved with are given below, involvement may change over time.

Reduce

Methane Guiding Principles: Woodside joined the Methane Guiding Principles in 2018. The MGP focuses on priority areas for action to reduce methane emissions across the natural gas supply chain.

Completed activities under the MGP include:

- led the "Global Midstream initiative" which encourages MGP members to engage and collaborate with supply chain and share best practises for methane reduction
- sponsored the first technical workshop of the Australian Energy Producers methane taskforce
- presented and participated in panels at the Global Methane Summit and International Gas Union conference

ASEAN Methane Leadership Programme: Woodside joined in 2023 and initiated an Australian methane programme through the Australian Climate Leaders Coalition. These programmes allow Woodside to share expertise with other companies in the natural gas value chain to help them reduce emissions of methane to near-zero⁵³

IPIECA Scope 3 Emissions Taskforce: Providing members the opportunity to convene and disseminate knowledge and good practice in the area of Scope 3 emissions, including categorisation, value chain emission analysis, Scope 3 measurement and reporting and engagement along the value chain.

OGMP 2.0: Woodside joined OGMP 2.0 in 2024. The OGMP 2.0 is the United Nations Environment Programme's flagship oil and gas reporting and abatement programme. OGMP 2.0 is the only comprehensive, measurement-based reporting framework for the oil and gas industry that improves the accuracy and transparency of methane emissions reporting. This is key to prioritising methane abatement actions in the sector.

Woodside shares examples of emissions reduction initiatives being implemented on its assets with the Operator of non-operated assets at governance forums and joint venture technical committee meetings. Examples have included sharing knowledge about methane measurement (such as drone observation surveys), reduction opportunities such as thermal oxidisers at the Wheatstone asset, and approach to workforce engagement on decarbonisation and identification of opportunities.

Woodside also supports customers⁵⁴ to reduce their emissions via the investment in new energy products and lower carbon services, including the progression of corporate Scope 3 targets that apply across Woodside's portfolio including:

- Scope 3 Investment Target⁵⁵: Woodside has a Scope 3 investment target aiming to invest \$5 billion in new energy products and lower carbon services by 2030⁵⁶
- Scope 3 Emissions Abatement Target⁵⁵: Woodside has a Scope 3 emissions abatement target, to indicate the potential abatement impact of these products and services upon customer Scope 1 or 2 emissions. This target

⁵³ OGMP, 2023. "Implementation Plan Guidance", p. 2 https://ogmpartnership.com/wp-content/uploads/2023/02/OGMP-2.0-Implementation-Plan-Guidance_2.pdf. OGMP provides the OGCI collective average target for upstream operations as an example of 'near zero' emissions intensity

⁵⁴ The customers for these products and services may be the same as the customers of our oil and gas business, directly substituting their energy for new products or directly abating the associated emissions. There may also be customers of the new products and services, without also being customers of oil and gas

⁵⁵ Scope 3 targets are subject to commercial arrangements, commercial feasibility, regulatory and Joint Venture approvals, and third party activities (which may or may not proceed). Individual investment decisions are subject to Woodside's investment targets. Not guidance. Potentially includes both organic and inorganic investment. Timing refers to financial investment decision, not start-up/operations.

⁵⁶ Includes pre-RFSU spend on new energy products and lower carbon services that can help our customers decarbonise by using these products and services. It is not used to fund reductions of Woodside's net equity Scope 1 and 2 emissions which are managed separately through asset decarbonisation plans.

it to take final investment decisions on new energy products and lower carbon services by 2030, with total abatement capacity of 5 Mtpa CO₂-e⁵⁷

Substitute

Promoting and marketing the role of LNG in displacing higher carbon intensity fuels (IEA, 2019): Woodside continues to advocate LNG as a means for customers to reduce their Scope 1 and 2 emissions, in accordance with the customer nations' NDCs (see section below). Evidence of the effectiveness of this strategy is the recent buy into the Scarborough project by Japan LNG (10% – 8 August 2023) and JERA (15.1% – 23 February 2024) with associated potential LNG offtake and collaboration on opportunities in new energy.

Advocate

Advocacy for stable policy frameworks that reduce carbon emissions: Woodside aligns its advocacy to support the goals of the Paris Agreement. A list of speeches and submissions to international and domestic audiences which contain climate related content or positions in 2023 is presented in the Woodside Climate Transition Action Plan, section 6.1.

Monitor and Report

Monitor and report on the global energy outlook: This will be achieved via the release of Woodside's annual disclosures.

Verification

Verification of assumptions used to estimate third party emissions (transport, regasification, distribution and end use) will be undertaken as far as reasonably practicable based on data available. This may include:

- Information on LNG cargo destinations, for example from sales contracts
- Domestic gas volumes
- Updates to relevant estimation factors
- Data published by third parties involved in the value chain

If assumptions used in calculation of third party emissions are found to have varied or are no longer valid, Woodside will undertake review and re-estimate third party emissions, applying change management process as described in Section 7.2.7.

Reporting

NGERS requires Woodside to report on GHG emissions and energy use from activities which are under its operational control. Woodside will report GHG emissions and energy use from offshore facilities, including the FPU, in accordance with its requirements under the NGERS Act.

Data on broader GHG emissions, such as Scope 3 emissions and progress against corporate targets and commitments, will be published as part of Woodside's annual disclosures.

Detailed Impact/Risk Assessment

Assessment of Potential Climate Change Impacts

Climate change is caused by the net global concentration of greenhouse gases in the atmosphere. Human-caused climate change is a consequence of more than a century of net GHG emissions from energy use, land use change, lifestyle patterns of consumption, and production (IPCC 2023). The IPCC has stated that observed increases in GHG concentrations since 1750 leading to climate change are unequivocally caused by human activities and that there's a near linear relationship between cumulative anthropogenic CO₂ emissions and the global warming they cause (IPCC 2023). This relationship implies that reaching net zero anthropogenic CO₂ emissions is a requirement to stabilize human-induced global temperature increase at any level, but that limiting global temperature increase to a specific level would imply limiting cumulative CO₂ emissions to within a carbon budget (IPCC 2023)

As stated by the IPCC, "it is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred". These impacts are summarised in the below section *Climate Change – Global and Australian Context*.

The Paris Agreement

The Paris Agreement is an international treaty on climate change, signed in 2016. It includes the goal to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C."

Carbon budgets "refer to the total net amount of carbon dioxide that can still be emitted by human activities while limiting global warming to a specified level" (IPCC 2023). A number of factors influence the calculation of remaining carbon

⁵⁷ Includes binding and non-binding opportunities in the portfolio, subject to commercial arrangements, commercial feasibility, regulatory and Joint Venture approvals, and third party activities (which may or may not proceed). Individual investment decisions are subject to Woodside's investment targets. Not guidance.

Detailed Impact/Risk Assessment

budgets, such as the level of global warming chosen, probability, contribution of other greenhouse gases, how much global warming has already occurred due to historical emissions. The remaining carbon budget to limit global warming to 1.5°C and 2°C was 500 GtCO₂ and 1350 GtCO₂ respectively, as calculated from 2020 (IPCC 2023).

Since 2020, a portion of this global carbon budget has been consumed by ongoing global CO₂ emissions. The Global Carbon Budget, an initiative of the Global Carbon Project of the University of Exeter “tracks the trends in global carbon emissions and sinks and is a key measure of progress towards the goals of the Paris Agreement.” It is recognised by being presented at the UNFCCC’s Conference of Parties (COP) sessions. The last Global Carbon Budget in 2024 estimated that the remaining carbon budget for cumulative global GHG emissions to limit global warming to 1.5°C, and 2°C were 235 GtCO₂, and 1110 GtCO₂ respectively (50% likelihood).

Federally, the Australian domestic policy response to its Paris Agreement commitments is contained in multiple pieces of Commonwealth legislation (for example, *Australian Registry of Emissions Units Act 2011* (Cth); *Carbon Credits (Carbon Farming Initiative) Act 2011* (Cth); *Climate Change Act 2022* (Cth); *National Greenhouse and Energy Reporting Act 2007* (Cth); *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015* (Cth); *Offshore Electricity Infrastructure Act 2011* (Cth); *Renewable Energy (Electricity) Act 2000* (Cth)). There are also climate change policies at State level. Policies and mechanisms of this kind will serve as Woodside’s primary means of managing GHG. As recent Court decisions have noted, current domestic environmental protection and assessment mechanisms are ill-suited for considering climate change impacts.

The Federal Safeguard Mechanism (SGM) described in the Management and Abatement section above is the key piece of legislation that implements the Australian Government’s policy for reducing emissions at Australia’s largest industrial facilities. The SGM sets legislated limits, known as baselines, on the net greenhouse gas emissions of these facilities. These emissions limits will decline, predictably and gradually. Through these limits, the Australian Government aims to help achieve Australia’s emission reduction targets, as committed in Australia’s Nationally Determined Contribution (NDC) to the Paris Agreement of 43% below 2005 levels by 2030 and net zero by 2050.

Climate Related Scenarios

The use of fossil fuels for energy currently accounts for around three quarters of anthropogenic GHG emissions (IEA 2021). This means that efforts to meet climate change goals must include changes to the way that the world produces and consumes energy. These changes are referred to as the “energy transition”.

The precise shape and pace of the energy transition is uncertain. It is expected to vary in different countries because they have different starting points, development requirements, resources and capabilities. However, the scale of the transition is clearer. It will take many trillions of dollars, invested over decades. The International Renewable Energy Agency estimates it will require \$115 trillion of cumulative investment by 2050 (IRENA 2022).

During 2022, the world experienced what the IEA has called the “first truly global energy crisis” (UNFCCC 2022). This crisis has seen higher energy prices and in some cases constraints on access to energy supply, impacting both businesses and households. The energy crisis has led to a renewed focus on energy security and has reconfirmed that the energy transition needs to be carefully managed if it is to be fair, inclusive and ultimately successful.

Gas from the Scarborough project is understood to have an ongoing role in supporting customers’ plans to secure their energy needs, while they reduce their emissions. Current uses of gas include power generation⁵⁸, heating and chemical feedstock.

In 2021, the IEA published its Net Zero by 2050: A Roadmap for the Global Energy Sector report (the NZE Scenario) (IEA 2021). The report is clear that “the route mapped out here is a path, not necessarily the path”, and Woodside recognises that this is one scenario out of many. A range of pathways are considered by the IPCC.

Even in the NZE Scenario, investment in oil and gas development does not cease. The IEA estimates the need for an average \$365 billion of upstream oil and gas investment every year until 2030, and \$171 billion every year thereafter to 2050 is required in the NZE Scenario. The IEA cautions that “The fact that no new oil and natural gas fields are required in the NZE does not mean that limiting investment in new fields will lead to the energy transition outcomes in the NZE. If demand remains at higher levels, reduced investment would result in a shortfall in supply in the years ahead, and this would lead to higher and more volatile prices.

A range of climate pathways which limit global warming to either 1.5°C or 2°C have been published in addition to the NZE Scenario. Figure 6-6 shows the range of potential global gas consumption in these scenarios, along with forecast supply with and without new investment.

⁵⁸ Electricity generation fueled with natural gas typically releases about half the lifecycle amount of greenhouse gases compared to electricity generation fueled with coal (IEA 2019). Additionally, natural gas fired electricity generation offers a flexible means of providing support to batteries and help stabilize the power grid during periods of reduced renewable energy production (e.g. at night, and when the wind is calm)

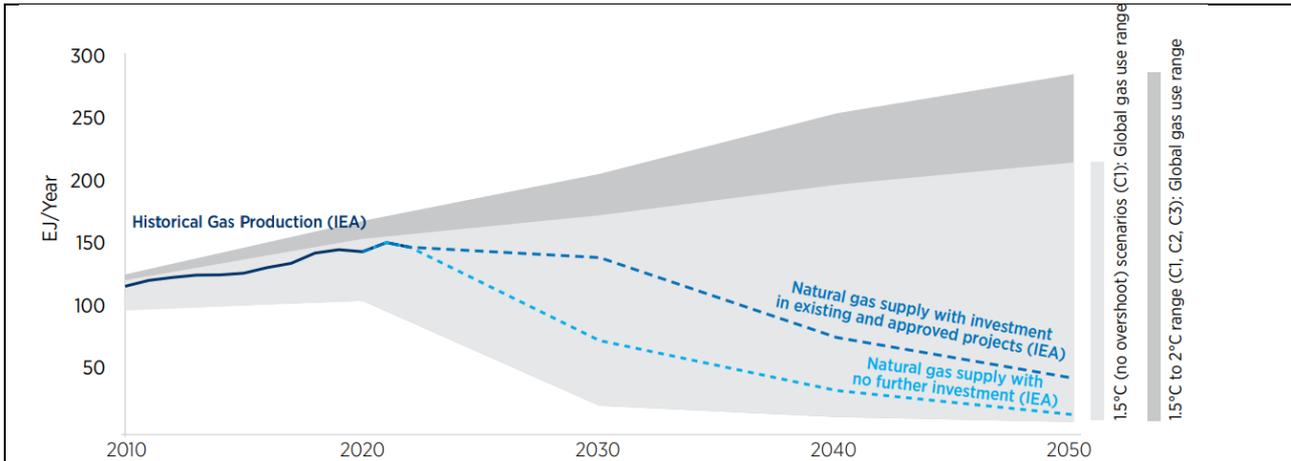


Figure 6-6: Forecast global gas use in climate pathways that limit warming to 1.5°C and 2°C, with expected supply

Woodside notes that the IEA has published two special reports, Emissions from Oil and Gas Operations in Net Zero Transitions and The Oil and Gas Industry in Net Zero Transitions (IEA 2023). Combined, these reports note that oil and gas operations currently account for around 15% of total energy related emissions globally, identify and advocate for opportunities for oil and gas producers to abate these emissions, and analyse broader implications for the sector through the energy transition which includes the need for increased investment in clean energy. This EP demonstrates that management and abatement measures applied reduce GHG emissions associated with the project to acceptable and ALARP levels. Through meeting requirements of the Federal SGM, direct GHG emissions and those created by onshore processing of Scarborough gas are aligned with Australia’s emission reduction targets under the Paris Agreement. Further, Woodside’s Scope 3 targets demonstrate how Woodside’s products and services can help our customers avoid or reduce their Scope 1 or 2 emissions and therefore reduce life cycle (Scopes 1, 2 and 3) emissions intensity of Woodside’s portfolio.

Woodside notes that the IEA makes the following statements in their World Energy Outlook 2024 on LNG demand in their Stated Policies Scenario (STEPS), Announced Pledges Scenario (APS) and Net Zero Emissions by 2050 Scenario (NZE):

- In the STEPS, LNG demand increases by more than 2.5% per year over the 2023-2035 period, which is faster than overall natural gas demand but far less rapid than the average 6% per year LNG growth rate between 2013 and 2022. Around 270 bcm of new LNG supply is currently under construction, and this will lead to a near-doubling of capacity in the United States and Qatar, which are set to dominate supply in 2035, together accounting for around 50% of global LNG trade in the STEPS by this date. This increased supply concentration is likely to put a spotlight on possible security of supply risks that might arise from extreme weather in the Gulf of Mexico and from disruption in the Middle East.
- Due to an upward adjustment to projected natural gas demand growth to 2030, LNG demand growth in the STEPS is higher than in the WEO-2023, reaching more than 700 bcm by 2035. However, this pace of growth does not keep pace with export capacity additions. As a result, a 130 bcm surplus emerges by 2030, bringing prices down in key importing regions like the European Union, China and Japan to a range between USD 6.5- 8.5 per million British thermal units (MBtu). This makes it difficult for some exporters to fully recover their long-run marginal cost of supply during this period.
- This LNG surplus narrows in subsequent years as LNG demand growth continues in the 2030s, and a supply gap emerges in 2040. By 2050, around 175 bcm of additional LNG export capacity is required in the STEPS to cover both demand growth and retiring capacity. This additional supply mainly comes from the Middle East, East Africa and North America. In the APS, projects currently under construction are sufficient to meet LNG demand: this peaks at 650 bcm in 2030, and no supply gap emerges. In the NZE Scenario, demand can be met in aggregate from projects existing today, without any need for additional LNG from projects currently under construction: this has a profound effect on gas prices in importing regions, which fall to around USD 5/MBtu by 2030.

Japan and Korea have significant energy- and carbon-intensive industry sectors which account for approximately 30% of GDP for each. Most energy used in industry is imported, which creates a priority for energy security during energy transitions. In the APS, energy supplies in Japan and Korea are underpinned by a variety of sources over the next decade as they pivot to increased use of clean energy sources – including renewables, nuclear and low emissions fuels – to reduce emissions and secure supply. Although the share of fossil fuels in power generation decreases through to 2035 and beyond, natural gas continues to provide stable and flexible power for both countries in light of limited domestic supply options or interconnections with neighbouring countries. Natural gas is projected to remain an important energy

Detailed Impact/Risk Assessment

source, accounting for nearly 12% of the power mix in 2035 in the APS, though gas-fired power drops to just 3% by 2050.

It is acknowledged that information related to climate related scenarios and the energy transition are subject to change, through mechanisms such as ongoing work by the IPCC and other agencies. Woodside will stay abreast of such changes and apply change management processes as described in section 7.2.7.

Gas's Role in the Energy System

The IEA identifies that there are strong macroeconomic drivers for growth in natural gas consumption in emerging markets and developing economies in Asia over the next decade, at least partially driven by coal to gas switching which "helps countries with net-zero emissions targets accelerate the transition away from coal, even if renewables are the major source of emissions reductions" (IEA 2023).

In the 2019 report *The Role of Gas in Today's Energy Transition*, the IEA indicates that electricity generation fuelled with natural gas typically releases about half the lifecycle amount of greenhouse gases compared to electricity generation fuelled with coal (IEA 2019). Additionally, natural gas-fired electricity generation offers a flexible means of providing support to batteries and helps stabilise the power grid during periods of decreased renewable energy production (e.g. at night or when the wind is calm).

The same IEA report states that "beating coal on environmental grounds sets a low bar for natural gas, given there are lower emissions and lower cost alternatives to both fuels". However, as shown in Figure 6-6 there is ongoing demand for gas in Paris aligned scenarios regardless of the presence or trajectory of renewable energy development.

It is noted that a recent paper published in the Energy Science & Engineering Journal comments on the greenhouse gas footprint of LNG exported from the United States (Howarth 2024). This paper is not an appropriate assessment of emissions associated with the Scarborough PAP because it:

- overestimates methane emissions associated with gas production and processing in the US (the paper uses a methane emissions intensity rate over three times higher than the International Energy Agency (IEA) Global Methane Tracker¹ uses for US gas production)
- the Howarth 2024 study assumes a leak rate of 2.8% methane during the upstream gas process (does not include liquefaction). The industry has a target of 0.2% (Oil and Gas Climate Initiative 2025 target) and in the 2024 CTAP, Woodside reported methane emissions around 0.1% of production by volume, which is supported by surveys, aerial and point source measurements at existing operational facilities. This value can also be assumed to apply for Scarborough, since it is subject to similar methane management approach as other Woodside operations.
- is based on LNG exported from the USA and not relevant to Australian projects including Scarborough (the IEA finds that the methane emissions intensity of Australian gas production and processing is around half that of the US (IEA,2024)
- underestimates the emissions from coal use in Asia.
 - The IEA Methane Tracker Documentation estimates that methane emissions from India and China coal production are 34% and 56% higher respectively than US domestic coal production, which was used as the basis for comparison in the Howarth paper (IEA, 2024)

Additionally, as mentioned above, the IEA indicates that electricity generation fuelled with natural gas typically releases about half the lifecycle amount of greenhouse gases compared to electricity generation fuelled with coal (IEA 2019). Woodside considers the IEA a more authoritative source than Howarth.

The IPCC has noted Carbon intensity (from fossil fuel combustion and industrial processes) decreased, with large regional variations, over 2010-2019 "mainly due to fuel switching from coal to gas, reduced expansion of coal capacity, and increased use of renewables" (IPCC 2023).

Global energy demand is expected to increase. Since the availability of gas can support the reduction of more carbon-intensive firming fuel sources such as coal, rather than displacing renewable energy, it cannot be assumed that emissions associated with customer consumption of Scarborough gas would be entirely additive to global atmospheric emissions.

While the US market is not expected to be customers for Scarborough gas, it serves as a relevant example. In an article titled *Natural gas is now stronger than ever in the United States power sector*, the IEA states "the switch from coal to gas and uptake of renewables has lowered emissions in the US power sector... In this period, gas-fired generation more than doubled while coal-fired generation was cut by half" (IEA 2023).

Woodside will reassess, on an annual basis, the role of gas in the energy transition and its potential to contribute to the net displacement of more carbon intensive energy sources. The assessment may include relevant literature reviews, participating or commissioning studies, assessing carbon intensities of the electricity mix of customer nations (relative to LNG), or by using other data available. Adaptive measures will be designed and implemented if Woodside concludes the assessments are showing gas is not displacing more carbon intensive fuels or contributing to the global energy transition, either directly (gas displacing more carbon intensive energy sources, such as coal) or indirectly (gas enabling build out of further renewables by providing the base-load/firming needed for grid stability). Asia has more than half of

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Detailed Impact/Risk Assessment

the world's people and is growing. Across Asia many countries are still heavily reliant on coal which accounts for approximately 50% of the total energy supply in the Asia Pacific (IEA 2020).

Gas also provides important input to industry, with industrial uses of gas including:

- A feedstock for ammonia and methanol production, which are used for fertiliser and consumer goods manufacturing, among other processes that fuel economic growth and an increasing population
- A source of hydrogen production for the refining and chemical industries
- A source of heat for high-temperature industrial processes, such as producing aluminium, ceramics, cement, glass and steel. Due to its high energy density and controllable combustion characteristics, gas is particularly suitable for generating high temperature heat which may not be achievable through direct electrification (International Gas Union 2023).

Woodside currently expects that natural gas will continue to have a role in the energy transition.

Consideration of likely customer markets and associated energy mixes is important to understand the context of emissions from third party consumption of Scarborough gas. Offtake is not fully contracted for the life of the project, however a reasonable assumption is that gas from the Scarborough project will be part of the regional, commoditised LNG market. Recent sale of equity and associated gas sales agreement to customers including LNG Japan and JERA demonstrates a strong demand for Scarborough product (Woodside 2023). Scarborough is geographically positioned to provide LNG to Asian markets which also enables lower shipping emissions. The strong demand for Scarborough gas, including from customer nations who have publicly stated that they intend to use LNG as part of their approach to meeting their Paris commitments (see the next section below), some of which have already secured sales agreements or purchased stakes in the Scarborough Project, indicate that it is possible for Scarborough Gas to have a role in reducing global emissions.

The International Energy Agency (IEA) forecasts suggest that most future gas demand in Asia is China, India, Japan, Korea and other developing regions. These regions are therefore considered as likely customer markets for the purpose of evaluating the role of gas from the Scarborough project in existing energy mixes. This does not preclude the sale of gas from the Scarborough project to other customers.

Customer Markets' Nationally Determined Contributions (NDCs)/commitments

The emissions associated with the consumption of Scarborough gas along with other feed sources in customer markets will be considered under domestic and international emissions control frameworks. Anticipated customers of gas from the Scarborough Project are in countries that are parties to the Paris Agreement. Under the Paris Agreement and global GHG accounting conventions, each country is responsible for accounting for, reporting and reducing emissions that physically occur in its jurisdiction. As described in the *Management and Abatement* section above, Woodside will seek to minimise these emissions associated with Scarborough gas as appropriate to our level of control.

The Paris Agreement requires countries to publish Nationally Determined Contributions to the goals of the Agreement. GHG emissions associated with customer use in countries that have ratified the Paris Agreement are considered under relevant national plans, summarised along with other policies below:

- **Japan:** "Japan aims to reduce its greenhouse gas emissions by 46 percent in fiscal year 2030 from its fiscal year 2013 levels, setting an ambitious target which is aligned with the long-term goal of achieving net zero by 2050." Japan also published an "Outline of Strategic Energy Plan" in October 2021. This plan assumes that LNG, while reducing from 37% in 2019, still makes up 20% of Japan's electricity generation mix in 2030.
- **The People's Republic of China:** "China would scale up its NDCs by adopting more vigorous policies and measures, and aims to have CO₂ emissions peak before 2030 and achieve carbon neutrality before 2060." It goes on to state that "energy storage and gas-powered electricity will be stepped up rapidly"
- **Republic of Korea:** "The Republic of Korea is seeking to dramatically phase down coal-fired power generation while ramping up renewable power. Aged coal power plants will be shut down or shift their fuels from coal to Liquefied Natural Gas (LNG)."

Woodside's analysis of the NDCs and key policy documents of key customer nations is that LNG has an important role in supporting their decarbonisation plans under the Paris Agreement. If the introduction of Scarborough LNG into the global energy market serves to reduce GHG emissions elsewhere, then in Woodside's view the full volume of GHG emissions associated with the project are not expected to be additive to global GHG concentrations.

Gas' Role in Australia's Energy Market

Domestic users of Scarborough gas are expected to be subject to Australia's GHG framework which reflect Australia's NDCs, such as the Federal SGM which applies to Australia's largest industrial facilities.

The primary product from the Scarborough project will be LNG. However, under Western Australia's domestic gas reservation policy, gas from the Scarborough project will also contribute to domestic use in WA.

The emissions intensity of gas-fuelled electricity generation can be compared to other fuels data published by the Clean Energy Regulator (CER 2024). This includes data for designated generation facilities only, which according to the CER are facilities "where the principal activity is electricity production."

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Table 6-24: Comparative emissions intensity of different energy sources in Western Australia, 2022 2023 financial year

Primary Fuel	Total Generation (million MWh)	Scope 1 and 2 Emissions (MtCO ₂ e)	Emissions Intensity (tCO ₂ e/MWh)
Natural Gas	13.89	7.95	0.57
Coal	6.23	5.33	0.86
Oil, Diesel	0.10	0.06	0.65
Solar, Wind, Hydro	3.79	0.00	0.00
Other	0.10	0.01	0.08
Total	24.10	13.35	0.55

Table 6-24 shows that the GHG emissions intensity of gas-fuelled electricity generation in WA is approximately 30% lower than coal-fuelled electricity generation, and comparable to that of the total aggregated electricity generation. This may continue to change, for example as the portion of electricity generated from zero-carbon sources increases.

As stated by the Australian Energy market Operator,

[the 2023 data shows] strong growth in electricity demand, driven by electrification, electric vehicle uptake, and new energy-intensive industries including green hydrogen production. Several of these trends lead to reduced gas consumption. However, increases in expected electricity consumption, coupled with the phased closure of state-owned coal power stations has a corresponding impact on modelled use of gas-powered generation to support the transition to a majority-renewables power system

And

Pressures associated with future coal supply and the planned retirements of coal-fired generation, are expected to increase the reliance of the South West Integrated System gas powered generation (GPG) fleet, and GPG is expected to play an important role, along with renewables, storage and supporting transmissions infrastructure, in ensuring the reliability in the SWIS as the energy transition continues. (AEMO 2023)

The Scarborough Energy Project will deliver more gas to the WA market, at a time when WA is predicted to face supply shortages. According to 2022 WA Gas Statement of Opportunities report by Australian Energy Market Operator (AEMO) it is forecast there will be insufficient gas supply to meet WA demand. The start-up of Scarborough will help to address the anticipated forecast supply gap in the WA domestic gas market.

Scarborough Contribution to Global Greenhouse Gas Concentrations

The Scarborough project will create Scope 1 GHG emissions from the PAP and there will be Scope 3 emissions associated with onshore processing of Scarborough gas. There will also be Scope 3 GHG emissions from customer use associated with the project. These are estimated in the *Description of Source* section above.

The remaining carbon budget to limit global warming to 1.5°C and 2°C was 500 GtCO₂ and 1350 GtCO₂ respectively, as calculated from 2020 (IPCC 2023).

Since 2020, a portion of this global carbon budget has been consumed by ongoing global CO₂ emissions. The Global Carbon Budget, an initiative of the Global Carbon Project of the University of Exeter “tracks the trends in global carbon emissions and sinks and is a key measure of progress towards the goals of the Paris Agreement.” The University of Exeter presented at the UNFCC’s Conference of Parties (COP) sessions. The last Global Carbon Budget in 2024 estimated that the remaining carbon budget for cumulative global GHG emissions to limit global warming to 1.5°C, and 2°C were 235 GtCO₂, and 1110 GtCO₂ respectively at January 2025 (50% likelihood).

As described above, LNG can have a role in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes, and key customer nations have stated that LNG has an important role in supporting their decarbonisation plans under the Paris Agreement. If the introduction of Scarborough LNG into the global energy market serves to reduce GHG emissions elsewhere, then the full volume of GHG emissions associated with the project may not be additive to global GHG concentrations.

To facilitate a comparison against carbon budgets, a hypothetical scenario where GHG emissions associated with the Scarborough project are treated as entirely additive is considered. This scenario is not expected to eventuate due to the reasons described above. The estimated Scarborough GHG emissions over the expected life of the development are compared with remaining carbon budgets expected to achieve the goals of the Paris Agreement below. Additionally, no allowance is given for future abatement of GHG emissions associated with the project (such as through future abatement opportunities or future policy requirements), or changes to the carbon budgets which are known to be estimates only. As described above, the carbon budgets are developed based on CO₂ only however the comparison below conservatively considers all GHG emissions from the project normalised as CO₂-e, the vast majority of which are CO₂.

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Detailed Impact/Risk Assessment

Emissions associated with onshore processing of Scarborough gas will also be subject to GHG frameworks which are expected to reduce the estimate from the gross figure used, such as the Federal SGM.

Table 6-25: Comparison of expected lifecycle GHG emissions associated with the project to global carbon budgets, assuming they are additive

Source	Estimated GHG Emissions over Development Life (MtCO ₂ -e)	Proportion of remaining global carbon budget – achieving 1.5°C (235 GtCO ₂)	Proportion of remaining global carbon budget – achieving 2°C (1110 GtCO ₂)
Direct + Vessels and Helicopters	12	0.005%	0.001%
Onshore hydrocarbon processing	88	0.04%	0.008%
Third party transport of products, regasification, distribution and end use	778	0.33%	0.07%
Total	878	0.37%	0.08%

Assuming the scenario in which all GHG emissions associated with the Scarborough project are additive to global GHG gas concentrations, which they may not be, the project’s contribution to the global carbon budget required to meet the goals of the Paris Agreement is de minimis.

Greenhouse gas emissions associated with Scarborough are estimated to be up to 878 Mt CO₂-e till EOFL, of which approximately 100 Mt CO₂-e may originate from extraction and processing in Australia. Projected annual extraction and processing GHG emissions of approximately 3.5 Mt CO₂-e would represent ~0.8% of national Australian emissions, relative to FY2024 (440.6 Mt CO₂-e for the year until June 2024) (DCCEEW, 2024c).

Based on Australia’s GHG emission reduction commitments and NDC, an Australian carbon budget of 4,377 MtCO₂-e for the years 2021-2030 has been estimated (DCCEEW 2024c), GHG emissions associated with the Scarborough project until 2030 occurring in Australia, conservatively assuming 5 full years of operation and emissions from consumption of domestic gas, are estimated to be 38 MtCO₂-e, representing 0.9% of Australia’s carbon budget for this period. Net emissions associated with Scarborough in Australia are set to be lower than these totals - with ongoing abatement via implementation of the NGERs Safeguard Mechanism which sets out an abatement trajectory consistent with achieving Australia’s emission reduction targets.

These emissions represent a de minimis contribution to either Australia’s GHG emissions or global GHG emissions.

Climate Change – Global and Australian Context

Climate change is caused by the net global concentration of greenhouse gases in the atmosphere. Noting that human-caused climate change is a consequence of more than a century of net GHG emissions from energy use, land use change, lifestyle patterns of consumption, and production (IPCC 2023), the following contextual evaluation of Climate Change impacts is provided.

Climate science is a rapidly evolving field in which new observations continue to deepen understanding of the current and potential impacts of global warming, and the possible pathways for mitigation and adaptation.

The CSIRO State of the Climate 2024 Report (CSIRO, 2024) draws on the latest national and international climate research, encompassing observations, analyses and future projections to describe year-to-year variability and longer-term changes in Australia’s climate. Key points from this report on measured warming trends and forecast trajectories include the following:

- Australia’s climate has warmed by an average of 1.51 ± 0.23 °C since national records began in 1910.
- Sea surface temperatures have increased by an average of 1.08 °C since 1900.
- The warming has led to an increase in the frequency of extreme heat events over land and in the oceans.
- Mass coral bleaching is a stress response of corals occurring primarily due to elevated ocean temperature, with five bleaching events associated with marine heatwaves occurring on the Great Barrier Reef over the past 10 years: in 2016, 2017, 2020, 2022 and 2024. In 2016, bleaching was associated with then record high sea surface temperatures, which in turn led to the largest recorded mass bleaching to date on the Great Barrier Reef.
- The 2022 event was the first time that mass bleaching occurred on the Reef during a La Niña year. Accumulated thermal stress during the 2024 event was higher than in 2016, although the full impact in terms of bleaching is still being assessed.

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Detailed Impact/Risk Assessment

- In 2022 bleaching was also observed on some reefs on Australia’s west coast, including Ningaloo Reef. This was due to warm ocean temperatures, driven by the 2021–2022 La Niña. The region’s previous severe marine heatwave was driven by the 2010–2011 La Niña, which resulted in bleaching being recorded for the first time on Ningaloo and the closure of several Western Australian fisheries.
- In the south-west of Australia there has been a decrease of around 16% in April to October rainfall since 1970. Across the same region, May to July rainfall has seen the largest reduction, by around 20% since 1970.
- In the south-east of Australia, there has been a decrease of around 9% in April to October rainfall since 1994.
- Heavy short-term rainfall events are becoming more intense.
- There has been a decrease in streamflow at most gauges across Australia since 1970.
- There has been an increase in rainfall and streamflow across parts of northern Australia since the 1970s.
- There has been an increase in extreme fire weather, and a longer fire season, across large parts of the country since the 1950s.
- There has been a decrease in the number of tropical cyclones observed in the Australian region since at least 1982.
- Snow depth, snow cover and number of snow days have decreased in alpine regions since the late 1950s.
- Oceans around Australia are becoming more acidic, with changes happening faster in recent decades.
- Sea levels are rising around Australia, including more frequent extreme high levels that increase the risk of inundation and damage to coastal infrastructure and communities.

The CSIRO report states that in the coming decades, Australia will experience ongoing changes to its weather and climate which are projected to include:

- Continued increase in air temperatures, with more heat extremes and fewer cold extremes.
- Continued decrease, on average, in cool season rainfall across many regions of southern and eastern Australia, which will likely lead to more time in drought.
- More intense short-duration heavy rainfall events even in regions where the average rainfall decreases or stays the same.
- Continued increase in the number of dangerous fire weather days and a longer fire season for much of southern and eastern Australia.
- Further sea level rise and continued warming and acidification of the oceans around Australia.
- Increased and longer-lasting marine heatwaves that will affect marine environments such as kelp forests and increase the likelihood of more frequent and severe bleaching events in coral reefs around Australia, including the Great Barrier Reef and Ningaloo Reef.
- Fewer tropical cyclones, but with higher intensity on average, and greater impacts when they occur through higher rain rates and higher sea level.
- Reduced average snow depth in alpine regions, but with variations from year to year.

The IPCC is the United Nations body for assessing the science related to climate change, and finalised the Sixth Assessment Report (AR6) in 2023. This consists of three Working Group contributions and a Synthesis Report. A summary of outcomes of the working group’s contributions comprises a range of matters, which amongst others include:

- The AR6 Working Group I (AR6-WG1) report stated that it is unequivocal that there is human-induced warming. It also stated that increased atmospheric carbon dioxide (CO2) levels, generated by human activity, are the largest driver of warming over the longer term, and that there are a range of factors, including emissions of methane, which increase warming in the short-term.
- The AR6 Working Group II (AR6-WG2) report stated that human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people, beyond natural climate variability. It stated that global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans. The report noted that societal choices and actions implemented in the next decade will determine the extent to which medium- and long-term pathways will deliver climate resilient development.
- The AR6 Working Group III (AR6-WG3) report provided an updated global assessment of climate change mitigation progress and pledges and examined the sources of global emissions. It explained developments in emissions reduction and mitigation efforts and assessed the impact of national climate pledges in relation to long-term emissions goals. More than 2000 quantitative emissions pathways were submitted to the IPCC, of which 1202 scenarios included sufficient information for assessing the associated warming. The report found that there are many pathways in the literature that likely limit global warming to 2°C with no overshoot, or to 1.5°C with limited overshoot. These variations occur because, while climate science is able to calculate a ‘carbon budget’ of net emissions before any particular temperature outcome is reached, the allocation of this

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Detailed Impact/Risk Assessment

budget between different human activities requires additional judgements about for example technology, economics, consumer preferences and policy choices.

- The AR6 Working Group I (AR6-WGI) report states “[c]limate change is a global phenomenon, but manifests differently in different regions” (IPCC 2021). IPCC projections for climate change in Australia from the AR6 Working Group II (AR6-WGII) report include:
 - further climate change is inevitable, with the rate and magnitude largely dependent on the emission pathway (*very high confidence*)⁵⁹
 - ongoing warming is projected, with more hot days and fewer cold days (*very high confidence*)
 - further sea level rise, ocean warming, and ocean acidification are projected (*very high confidence*)
 - less winter and spring rainfall is projected in southern Australia, with more winter rainfall in Tasmania, less autumn rainfall in southwestern Victoria and less summer rainfall in western Tasmania (*medium confidence*), with uncertain rainfall changes in northern Australia
 - more extreme fire weather is projected in southern and eastern Australia (*high confidence*)
 - increased drought frequency is projected for southern and eastern Australia (*medium confidence*)
 - increased heavy rainfall intensity is projected, with fewer tropical cyclones and a greater proportion of severe cyclones (*medium confidence*) (Lawrence et al., 2022).
- The AR6-WGII also contains information about projected impacts to health and well-being for the Australasian region including, amongst others:
 - detrimental effects on human health due to heat stress, changing rainfall patterns including floods and drought climate-sensitive air pollution (including that caused by wildfires) (*high confidence*) and vector-borne diseases (*medium confidence*)
 - vulnerability to detrimental effects of climate change will vary with socioeconomic conditions (*high confidence*) (Lawrence et al. 2022).

For further information related to Woodside’s approach to climate change, please see Section 5.3 ‘Managing Physical Risk’ and Section 6.3 ‘A Just Transition’ of Woodside’s Climate Transition Action Plan and 2023 Progress Report.

The AR6-WGII report identified nine key climate risks for the Australasian region:

- loss and degradation of coral reefs and associated biodiversity and ecosystem service values in Australia due to ocean warming and marine heatwaves (*very high confidence*)
- loss of alpine biodiversity in Australia due to less snow (*high confidence*)
- transition or collapse of alpine ash, snowgum woodland, pencil pine and northern jarrah forests in southern Australia due to hotter and drier conditions with more fires (*high confidence*)
- loss of kelp forests in southern Australia due to ocean warming, marine heatwaves, and overgrazing by climate-driven range extensions of herbivore fish and urchins (*high confidence*)
- loss of natural and human systems in low-lying coastal areas due to sea level rise (*high confidence*)
- disruption and decline in agricultural production and increased stress in rural communities in south-western, southern and eastern mainland Australia due to hotter and drier conditions (*high confidence*)
- increase in heat-related mortality and morbidity for people and wildlife in Australia due to heatwaves (*high confidence*)
- cascading, compounding and aggregate impacts on cities, settlements, infrastructure, supply-chains and services due to wildfires, floods, droughts, heatwaves, storms and sea level rise (*high confidence*)
- inability of institutions and governance systems to manage climate risks (*high confidence*) (Lawrence et al., 2022).

An earlier report by Australia’s Biodiversity and Climate Change Advisory Group summarised the potential impacts of climate change to marine and terrestrial species, habitats and ecosystems across Australia (Steffen et al., 2009). The 2009 report identified examples of observed changes in Australia’s biota that were considered consistent with the emerging climate change ‘signal’, as genetic constitution, geographic ranges, lifecycles, populations, ecotonal boundaries, ecosystems, and disturbance regimes (Steffen et al., 2009). The report also stated:

- “Biodiversity is one of the most vulnerable sectors to climate change”.

⁵⁹ A level of confidence is expressed using five qualifiers: very low, low, medium, high, and very high. For a given evidence and agreement statement, different confidence levels can be assigned, but increasing levels of evidence and degrees of agreement are correlated with increasing confidence (Lawrence et al., 2022).

Detailed Impact/Risk Assessment

- “Australia’s biodiversity is not distributed evenly over the continent but is clustered in a small number of hotspots with exceptionally rich biodiversity”, and that these “include the Great Barrier Reef, south-west Western Australia, the Australian Alps, the Queensland Wet Tropics and the Kakadu wetlands”.

Further, it was stated that “many of the most important impacts of climate change on biodiversity will be the indirect ones at the community and ecosystem levels, together with the interactive effects with existing stressors (Steffen et al., 2009). Future climate change (e.g., increased temperature and decreased, but more variable, rainfall) has the potential to have a range of impacts on ecological factors and threaten biodiversity in the Australian Mediterranean ecosystem (CSIRO, 2017).

Extensive modelling and monitoring studies over the last twenty years provide considerable evidence that global climate change is already affecting and will continue to affect species (Hoegh-Guldberg et al., 2018); however, these impacts are likely to be highly species-dependent and spatially variable. The most frequently observed and cited ecological responses to climate change include species distributions shifting towards the poles, upwards in elevation and shifts in phenology (earlier and later autumn life-history events) (M. Dunlop et al., 2012). Climate change may not only change species distribution patterns but also life-history traits such as migration patterns, reproductive seasonality and sex ratios (Steffen et al., 2009).

Impacts of climate change such as altering temperature, rainfall patterns and fire regimes, are likely to lead to changes in vegetation structure across all terrestrial ecosystems within Australia (M. Dunlop et al., 2012; Steffen et al., 2009). Increases in fire regimes will impact Australian ecosystems altering composition structure, habitat heterogeneity and ecosystem processes. Changes in climate variability, as well as averages, could also be important drivers of altered species interactions, both endemic and invasive species (M. Dunlop et al., 2012). Climate change could result in significant ecosystem shifts, as well as alterations to species ranges and abundances within those ecosystems (Hoegh-Guldberg et al., 2018).

The ‘loss of climatic habitat caused by anthropogenic emissions of greenhouse gases’ has been listed as a key threatening process under the EPBC Act (DCCEEW, 2021). The threatening process consists of reductions in the bioclimatic range within which a given species or ecological community exists due to emissions induced by human activities of greenhouse gases (DCCEEW, 2021). The process is considered to have a continental distribution, including both terrestrial and marine areas. Ecosystems in which the process occurs include: alpine habitats, coral reefs, wetlands and coastal ecosystems, polar communities, tropical forests, temperate forests, and arid and semi-arid environments (DCCEEW, 2021).

Coral reefs were recognised by both IPCC and the Australian Government as being at risk of climate change (Lawrence et al., 2022; DCCEEW, 2021). Protected coral reef areas in Australia include those within World Heritage listed sites, such as Ningaloo Coast, Shark Bay, or the Great Barrier Reef. Climate change has been identified as a threat for each of these World Heritage areas, with potential risks to coral reef as well as other environmental values (such as marine fauna) within these ecosystems (IUCN, 2020b, 2020c, 2020a).

Climate variability and change has been identified as a threat to some EPBC Act protected species, including marine turtles, whales, seabirds and migratory shorebirds:

- The Recovery Plan for Marine Turtles in Australia (CoA 2017) states that “[c]limate change is of particular concern to marine turtles because it is likely to have impacts across their entire range and at all life stages. Climate change is expected to cause changes in dispersal patterns, food webs, species range, primary sex ratios, habitat availability, reproductive success and survivorship”.
- The Conservation Management Plan for the Blue Whale (CoA 2015a) states: “[c]limate change is expected to cause changes in migratory timing and destinations, population range, breeding schedule, reproductive success and survival of baleen whales, including blue whale species and subspecies”.
- The Wildlife Conservation Plan for Seabirds (CoA 2022) states that “[c]onsequences to seabirds could include negative impacts from an increase in extreme weather events, reduced or changed prey abundance and distribution, and decrease in nesting habitat”.
- The Wildlife Conservation Plan for Migratory Shorebirds (CoA 2015) states that “[s]uch changes have the potential to affect migratory shorebirds and their habitats by reducing the extent of coastal and inland wetlands or through a poleward shift in the range of many species”.

The Recovery Plan for the Southern Right Whale (DCCEEW, 2024b) states that ‘modelling the links between krill and whale population dynamics with climate change, including changes in ocean temperature, primary productivity, and sea ice, suggests future ocean conditions are likely to have a negative impact on krill populations and in association the baleen whale species that feed on them.’ The North-west Marine Parks Network Management Plan 2018 (DNP, 2018) identifies climate change as a pressure that may impact marine park values. The management plan states that “[t]he impacts of climate change on the marine environment are complex and may include changes in sea temperature, sea level, ocean acidification, sea currents, increased storm frequency and intensity, species range extensions or local extinctions, all of which have the potential to impact on marine park values” (DNP, 2018).

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Detailed Impact/Risk Assessment				
Within the Marine Bioregional Plan for the NWMR (DSEWPaC, 2012), pressures related to climate change are assessed as 'of potential concern' for species of marine turtle, inshore dolphins, sawfish, sea snakes, whale shark, dugong, and seabird and shorebird, as well as the KEFs and shipwrecks known to occur in the NWMR.				
Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level
Global atmospheric GHG concentration	Reduction of global carbon budgets estimated to meet goals of Paris Agreement	Low ⁶⁰	No lasting effect ⁶¹	Negligible (F)
<p>Overall Impact Significance Level:</p> <p>Climate change impacts cannot be attributed to any one activity as they are instead the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution started. They do not take into account the net impact of each project or activity. Even discounting the role gas can play towards customer commitments and plans to decarbonise through the energy transition, emissions associated with the project are expected to have a de minimis impact to global carbon budgets estimated to meet goals of the Paris Agreement.</p> <p>Scarborough and downstream processing facilities will also comply with the Federal Safeguarding Mechanism Baseline, aligning with Australia's carbon management framework and implementation of the Paris Agreement</p>				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Vessels will comply with Marine Order 97 (Marine pollution prevention – Air pollution).	F: Yes. CS: Minimal cost. Standard practice	Legislative requirements to be followed may slightly reduce the likelihood of air pollution.	Control based on legislative requirements – must be adopted.	Yes C 6.1
Additional controls related to emissions associated with helicopter travel	F: No. Helicopter travel is already highly optimised due to fuel payload and safety considerations CS: Not assessed, not feasible	Minimal potential benefit. Emissions associated with helicopter travel are ~0.002% of annual emissions, considered ALARP and Acceptable	Not assessed, control not feasible	No
Reporting GHG emissions associated with the project in accordance with National Greenhouse and Energy Reporting Scheme (NGERS), National Pollutant Inventory (NPI) and other legislative requirements	F: Yes. CS: Minimal cost. Standard practice for Woodside activities.	Control based on legislative requirements to provide the national reporting framework for the reporting and dissemination of information related to emissions, hazardous wastes, greenhouse gas emissions, greenhouse gas projects, energy consumption and energy	Control based on legislative requirements – must be adopted	Yes C 6.2

⁶⁰ As described in sections above, global atmospheric GHG concentrations have been subject to anthropogenic trends since the industrial revolution and has low sensitivity to contributions on the scale of the project.

⁶¹ Based on assumption that GHG emissions associated with the project are additive to global concentrations, the contribution to carbon budgets expected to meet the goals of the Paris Agreement is de minimis

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		<p>production to meet the objectives and desired outcomes of the legislation(s) such as:</p> <ul style="list-style-type: none"> the maintenance and improvement of air and water quality, minimisation of environmental impacts associated with hazardous wastes; and an improvement in the sustainable use of resources act as the single framework to inform policy, meet reporting requirements, avoid duplication, and to ensure that facility net greenhouse gas emissions are managed within applicable baselines. 		
Apply for and manage net direct GHG emissions associated with the Scarborough Project to within the relevant baseline under the <i>National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015</i>	F: Yes CS: Minimal Cost. Standard Practice.	Control based on legislative requirement utilising the national reporting framework for the reporting of information related to GHG emissions. The Safeguard Mechanism requires Operators to offset carbon emissions in excess of the relevant baseline using Australian Carbon Credit Units (ACCUs), declining in alignment with Australia's climate targets.	Control based on legislative requirements – must be adopted.	Yes C 6.3
Onshore facilities which process Scarborough gas apply for and manage GHG emissions in alignment with the relevant baseline under the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.	F: Yes CS: Minimal Cost. Standard Practice.	Control based on legislative requirement utilising the national reporting framework for the reporting of information related to GHG emissions. The Safeguard Mechanism requires Operators to offset carbon emissions in excess of the relevant baseline using appropriate credit units, such as ACCUs or SMCs, declining in alignment with Australia's climate targets.	Control based on legislative requirements – must be adopted.	Yes C 6.4
Good Practice				

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Forecast, measure and or estimate facility fuel and flare GHG emissions from the FPU (in accordance with NGERs/NPI) to inform optimisation management practices and minimise environmental impact of direct Scarborough emissions.	F: Yes CS: Minimal cost. Standard practice.	Minimises environmental impact of emissions through planning, ongoing review, governance and optimisation. It combines with good operating practice to maximise production and reduce flaring and fuel emissions at Scarborough and onshore processing to manage cost, which improves energy intensity (e.g., cleaner production), optimising emissions. Fuel and flared gas are potential product streams, as such, Woodside applies routine short and long term optimisation and opportunity management framework to identify and prioritise enhancement opportunities. Annual fuel and flare target setting and monthly review of performance will be completed for Scarborough, and also at onshore processing facilities for indirect emissions.	Control is WMS requirement – must be adopted.	Yes C 6.5
Develop and implement asset specific Methane Action Plan, which shall detail: <ul style="list-style-type: none"> planned measurement activities; inventory of methane sources; suitable methane mitigation/minimisation projects. 	F: Yes CS: Some cost associated with implementation of commitments. Can be managed by proving technology application and process at onshore facilities and applying, where appropriate, to Scarborough.	Implementing asset specific Methane Action Plan enables achievement of Woodside corporate objectives as described in Section 7.2.4.5 as well as global methane reduction initiatives.	Control has been committed by Woodside as part of corporate objectives – must be adopted	Yes C 6.6
Contracting strategy and evaluation for hire of support vessels includes consideration of vessel emissions parameters and low carbon/alternative fuels.	F: Yes. CS: Fuel cost over the five year contract is considered in the evaluation of responses, allowing for competitive consideration of low carbon alternatives.	Minimises costs and emissions through eco-efficiency approach recognising cost of fuel and carbon emissions over the contract term.	Control effectively allocates a cost to emissions to recognise that higher emitting fuel sources with other lower operating costs do not represent overall best value.	Yes C 6.7
Track and review GHG emissions from vessel	F: Yes	Minimal potential benefit related to emissions	Implementation of control is not	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
activity during the Petroleum Activities Program with the objective to identify further opportunities to improve efficiencies if possible	CS: Cost of implementation tracking process and costs of implementing additional opportunities	reduction.Vessels during Installation, Hook-up and Commissioning will undertake activities for a short period and are estimated to contribute 0.04MtCO ₂ e. Vessels during operations phase including for support, IMMR and gravimetry activities will be short and intermittent in nature and are estimated to contribute 0.005 MtCO ₂ e annually. Woodside's engages vessels through an integrated approach across its portfolio and assesses emissions reduction as part of the contracting process (C 6.7). Woodsides previous experience across its contracted vessels, suggests that opportunities to reduce vessel emissions are limited, and often already implemented if practicable. E.g. newer vessels with higher efficiency engines and reduction in fuel use through efficient planning leads to simultaneous cost and emissions reduction. Vessel emissions in operations are reduced to ALARP with the implementation of C 6.7.	proportionate to the benefit gained.	
Vessel contractors undertaking hook up and commissioning activities will be engaged during activity planning to identify additional GHG opportunities where feasible.	F: Yes CS: Time and resources in implementing process to identify GHG reduction opportunities.	Engaging contractors during planning for the activity may allow for additional emissions opportunities to be identified, reducing overall emissions.	Benefit does not outweigh cost/sacrifice. GHG emissions from vessels involved in hook up and commissioning activities are not significant due to short duration of activities. Fuel usage in vessels is intrinsically ALARP due to reduced fuel usage being associated with	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
			reduced cost, as well as optimisation of vessels to reduce HSE exposure infield. Fuel usage minimisation in longer term scopes, such as support vessels is covered in C 6.7.	
Onshore processing emissions estimates are verified once data becomes publicly available.	F: Yes CS: Minimal cost.	Ensures actual emissions are within the bounds set out in this Environment Plan	Proportional, given the availability of data to implement this verification activity.	Yes C 6.8
Verify assumptions used to estimate GHG emissions associated with third party transport, regasification, distribution and consumption on an annual basis. Re-estimate these emissions over five year duration of this EP revision	F: Yes CS: Minimal cost	Ensures estimates for these emissions are aligned with best practicable approach and within bounds set in this Environment Plan, noting challenges of procuring actual emissions data from third parties	Proportional, given the availability of data to implement this verification activity.	Yes C 6.19
Woodside supports customers ⁶² to reduce their emissions via the investment in new energy products and lower carbon services, including the progression of corporate Scope 3 targets that apply across Woodside's portfolio including the following: Scope 3 Investment Target ⁶³ : <ul style="list-style-type: none"> Woodside has a Scope 3 investment target aiming to invest \$5 billion in new energy products and lower 	F: Yes CS: Cost as reflected in target	Supports customers to reduce their scope 1 and 2 emissions	Proportional at a Woodside corporate level	Yes C 6.17

⁶² The customers for these products and services may be the same as the customers of our oil and gas business, directly substituting their energy for new products or directly abating the associated emissions. They may also be customers of the new products and services, without also being customers of oil and gas.

⁶³ Scope 3 targets are subject to commercial arrangements, commercial feasibility, regulatory and Joint Venture approvals, and third party activities (which may or may not proceed). Individual investment decisions are subject to Woodside's investment targets. Not guidance. Potentially includes both organic and inorganic investment. Timing refers to financial investment decision, not start-up/operations.

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>carbon services (non LNG) by 2030⁶⁴. Scope 3 Emissions Abatement Target⁶³⁶³:</p> <ul style="list-style-type: none"> Woodside has a Scope 3 emissions abatement target, to indicate the potential abatement impact of these products and services upon customer Scope 1 or 2 emissions. This target is to take final investment decisions on new energy products and lower carbon services by 2030, with total abatement capacity of 5 Mtpa CO₂ -e⁶⁵ 				
<p>Woodside will undertake an annual review process to address uncertainty in the impact assessment. This process will include:</p> <ul style="list-style-type: none"> Reassessment of the role of gas in the energy transition and its potential to contribute to the net displacement of more carbon intensive energy sources (for example through review of relevant literature and studies from credible sources, participating in or commissioning studies, assessing relative carbon intensity of energy generation in customer nations, compared to LNG Using data published or available from business partners in the value chain) 	<p>F: Yes CS: Minimal cost</p>	<p>Supports understanding of the role of gas in the energy transition and the potential for LNG to displace higher carbon intensive fuel sources, addressing uncertainty in the impact assessment and the global carbon budget. In addition, by considering the relevant management measures that can be applied at the time allows for the development of fit for purpose management measures that are applicable to the energy transition at the time. By applying an adaptive management approach, Woodside can manage of the risk so that the corresponding EPO can be achieved.</p>	<p>Proportional</p>	<p>Yes C 6.20</p>

⁶⁴ Includes pre-RFSU spend on new energy products and lower carbon services that can help our customers decarbonise by using these products and services. It is not used to fund reductions of Woodside's net equity Scope 1 and 2 emissions which are managed separately through asset decarbonisation plans.

⁶⁵ Includes binding and non-binding opportunities in the portfolio, subject to commercial arrangements, commercial feasibility, regulatory and Joint Venture approvals, and third party activities (which may or may not proceed). Individual investment decisions are subject to Woodside's investment targets. Not guidance.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<ul style="list-style-type: none"> Application of additional management measures if triggered by conclusion that gas is not displacing more carbon intensive fuels or contributing to the global energy transition (directly or indirectly) 				
<p>Woodside will work with the natural gas value chain to reduce emissions in third party systems (e.g. regasification and distribution), such as through:</p> <ul style="list-style-type: none"> the adoption and promotion of the Methane Guiding Principles, sharing knowledge of methane reduction via Australian industry forums and other companies in the natural gas value chain Advocacy for stable policy frameworks that reduce carbon emissions. Annual review of the implementation and outcomes of these measures 	<p>F: Yes CS: Minimal cost associated with collaboration and advocacy</p>	<p>Supports customers to reduce their scope 1 and 2 emissions</p>	<p>Proportional at a Woodside corporate level</p>	<p>Yes C 6.18</p>
Professional Judgement – Eliminate				
<p>Eliminating flaring by venting un-combusted hydrocarbons.</p>	<p>F: No. Routine hydrocarbon venting is not considered good industry practice, as unburnt methane poses potential for greater environment impact compared to combustion emissions. The ability to flare hydrocarbons is a key safety feature on the facility. Removing the ability to flare hydrocarbons may result in unacceptable safety risks on the facility. CS: Not assessed, control not feasible.</p>	<p>Not assessed, control not feasible.</p>	<p>Not assessed, control not feasible.</p>	<p>No</p>

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Eliminate flaring by reinjecting un-combusted hydrocarbons	F: No. Routine hydrocarbon reinjection, as opposed to transport to onshore facilities, would not be consistent with the approved Scarborough Field Development Plan (FGP) which seeks to optimize hydrocarbon recovery whilst fulfilling Scarborough gas supply commitments. As such, gas reinjection would not meet concept screening criteria to warrant option evaluation. CS: not assessed, control not feasible.	Not assessed, control not feasible	Not assessed, control not feasible. Implementation of Zero Routine Flaring Initiative largely meets the same goal.	No
Eliminate emissions related to offshore power generation at the Scarborough FPU by powering it from an onshore renewable power source	F: Yes CS: Significant costs associated with acquiring a significant amount of renewable energy such as solar and, construction and maintenance of an offshore power cable is disproportionate to the benefit.	Power generation at the FPU creates emissions related to the burning of fuel (gas or diesel) to run the power turbines. Displacing these fuel sources with onshore sources has the potential to reduce emissions generated at the FPU. Given the significant costs and proportionately low emissions produced at the FPU and temporary impact to the local air shed	Grossly disproportionate. Implementation of this control requires considerable cost with minimal environmental benefit.	No
Do not combust fuel.	F: No. If the facility was powered with electricity from shore or local low carbon source, backup power generation still required for safety during outages. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional Judgement – Engineered Solution				
The facility has been designed to reduce direct GHG emissions to ALARP, by implementing a number of GHG abatement opportunities in design and	F: Yes CS: Varies, considered commensurate	An estimated 13% reduction of emissions compared to reference case design has been achieved through design phase	Potential benefit outweighs cost/sacrifice	Yes C 6.15

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
operational planning. These are described in Table 6-23				
Maintaining flare ignition and monitoring mechanisms, to maximise efficiency of combustion and minimise venting, incomplete combustion waste products.	F: Yes. CS: Minimal cost. Standard practice.	Flare tip integrity and ignition and monitoring system functionality minimises potential for venting, incomplete combustion waste products and smoke emissions.	Benefits outweigh cost/sacrifice	Yes C 6.11
Free flow to shore rather than having an offshore facility, or to further minimise offshore processing requirement	F: No, precluded by slugging issues caused by liquids in long trunkline and distance for MEG circuit. Would significantly impact ability to recover reserves without compression CS: Not considered, control not feasible	Removal of offshore facility may reduce direct GHG emissions, however would increase associated onshore emissions	Not considered, control not feasible	No
Dewpoint control using a turbo-expander rather than Joule-Thompson valve (to capture power from gas expansion)	F: Yes CS: Additional cost associated with more complex equipment selection, operation and maintenance requirements for rotating equipment	Turboexpander can generate lower temperature gas more efficiently than a JT valve, and recover power from gas expansion. This could marginally improve facility efficiency	Not proportional. Minor efficiency benefit outweighed by introduction of complex equipment (rotating equipment) with operational and maintenance requirement not aligned with minimally attended concept.	No
Use of printed circuit (PCHE) rather than shell and tube for gas-gas heat exchanger	F: Yes CS: Minor cost of more complex equipment, however fouling risk of PCHE increases maintenance requirements	Minor benefit to heat transfer in gas/gas exchanger could marginally improve facility efficiency	Not proportional. Fouling risk associated with PCHEs in "dirty" service introduces unacceptable reliability issues/maintenance requirement.	No
Deep seawater intake to reach cooler water and reduce system flow/pumping requirements	F: No, due to deep thermocline at location would need to be >250m deep to reach significantly cooler water CS: Not considered, control not feasible	Potential reduction in power requirement for seawater cooling lift and pumping	Not considered, control not feasible	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Combined cycle gas turbines ⁶⁶	F: Yes CS: Additional cost associated with more complex equipment selection, operation and maintenance requirements. Additional weight, footprint and support requirements	Combined cycle gas turbines could use heat from turbine exhaust to produce steam, which then powers separate additional turbines to generate electricity. This could reduce emissions associated with power generation. However, the electrical load on the topsides is relatively small	Not proportional. Additional complex equipment on topsides with weight, support, operational and maintenance requirements outweighs potential benefit. Adoption of CCHT would also introduce dependency between power generation and export turbine operation	No
Carbon Capture and Storage ⁶⁷	F: No, requires an amenable reservoir to inject GHG emissions to, and significant infrastructure to capture GHG emissions not feasible for an offshore floating facility CS: Not considered, control not feasible	Reducing direct emissions from the FPU by capturing and sequestering some of the GHG emissions	Not considered, control not feasible	No
Electrification of compressor drive (e-drive compressors) ⁶⁸	F: Yes CS: Cost associated with alternative equipment selection	Implementation of electric compressor drives instead of gas turbine drives could reduce an emission source associated with fuel gas combustion. However, the distance offshore means that the large electrical power requirements would be generated onboard by other turbines burning fuel gas and creating emissions. Supply of power from shore would similarly come from existing gas-driven sources	Not proportional	No
Unloading of wells to the FPU rather than the MODU	F: Yes CS: Minor cost	Reduction in GHG emissions from volume of gas flared during the unloading process and fuel	Potential benefit outweighs cost/sacrifice.	Yes C 6.12

⁶⁶ Proposed by Conservation Council of WA in consultation (Refer to Appendix F)

⁶⁷ Proposed by Friends of Australian Rock Art, Conservation Council of WA, Doctors for the Environment Australia and the Australian Conservation Foundation in consultation (Refer to Appendix F)

⁶⁸ Proposed by Conservation Council of WA in consultation (Refer to Appendix F)

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		emissions from use of the MODU.		
Flaring minimisation considered in development of FPU Start-Up Strategy	F: Yes CS: Minimal cost, standard practice	Reduction in GHG emissions from flaring during start up	Potential benefit outweighs cost/sacrifice	Yes C 6.13
Fuel and flare targets set and tracked during initial start-up activities as per Woodside's Greenhouse Gas, Energy and Flare Target Setting Guideline (Section 7.2.3.9).	F: Yes CS: Minimal cost	Target setting and tracking as per WMS procedure (Section 7.2.3.9) allows for reduction of flaring to ALARP. Flaring target tracking will allow for opportunities to be identified during start up to reduce GHG emissions.	Potential benefit outweighs cost/sacrifice.	Yes C 6.14
Engineering Design Specification: Equipment installed for emissions monitoring and control shall be specified in designed to achieve a measurement uncertainty of <5% mass or better.	F: Yes CS: Minimal cost, standard practice	Enabling accurate measurement to facilitate estimation of GHG emissions.	Engineering design specification requirement. Aligns with NGERs requirements / industry best practice.	Yes C 6.15
Engineering Design Specification: Design facilities to minimise flaring, and aspire to operate with no flaring under non-emergency conditions. Design recognises that minor flaring may be required on a continuous basis to support ancillary systems such as equipment blanketing, flare purge and pilots and on an intermittent basis due to equipment maintenance and during abnormal operations such as commissioning, plant start-up/ shutdown/ emergencies /process upsets.	F: Yes CS: Minimal cost, standard practice	Minimising flared volumes reduces direct GHG emissions	Engineering design specification requirement	Yes C 6.15
Engineering Design Specification: Flares tips shall be specified in design to achieve high destruction efficiency equal to or greater than 98% hydrocarbon destruction.	F: Yes CS: Minimal cost, standard practice	Maximising the proportion of hydrocarbons sent to flare that are combusted reduces associated emissions of uncombusted methane, reducing GHG emissions	Engineering design specification requirement	Yes C 6.15
Engineering Design Specification:	F: Yes CS: Minimal cost, standard practice	Improved thermal efficiency of gas turbines reduces GHG emissions, and predictive emissions	Engineering design	Yes C 6.15

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>Thermal efficiency of the gas turbine shall be considered when selecting the type and model of gas turbine.</p> <p>For the Scarborough facility, aeroderivative gas turbines have been installed, which are more efficient than industrial type equivalents. The export gas compressor (model BCL455/B) has a measured polytropic efficiency of 83.4% at the guaranteed condition. The export gas compressor turbines (model PT25+G4) are a high efficiency aeroderivative gas turbine with a thermal efficiency of about 41.3%. The main power generation turbines (model Taurus 60) are a light industrial gas turbine with a thermal efficiency of about 31.6%.</p>		<p>monitoring system enables informed management of performance to reduce GHG emissions.</p>	<p>specification requirement</p>	
<p>Engineering Design Specification:</p> <p>Releases of unburned hydrocarbon to atmosphere (i.e. venting) shall be avoided wherever practical through facility design.</p>	<p>F: Yes CS: Minimal cost, standard practice</p>	<p>Minimising venting of uncombusted methane to atmosphere reduces GHG emissions</p>	<p>Engineering design specification requirement</p>	<p>Yes C 6.15</p>
<p>Engineering Design Specification:</p> <p>A flare ignition system designed to include sufficient pilots to ensure continuous operation, pilot ignition system, a fuel metering system, pilot monitors and a flame stabiliser. The system design includes automation for pilot ignition and re-ignition on pilot flame-out, and a redundant igniter.</p> <p>For the Scarborough facility, this is implemented via installation of three HP flare tip pilots and two LP flare tip pilots, backup pilot gas system, primary and secondary ignition systems (high energy spark ignition and flame front generator) (automatically/remotely</p>	<p>F: Yes CS: Minimal cost, standard practice</p>	<p>Ensuring flare remains lit, and can be re-lit effectively, minimises the amount of uncombusted methane which may be emitted to atmosphere in upset scenarios, reducing GHG emissions. Metering fuel and flare gas enables measurement for internal and external reporting purposes.</p>	<p>Engineering design specification requirement</p>	<p>Yes C 6.15</p>

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Demonstration of Acceptability

- indirect GHG emissions associated with Scarborough will be managed to ALARP and an acceptable level through the implementation of the controls detailed below.
- Feedback, objections and claims from Relevant Persons were considered, see Appendix F
- **Precautionary Principle**
 - there is some scientific uncertainty associated with the projection of climate change trends, the predicted and observed environmental effects of climate change, and the changing regulatory and social requirements and/or expectations
 - Woodside has committed to management and mitigation measures for GHG emissions to ensure that Scarborough continues to manage GHG emissions to an ALARP and acceptable level
- **Intergenerational Principle**
 - continue to provide LNG as a source of fuel for global markets and pursue the development of new energy products and lower carbon services with reference to the UN Sustainable Development Goal 7, Affordable and Clean Energy
 - gas having the potential to contribute to an incremental reduction in global GHG emissions by displacing more carbon intensive power generation (e.g., coal), firming up renewables, or in hard-to-abate sectors
 - Woodside considers that this development is aligned with its goals for supporting the energy transition and is compatible with the Paris Agreement goal to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C.”
- **Biodiversity Principle**
 - the existing environment (Section 7) identifies and describes relevant MNES, as defined in regulation 7(3) of the Environment Regulations; any relevant values and sensitivities are included in the contextual evaluation of climate change.
 - As described above the estimated GHG emissions associated with the Scarborough Project will have a de minimis contribution the net atmospheric global GHG concentrations and therefore are not expected to affect biodiversity.

Woodside looks after the communities and environments where we operate. Risks are inherent in petroleum activities; however, through sound management, systematic application of policies, standards, procedures and processes

Internal Context

The Petroleum Activities Program is consistent with Woodside corporate policies, culture, processes, standards, structure and systems as outlined in the Demonstration of ALARP and Environmental Performance Outcomes, including:

- Woodside Environment and Biodiversity Policy (Appendix A: Woodside Policies)
- Woodside Risk Management Policy (Appendix A: Woodside Policies)
- Woodside Climate Policy (Appendix A: Woodside Policies)
- Woodside being a signatory to the Aiming for Zero Methane Emissions Initiative, the Oil and Gas Methane Partnership 2.0 and the World Bank’s Zero Routine Flaring by 2030 Initiative for oil projects.
- WMS requirements such as the GHG emissions and Energy Management Procedure and Production Optimisation and Opportunity Management Procedure, which require continuous improvement and demonstration of ALARP in the context of the asset. This is achieved by implementing tools to identify, evaluate, implement and review emissions reductions projects and develop, govern and report on plans to reduce methane fugitive emissions.
- Equipment has been designed to meet engineering design requirements where applicable. Any deviations to standards are supported by appropriate technical input and verification, ensuring design intent remains uncompromised

External Context

GHG emissions are a global concern, and as such Woodside has undertaken an impact assessment of GHG associated with the Scarborough facility and identified key measures to manage GHG emissions to an acceptable level.

The global consensus on climate change led to the implementation of the Paris Agreement. The aim of the Paris Agreement, as stated in the Article 2.1(a), is to hold the increase in global average temperature to well below 2°C above pre-industrial levels. The Agreement also aims to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change.

Paris Agreement text extract⁶⁹:

“Article 2

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

(a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;”

This was reaffirmed in December 2023 in the COP28 decision text on the First global stocktake.⁷⁰ The text further recognised that the transition away from fossil fuels in energy systems is to be done in a just, orderly and equitable manner accelerating action in this critical decade, so as to achieve net zero by 2050 in keeping with the science.⁷¹ It also recognises that transitional fuels can play a role in facilitating the energy transition while ensuring energy security⁷². The Paris Agreement establishes a framework where countries make Nationally Determined Contributions (NDCs) to manage and reduce their own emissions.

Australia has ratified the Paris Agreement and has set a target to reduce emissions by 43% below 2005 levels by 2030 and to reach net-zero emissions by 2050. Australia’s emissions projections under a ‘with additional measures’ scenario is projected to be 42.6% below 2005 levels by 2030, the next waypoint to net zero emissions by 2050 (DCCEEW 2024c) Climate science has drawn a link between cumulative emissions of GHG and global temperature levels. The link between cumulative emissions and temperature levels allows a carbon budget to be calculated. This is the remaining amount of net emissions (i.e. all global sources of emissions minus all global sinks of emissions) that can occur before today’s concentration of greenhouse gases increases to the concentration associated with potential temperature outcomes.

Assuming the scenario in which all GHG emissions associated with the Scarborough project are additive to global GHG gas concentrations, which they may not be, the project’s contribution to the carbon budget required to meet the goals of the Paris Agreement is de minimis.

However, the distribution of this carbon budget across different human activities requires additional judgements about a wider range of social, economic and technological factors and consumer and policy choices. Strategies to achieve emissions reductions include transitioning from fossil fuels without CCS to very low-or zero-carbon energy sources, such as renewables or fossil fuels with CCS, demand side measures and improving efficiency, reducing non-CO2 emissions, and deploying carbon dioxide removal (CDR) methods to counterbalance residual greenhouse gas emissions. Pathways to limit warming therefore show different combinations of sectoral mitigation strategies consistent with a given warming level.

As a result the demand for oil and gas in climate-related scenarios that could limit global warming to 1.5°C or 2°C is uncertain. For example in the AR6-WG3 report, the IPCC stated that in pathways that limit warming to 1.5°C (with a greater than 50% probability and with no or limited overshoot) the potential global use of gas in 2050 ranges from 30% above 2019 levels to 85% below them with a median 45% decline.

Woodside considers our role in providing energy as core to our contribution to a just energy transition. UNSD Goal 7 is to “ensure access to affordable, reliable, sustainable and modern energy for all”. The FPU, will provide an incremental volume of hydrocarbons to Australian and international markets during its estimated field life (approximately 30 years). Woodside considers that this development is aligned with goals for supporting the energy transition and is compatible with the Paris Agreement goal.

Woodside is a signatory to several global initiatives which are complementary to our corporate approach to methane emissions management, which include OGMP 2.0 (2024), Oil and Gas Climate Initiative Aiming for Zero Methane Emissions (OGCI Near-Zero) and the Methane Guiding Principles (MGP, 2022), which are voluntary, international multi-stakeholder partnerships between industry and non-industry organisations. Woodside is actioning these commitments at the Scarborough facility in line with the control measures (C.6.6), detailed in Section 7.2.4.5.

External context – stakeholder expectations and feedback

GHG emissions associated with the project, and the impacts of climate change, were noted as a material issue for relevant persons consulted in the course of preparing this EP. All feedback, claims or objections from Relevant Persons has been appropriately responded to and addressed (see Appendix F), and controls proposed have been assessed in the EP.

Other Requirements (Includes Laws, Polices, Standards and Conventions)

Legislation and other requirements considered relevant for this aspect, and a demonstration of how these requirements are met, are described in Table 6-26

Table 6-26 Legislation and other requirements relevant to greenhouse gas emissions

Requirement	Demonstration
Marine Order 97 Gives effect to Annex VI of MARPOL 73/78	The requirements of Marine Order 97 are incorporated into the key control measures.

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Demonstration of Acceptability	
National Greenhouse and Energy Reporting (NGER) scheme Annual GHG reporting for facilities	The requirements of NGER reporting scheme are incorporated into the key control measures.
National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015	The requirements of NGER Safeguard Mechanism are incorporated into the key control measures.
National Pollutant Inventory (NPI) Reporting Annual air pollutant reporting	The requirements of annual NPI reporting are incorporated into the key control measures.
<p>Conservation Management Plan for the Blue Whale 2015–2025</p> <p><i>Management action A3.1:</i> Continue to meet Australia’s international commitments to reduce greenhouse gas emissions and regulate the krill fishery in Antarctica</p> <p>Conservation Advice Balaenoptera borealis Sei Whale</p> <p><i>Conservation action:</i> Continue to meet Australia’s international commitments to reduce greenhouse gas emissions and regulate the krill fishery in Antarctica</p> <p>Conservation Advice Balaenoptera physalus Fin Whale</p> <p><i>Conservation action:</i> Continue to meet Australia’s international commitments to reduce greenhouse gas emissions and regulate the krill fishery in Antarctica</p> <p>National Recovery Plan for the Southern Right Whale</p> <p><i>Action area A3.1:</i> Continue to meet Australia’s international commitments to address causes of climate change, including greenhouse gas emissions</p> <p>Recovery Plan for Marine Turtles in Australia</p> <p><i>Management action A2.1:</i> Continue to meet Australia’s international commitments to address the causes of climate change</p>	<p>As described above, the predicted atmospheric and GHG emissions from the Scarborough facility are considered <i>de minimis</i>, and GHG emissions on the scale of the project are not expected to impact on the listed marine fauna.</p> <p>Therefore, the FPU is not considered to be inconsistent with the Conservation Management Plan for the Blue Whale 2015–2025 (CoA, 2015a), Conservation Advice for Sei Whale (TSSC 2015a), Conservation Advice for Fin Whale (TSSC, 2015b), National Recovery Plan for the Southern Right Whale (DCCEEW, 2024b) or the Recovery Plan for Marine Turtles in Australia (CoA, 2017).</p>
<p>Conservation Advice <i>Rhincodon typus</i> Whale Shark</p> <p>No specific strategies or actions identified</p> <p>Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>)</p> <p>No specific strategies or actions identified</p> <p>Wildlife Conservation Plan for Seabirds</p> <p>No specific strategies or actions identified</p> <p>Wildlife Conservation Plan for Migratory Shorebirds</p> <p>No specific strategies or actions identified</p> <p>Marine bioregional plan for the North-west Marine Region</p> <p>No specific strategies or actions identified</p> <p>North-west Marine Parks Network Management Plan</p> <p>No specific zone rules identified</p>	N/A.
Acceptability Statement: GHG Emissions	

69 Paris Agreement: https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

70 FCCC/PA/CMA/2023L.17 (Draft decision distributed 13 December 2023) First global stocktake text extracts https://unfccc.int/sites/default/files/resource/cma2023_L17_adv.pdf (Section I, Clause 3)

71 FCCC/PA/CMA/2023L.17 (Draft decision distributed 13 December 2023) First global stocktake text extracts https://unfccc.int/sites/default/files/resource/cma2023_L17_adv.pdf (Section II, Subsection A, Clause 28 (d))

72 FCCC/PA/CMA/2023L.17 (Draft decision distributed 13 December 2023) First global stocktake text extracts https://unfccc.int/sites/default/files/resource/cma2023_L17_adv.pdf (Section II, Subsection A, Clause 29)

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Demonstration of Acceptability

As per Section 2.3.6, decision type B, GHG emissions are acceptable if “ALARP” is demonstrated using good industry practice and risk-based analysis, if legislative requirements are met and societal concerns are accounted for and the alternative control measures are grossly disproportionate to the benefit gained. In addition, acceptability is assessed against the above criteria. Further opportunities to reduce GHG emissions have been investigated (refer ALARP demonstration discussion). The potential impacts are considered acceptable if ALARP is demonstrated.

Indirect GHG emissions associated with Scarborough are managed to an acceptable level by meeting (where they exist) legislative requirements, industry codes and standards, applicable company requirements, and industry guidelines, and these have been adopted as key controls.

Even discounting the role gas can play towards customer commitments and plans to decarbonise through the energy transition, emissions associated with the project are negligible in the context of existing and future predicted global GHG emissions. As described above, even in the hypothetical scenario when taken to be wholly additive, the GHG emissions created by and associated with the project represent a de minimis contribution to the carbon budgets estimated to achieve the goals of the Paris Agreement. Further, the Project will comply with the relevant Australian carbon management framework, for example the Federal SGM. The impact on national and international emission reduction targets is therefore negligible and acceptable.

EPOs, EPSs and MC for Scarborough Facility Hook-up, Commissioning and Start-Up

<i>Environmental Performance Outcomes</i>	<i>Controls</i>	<i>Environmental Performance Standards</i>	<i>Measurement Criteria</i>
<p>EPO 3 Minimise GHG emissions from vessels through efficient fuel usage and consideration of fuel types utilised⁷³.</p> <p>EPO 10 Net FPU GHG emissions shall achieve GHG reductions under reformed Safeguard Mechanism (inclusive of legislated net zero emissions by 2050).</p>	<p>C 6.1 Vessels comply with Marine Order 97 (Marine Pollution Prevention – Air Pollution) including:</p> <ul style="list-style-type: none"> • International Air Pollution Prevention (IAPP) Certificate, required by vessel class • Use of low sulphur fuel; • Ship Energy Efficiency Management Plan (SEEMP), where required by vessel class • Onboard incinerator to comply with Marine Order 97. 	<p>PS 6.1.1 Vessels compliant with Marine Order 97 (Marine Pollution Prevention – Air Pollution) to restrict emissions to those necessary to perform the activity.</p>	<p>MC 6.1.1 Marine assurance inspection records demonstrate compliance with Marine Order 97</p>
	<p>C 6.7 Contracting strategy and evaluation for hire of support vessels includes consideration of vessel emissions parameters and low</p>		

⁷³ Other upstream indirect emissions such as those associated with helicopter travel and suppliers are not considered material

EPOs, EPSs and MC for Scarborough Facility Hook-up, Commissioning and Start-Up			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
	carbon/alternative fuels.		
	<p>C 6.12 Well unloading during initial start-up will be to the FPU, not the MODU</p>	<p>PS 6.12.1 Well unloading during initial start-up to the FPU</p>	<p>MC 6.12.1 Records demonstrate wells are unloaded to FPU</p>
	<p>C 6.13 Flaring minimisation measures within the Start-up Strategy include:</p> <ul style="list-style-type: none"> • Prioritisation of fuel gas system start-up to reduce facility diesel use • Alignment of activity sequencing to maximise utilisation of gas for equipment start-up and trunkline pressurisation • Pressurising the trunkline to minimum pressure required for compressor start-up, in order to expedite the process of redirection of gas from flare to trunkline via the compressor • Alignment of FPU initial startup activities with onshore readiness to receive gas 	<p>PS 6.13.1 Flaring minimisation measures implemented during initial start-up as per the Start-up Strategy.</p>	<p>MC 6.13.1 Records demonstrate flaring minimisation measures implemented during initial start-up.</p>
	<p>C 6.14 Fuel and flare targets set and tracked during initial start-up activities.</p>	<p>PS 6.14.1 Start-up flaring and fuel use will be within targets set (targets not exceeded), tracked and managed as required by WMS procedures named in Section 7.2.4.4 and Section 7.2.7</p>	<p>MC 6.14.1 Records demonstrate fuel and flare targets set prior to commencement of activities, targets are not exceeded, and tracking/management as per Section 7.2.4.4 and Section 7.2.7</p>
	<p>C 6.15</p>	<p>PS 6.15.1</p>	<p>MC 6.15.1</p>

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EPOs, EPSs and MC for Scarborough Facility Hook-up, Commissioning and Start-Up			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
	Relevant Engineering Design Specifications and emissions reduction opportunities implemented as part of final facility construction.	Implementation of relevant Engineering Design Specification and facility emissions reduction opportunities (facility constructed consistent with items listed in the ALARP table), will be verified prior to Facility Final Acceptance for operations.	Records demonstrate verification has been undertaken, to ensure implementation of emissions reduction opportunities in design and Engineering Design Specifications.

EPOs, EPSs and MC for Scarborough Facility Operations			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
<p>EPO 3 Minimise GHG emissions from vessels through efficient fuel usage and consideration of fuel types utilised⁷⁴.</p> <p>EPO 10 Net FPU GHG emissions shall achieve GHG reductions under reformed Safeguard Mechanism (inclusive of legislated net zero emissions by 2050).</p>	<p>C 6.1 Vessels comply with Marine Order 97 (Marine Pollution Prevention – Air Pollution) including:</p> <ul style="list-style-type: none"> International Air Pollution Prevention (IAPP) Certificate, required by vessel class Use of low sulphur fuel; Ship Energy Efficiency Management Plan (SEEMP), where required by vessel class Onboard incinerator to comply with Marine Order 97. 	<p>PS 6.1.1 Vessels compliant with Marine Order 97 (Marine Pollution Prevention – Air Pollution) to restrict emissions to those necessary to perform the activity.</p>	<p>MC 6.1.1 Marine assurance inspection records demonstrate compliance with Marine Order 97</p>
<p>EPO 11 Woodside will support customers to reduce their GHG emissions.</p> <p>EPO 12 Net GHG emissions associated with onshore processing will achieve reduction requirements under the reformed Safeguard Mechanism (inclusive</p>	<p>C 6.2 Reporting GHG emissions associated with the project – estimation of greenhouse gas, energy and criteria pollutant, and other legislative requirements</p> <p>C 6.3 Apply for and manage net direct GHG emissions associated with the PAP to within the relevant baseline under the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.</p>	<p>PS 6.2.1 PAP activity emissions reported annually in accordance with NGERs and other legislative requirements</p> <p>PS 6.3.1 Manage net direct GHG emissions from the PAP to within the accepted baseline, under the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015. This will be done by:</p>	<p>MC 6.2.1 Reporting records.</p> <p>MC 6.3.1 Records demonstrate net emissions have been managed to within the relevant accepted Safeguard</p>

⁷⁴ Other upstream indirect emissions such as those associated with helicopter travel and suppliers are not considered material

EPOs, EPSs and MC for Scarborough Facility Operations			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
<p>of legislated net zero emissions by 2050).</p> <p>EPO 29</p> <p>Estimated GHG emissions associated with third party transport, regasification, distribution and end use shall remain below 162 MtCO₂-e over 5 year operational span of this EP revision</p>		<ul style="list-style-type: none"> Tracking emissions against the Safeguard baseline; and Achieving net emissions within the Safeguard baseline. 	Mechanism baseline.
	<p>C 6.4</p> <p>Onshore facilities which process Scarborough gas apply for and manage GHG emissions in alignment with the relevant baseline under the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.</p>	<p>PS 6.4.1</p> <p>Onshore facilities which process Scarborough gas manage GHG emissions in alignment with the accepted baseline, under the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.</p>	<p>MC 6.4.1</p> <p>Records demonstrate net emissions of onshore processing facilities have been managed to within the relevant accepted Safeguard Mechanism baseline.</p>
	<p>C 6.5</p> <p>Forecast, measure/estimate and monitor FPU fuel and flare emissions.</p> <p>Measurement / estimates will be in accordance with NGRS/NPI and WMS procedures named in Section 7.2.4.1, to inform process optimisation decisions.</p>	<p>PS 6.5.1</p> <p>Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8.2) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> P31 – Environmental Emissions Monitoring and Controls, to: <ul style="list-style-type: none"> provide means of detection of environmental releases, emissions and discharges to prevent a significant environmental event from manifesting over time, and/or as required to assure compliance monitoring and reporting equipment. E.g. Maintaining functionality of flare and fuel flow metering equipment and estimation techniques to meet applicable criterion for reporting under NGER Determination and NPI. 	<p>MC 6.5.1</p> <p>Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>

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EPOs, EPSs and MC for Scarborough Facility Operations			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
		<p>PS 6.5.2 Flare and energy efficiency targets tracked, as per procedures detailed in Section 7.2.4.3.</p>	<p>MC 6.5.2 Records demonstrate performance against annual flare and energy efficiency targets</p>
		<p>PS 6.5.3 Implement the following procedures for the Scarborough facility:</p> <ul style="list-style-type: none"> • Production Optimisation and Opportunity Management Procedure (including a workshop for formal opportunity identification within 18 months of facility Final Acceptance) • GHG Emissions and Energy Management Procedure • Facility Decarbonisation Plan <p>As described in Section 7.2.4</p>	<p>MC 6.5.3 Records demonstrate ongoing processes are applied</p>
	<p>C 6.6 Implement the asset specific Methane Action Plan, which shall detail:</p> <ul style="list-style-type: none"> • planned measurement activities (leak detection); • inventory of methane sources; • suitable methane mitigation / minimisation projects. 	<p>PS 6.6.1 Implement the asset specific Methane Action Plan, as described in Section 7.2.4.5 Scarborough management practices will include the following:</p> <ul style="list-style-type: none"> • Conduct a baseline methane survey (for combustion and leak sources) within 12 months of FPU final acceptance, to inform facility inventory e.g. flare destruction efficiency, gas turbine methane slip, and verification of containment for fugitive sources. • Use of drone measurements (in the baseline survey) to estimate flare methane emissions, which will be used to validate consistency with the Engineering Design Specification • Implement methane mitigation and minimisation projects, rectifying leaks as soon as practicable. • Maintain an inventory of potential & actual methane sources on the facility. 	<p>MC 6.6.1 Records demonstrate relevant methane management measures are identified, assessed and if relevant implemented, as per processed as described in Section 7.2.4.5</p>

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EPOs, EPSs and MC for Scarborough Facility Operations			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
		<ul style="list-style-type: none"> Conduct yearly measurements to maintain the inventory (of leak sources), inform higher-level emission reporting, and inform the asset specific Methane Action Plan (including repair activities). 	
	C 6.7 Contracting strategy and evaluation for hire of support vessels includes consideration of vessel emissions parameters and low carbon/alternative fuels.	PS 6.7.1 Evaluation of tenders for support vessels considers emissions parameters.	MC 6.7.1 Records demonstrate that emissions were considered in tender evaluations.
	C 6.8 Verification of onshore processing emissions estimates once data is available (within 24 months of Scarborough facility start-up).	PS 6.8.1 Onshore emissions from processing of Scarborough Gas are aligned with estimates described in this EP.	MC 6.8.1 Records demonstrate verification has been undertaken and change managed as appropriate.
	C 6.19 Verification of assumptions used to estimate GHG emissions associated with third party transport, regasification, distribution and consumption. Annual re-forecasting over 5 year duration of this EP revision.	PS 6.19.1 Estimates of GHG emissions associated with third party transport, regasification, distribution and consumption are aligned with best practicable information and within estimates described in the EP.	MC 6.19.1 Records demonstrate verification has been undertaken and change managed as appropriate
	C 6.20 Woodside will undertake an annual review process to address uncertainty in the impact assessment. This process will include: <ul style="list-style-type: none"> Reassessment of the role of gas in the energy transition and its potential to contribute to the net displacement of more carbon intensive energy sources (for example through review of relevant literature and studies from credible sources, participating in or commissioning studies, assessing relative carbon intensity of energy generation in customer nations, compared to LNG, using data published 	PS 6.20.1 Assessment of the role of gas in the energy transition undertaken on an annual basis	MC 6.20.1 Records demonstrate annual assessment of the role of gas in the energy transition has been undertaken
		PS 6.20.2 Adaptive management measures implemented if: <ul style="list-style-type: none"> gas is not contributing to the global energy transition; or displacing more carbon intensive fuels 	MC 6.20.2 Records demonstrate adaptive management measures implemented, if required

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EPOs, EPSs and MC for Scarborough Facility Operations			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
	<p>or available from business partners in the value chain</p> <ul style="list-style-type: none"> Application of additional management measures if triggered by conclusion that gas is not displacing more carbon intensive fuels or contributing to the global energy transition (directly or indirectly). 		
	<p>C 6.11 Maintaining FPU flare ignition and monitoring mechanisms, to maximise efficiency of combustion and minimise venting, incomplete combustion waste products and smoke emissions.</p>	<p>PS 6.11.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> P31 – Environmental Emissions Monitoring and Controls, to: <ul style="list-style-type: none"> provide means of detection of environmental releases, emissions and discharges to prevent a significant environmental event from manifesting over time, and/or as required to assure compliance monitoring and reporting equipment. E.g. Maintaining functionality of flare tip, ignition and monitoring to ensure no material degradation of the flare (resulting in un-combusted flare gas). Monitoring in place to ensure flare/pilots are lit, and ignition system available to light the flare in timely manner. 	<p>MC 6.11.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>
	<p>C 6.17 Woodside supports customers⁷⁵ to reduce their emissions via the investment in new energy products and lower carbon services, including corporate targets that apply across</p>	<p>PS 6.17.1 Woodside will progress its Scope 3 investment and emissions targets, aligned with stated timeframes.</p>	<p>MC 6.17.1 Progress against targets reported in the relevant annual Woodside disclosures to</p>

⁷⁵ The customers for these products and services may be the same as the customers of our oil and gas business, directly substituting their energy for new products or directly abating the associated emissions. They may also be customers of the new products and services, without also being customers of oil and gas.

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EPOs, EPSs and MC for Scarborough Facility Operations			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
	<p>Woodside’s portfolio including the following:</p> <p>Scope 3 Investment Target⁷⁶</p> <ul style="list-style-type: none"> Invest \$5 billion in new energy products and lower carbon services (non LNG) by 2030⁷⁷. <p>Scope 3 Emissions Abatement Target⁷⁶</p> <ul style="list-style-type: none"> Take final investment decisions on new energy products and lower carbon services by 2030, with total abatement capacity of 5 Mtpa CO₂ -e⁷⁸. 		<p>relevant industry standards and/or requirements. This includes an estimate of abated emissions from currently sanctioned projects.</p>
	<p>C 6.18</p> <p>Woodside will work with the natural gas value chain to reduce emissions in third party systems (e.g. regasification and distribution).</p>	<p>PS 6.18.1</p> <p>Woodside to implement the following:</p> <ul style="list-style-type: none"> sharing knowledge via Australian industry forums and other companies in the natural gas value chain through; <ul style="list-style-type: none"> the adoption and promotion of global methane frameworks such as the Methane Guiding Principles and Oil and Gas Decarbonisation Charter Advocacy for stable policy frameworks that reduce carbon emissions. Annual review of the implementation and outcomes of these measures, this includes consideration of current or new industry 	<p>MC 6.18.1</p> <p>Records demonstrate that listed actions have been undertaken and are effective.</p>

⁷⁶ Scope 3 targets are subject to commercial arrangements, commercial feasibility, regulatory and Joint Venture approvals, and third party activities (which may or may not proceed). Individual investment decisions are subject to Woodside’s investment targets. Not guidance. Potentially includes both organic and inorganic investment. Timing refers to financial investment decision, not start-up/operations.

⁷⁷ Includes pre-RFSU spend on new energy products and lower carbon services that can help our customers decarbonise by using these products and services. It is not used to fund reductions of Woodside’s net equity Scope 1 and 2 emissions which are managed separately through asset decarbonisation plans.

⁷⁸ Includes binding and non-binding opportunities in the portfolio, subject to commercial arrangements, commercial feasibility, regulatory and Joint Venture approvals, and third party activities (which may or may not proceed). Individual investment decisions are subject to Woodside’s investment targets. Not guidance.

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EPOs, EPSs and MC for Scarborough Facility Operations			
<i>Environmental Performance Outcomes</i>	<i>Controls</i>	<i>Environmental Performance Standards</i>	<i>Measurement Criteria</i>
		forums, initiatives and natural gas value chain participants	

6.7.7 Routine Atmospheric Emissions: Offshore, and Indirect Emissions from Gas Processing Onshore

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.1.2 – Routine Atmospheric Emissions affecting Air Quality														
Context														
Relevant Activities Vessel Operations – Section 3.11 FPU Installation, Hook-up and Commissioning – Section 3.7 FPU Start-up and Operations – Section 3.8 Gravimetry Surveys – Section 3.10				Existing Environment Regional Context – Section 4.2 Protected Species – Section 4.6				Consultation Consultation – Section 5						
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Impacted			Value	Potentially			Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Operational flaring, exhaust emissions from fuel combustion, fugitive emissions from the FPU				✓				A	F (Air Quality)	-	-	L C P S C	Broadly Acceptable	EPO 13
Exhaust emissions from internal combustion engines on vessels and helicopters				✓										EPO 13
Emissions associated with onshore processing of Scarborough gas				✓		✓	B						Acceptable if ALARP	EPO 14

Routine Atmospheric Emissions – Offshore, and indirect emissions from gas processing onshore
Description of Source of Impact/Risk
<p>Background</p> <p>Offshore activities, and the processing of gas from the Scarborough project at onshore facilities will result in the release of atmospheric emissions. Atmospheric emissions are the gases and particulates released into the atmosphere from an activity, which may have an adverse effect on human health or the environment. The main emissions responsible for these effects include carbon monoxide (CO), oxides of nitrogen (NOx), sulphur dioxide (SO2), particulate matter less than 10 microns (PM10), non-methane volatile organic compounds (VOCs) and BTEX (benzene, toluene, ethylbenzene and xylenes), which are specific VOCs of interest.</p> <p>Sources of atmospheric emissions from offshore activities and processing of Scarborough gas onshore include:</p> <ul style="list-style-type: none"> • combustion • flaring • venting.

Gas from the Scarborough project transported to shore through the trunkline is planned to be processed at the Pluto LNG Facility. A small volume of gas from the Scarborough project may also be processed at Karratha Gas Plant. It will then be sold as LNG and delivered to customers via ship or road, or distributed to customers via pipeline for domestic consumption for purposes such as heating, electricity generation or industrial processes such as the production of LNG, ammonia, urea or hydrogen.

This section relates to atmospheric emissions that arise from processing of gas exported from the FPU to onshore facilities. While the operation and scope of these onshore processing facilities are outside the scope of this Environment Plan, the atmospheric emissions associated with processing Scarborough gas at these facilities is addressed in this section. The processing facilities addressed in this section are the Pluto LNG facility and Karratha Gas Plant. Further, given its proximity to Murujuga and that it will use Scarborough gas, this section also addresses emissions associated with the use of Scarborough gas at the Perdaman Urea facility.

Potential indirect impacts considered in this section include potential impacts to human health and the potential contribution to accelerated weathering of rock art on the Burrup Peninsula and within the Dampier Archipelago (i.e. Murujuga), which has been raised by stakeholders and Regulator to be assessed in this EP.

This section provides contextual evaluation of consideration for any potential indirect impacts, particularly consideration of the potential for air emissions (attributable to the PAA) to cause a reduction in ambient air quality impacting human health. This section also addresses whether any potential impacts to air quality (attributable to the PAA) have potential to contribute to accelerated weathering of rock art on the Burrup Peninsula and within the Dampier Archipelago (i.e. Murujuga). Neither of these potential indirect impacts can be considered in isolation, as they are the result of cumulative airshed conditions.

No other indirect impacts or risks from the release of atmospheric emissions are considered within this Environment Plan.

Murujuga Rock Art Strategy

The WA State Government (DWER) have established a Murujuga Rock Art Strategy (MRAS) in partnership with MAC as the Traditional Owners and custodians of Murujuga.

DWER has primary responsibility for the day-to-day implementation of the strategy in partnership with MAC. This includes working with MAC to oversee the development and implementation of a world’s best practice monitoring and analysis program that will determine whether the rock art on Murujuga is subject to accelerated change (for further information see Murujuga Rock Art | Western Australian Government (www.wa.gov.au)).

The results from studies underway will guide management and protection of Murujuga rock art, with State environmental protection and heritage legislation in place as the applicable regulatory framework.

MRAS states that:

“The data currently available from previous monitoring projects does not allow for a conclusive answer on whether anthropogenic emissions are impacting Murujuga’s rock art. The Murujuga Rock Art Strategy is therefore essential to fill these gaps in knowledge.

Although it is not known whether the rock art is being impacted currently, there are feasible impact pathways by which emissions from industrial activities and other local sources could cause accelerated weathering of the rock art. The strategy is examining these potential pathways and the condition of the rock art to understand whether change is occurring, and whether there is a need to set a future limit on emissions to ensure accelerated weathering does not occur.”

Therefore, as a causal link between industrial air emissions and anthropogenic-induced change to rock art on Murujuga has not been established, nor sources and potential pathways defined – it is not appropriate to attribute potential impact to the Scarborough PAP. This section acknowledges uncertainty in this topic, and provides context with regard to emissions related to the onshore processing of Scarborough gas, and provides a summary of adaptive and precautionary management frameworks in place by way of the MRAS/MRAMP together with the State Environmental Protection (EP) Act 1986 (WA), regulatory framework and administration.

The MRAS and MRAMP follow a history of studies and monitoring under previous bodies such as the BRATWG and BRAMMC, as described in section 4.9.6.

Source of Direct Emissions

National Pollutant Inventory (NPI) Emission Estimation Techniques were applied to estimate annual atmospheric pollutants (non-GHG emissions) (NOx, SOx and CO) from fuel combustion (diesel and fuel gas) and flaring on the FPU.

Table 6-27: Estimated direct annual atmospheric emissions from fuel combustion and flaring during commissions and start-up, and under steady state operations (excluding support vessels)

Component	Estimated annual emissions from fuel gas combustion during operations (tonnes)	Estimated annual emissions from diesel combustion, during commissioning and start up (tonnes)	Estimated annual emissions from diesel combustion during operations (tonnes)
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NOx	2,202	779	30
SOx	3.48	0.25	0.01

Based on estimated annual emissions within this EP period. Variance within the period may occur.

Reference for NOx and CO components: NPI EET Manual for Oil and Gas v2.0 2013, Table 8.

Table 6-28 Estimated atmospheric emissions from flaring at the facility

Component	Estimated annual flaring emissions during normal operations (tonnes)	Estimated flaring emissions from Scarborough commissioning and initial start up (tonnes)
NO _x	9	141
CO	53	817

Based on estimated annual emissions within this EP period. Variance within the period may occur.

Reference for NOx and CO components: NPI EET Manual for Oil and Gas v2.0 2013, Table 8.

Source of Atmospheric Emissions from Onshore Processing

The principal source of atmospheric emissions associated with onshore processing will be from the combustion of gas in fuel turbine generators and compressors as well as gas conditioning process vents at onshore facilities. Gas processing and liquefaction can also result in flaring of some gas and incidental venting of un-combusted gas. The most significant by-products of gas combustion, flaring and venting of gas from the Scarborough project will include oxides of nitrogen (NOx), carbon monoxide (CO), methane and non-methane volatile organic compounds (VOCs) including BTEX (benzene, toluene, ethylbenzene and xylenes).

Ozone is not emitted typically directly from gas consumption or processing, but is formed through anthropogenic sources via chemical reactions between oxides of nitrogen and other emissions such as VOCs and CO in the presence of ultraviolet light. There may also be traces of particulate matter (PM) and sulphur dioxide (SO₂) but such emissions are generally considered negligible from the onshore processing of Scarborough gas, due to fact it has a very low sulphur content and absence of products that are precursors to the formation of particulate pollution. Emissions of PM from the consumption of gas from the Scarborough project is negligible in comparison to background and other industrial sources.

Sources of Emissions within the Murujuga Airshed

Potential indirect impacts from processing of gas from Scarborough could arise via a contribution to the cumulative effect of all emissions in the airshed. The Murujuga airshed encompasses the entire Burrup Peninsula and includes the population centres of Dampier and Karratha and surrounding areas. Industrial facilities that currently release or have approval to emit into the Murujuga airshed include⁷⁹ :

- Woodside Operated North West Shelf Venture’s Karratha Gas Plant (KGP)
- Woodside Operated Pluto LNG Facility
- Yara Pilbara Fertilisers Pty Ltd Ammonia Plant
- Yara Pilbara Nitrates Pty Ltd Technical Ammonium Nitrate Production Facility (TANPF)
- Perdaman Urea Project
- Pilbara Iron Yurralyi Maya Power Station
- Santos Devil Creek Power Station
- ATCO Karratha Power Station
- EDL West Kimberley Power Plant (Maitland LNG Plant).

Atmospheric Emissions into the Murujuga Airshed from Onshore Processing of Gas from the Scarborough Project

Emissions associated with onshore processing of Scarborough gas are combined with similar emissions from natural sources and other industrial activities in proximity of the Murujuga region. Assessment of potential impacts considers cumulative impacts within the airshed rather than estimating emissions influence associated with processing gas from Scarborough in isolation. Further, estimating ground level concentrations of atmospheric constituents as related to

⁷⁹https://www.epa.wa.gov.au/sites/default/files/EPA_Report/EPA%20Report%201727%20-%20North%20West%20Shelf%20Extension%20Project%20-%20assessment%20report.pdf

human health and deposition relies on complex non-linear photochemical modelling, underpinned by biochemical and physical forcing systems such as regional meteorological forcing model.

Therefore, impact assessment is based on a cumulative airshed modelling inclusive of contribution from onshore processing of Scarborough gas, and other material sources.

In 2021, DWER commissioned Ramboll Australia Pty Ltd to undertake a *Study of the Cumulative Impacts of Air Emissions in the Murujuga Airshed*⁸⁰ (Ramboll 2022) considered a “complete emission inventory” including air emissions from existing and proposed future industries, shipping, and aggregated sources in the Pilbara region. The study used the CAMx atmospheric emission model, which includes atmospheric photochemistry to evaluate concentrations of a range of pollutants including NOx, ozone, Sox, CO, VOCs, and particulates across two domains. The detailed 1.33 km grid encompasses the Dampier Archipelago, as far East as Wickham and as far West as 40 Mile Beach. Predicted ground level concentrations were evaluated at Karratha, Dampier, Hearson Cove and Ngajarli (Deep Gorge) and compared with relevant criteria in the National Environment Protection Measure (NEPM) air quality standards. Deposition rates were also predicted.

Emission estimates in the Ramboll 2022 study were based on a range of sources, including, publicly available datasets, engineering design estimates (maximum and averages) and facility level monitoring data which match the selected year’s meteorological data. The scenarios investigated as part of this study included:

- A baseline scenario reflecting 2014 sources, including all industrial, mobile, domestic and commercial as well as natural sources. This covers onshore gas processing at steady state operational capacity at Pluto Train 1 and KGP Gas Plants. The year 2014 was selected due to typical meteorology (Ramboll 2022). A comparison of modelled data with real-world air quality monitoring data was undertaken, which “indicated reasonable agreement with the measurements at Burrup Road, Dampier, and Karratha”
- A future scenario that considered the above scenario as a basis, but included proposed future additional industrial emissions sources in 2030. This scenario included operation of Pluto Train 1, Pluto Train 2, KGP and Perdaman onshore processing facilities at capacity which includes the processing of Scarborough gas, and other future projects.

Assumptions regarding non-industrial emissions considered in these scenarios were based on a range of sources (Ramboll 2022):

- Mobile sources:
 - Commercial shipping and boating, with data sourced from the maritime automatic identification system (AIS) which also identifies vessel type, enabling application of USEPA default specifications for engines. Recreational boating
 - vehicles, which included data from an ABS survey of motor vehicle use scaled down the region, vehicle registration information and traffic and road network data from Main Roads WA
 - aircraft, which applied techniques from NPI to data supplied by airports and public sources such as aircraft operator website and tracking tools
 - railways, based on public data on fuel consumption per tonne of minerals delivered and minesite production rates. All rail lines in the region are operated by mining companies
- Domestic and commercial sources:
 - estimates of population (with growth for future scenario),
 - other sources such as solvent and aerosol use (per capita data), bitumen road construction (materials usage), service stations (applying population data to service station locations), domestic fuel burning (from previous surveys) and others
- Natural sources such as vegetation, dust, bushfires and oceanic sources which came from other models

Specific assumptions for individual emission sources were provided by all regional parties in confidence to DWER or were otherwise estimated by Ramboll based on sources such as NPI for operating facilities, and as such are not published in the report. Woodside provided inputs to the Ramboll 2022 study in response to DWER’s data request, and these are aligned with scenario descriptions and assumptions described in North West Shelf Project Extension Environmental Review Document Appendix E Air Quality Impact Assessment⁸¹ (Jacobs 2019), Section 4, Scenarios 3 and 4 which included (amongst others):

- Airshed baseline
- NWS Extension Project with NOx improvement opportunities
- Expansion of Pluto (Train 2, fed by Scarborough gas)

⁸⁰ Study of the Cumulative Impacts of Air Emissions in the Murujuga Airshed: <https://www.wa.gov.au/system/files/2023-03/Study-of-the-cumulative-impacts-of-air-emissions-in-the-Murujuga-airshed.pdf>

⁸¹ NWS Extension Environment Review Document Appendices: <https://www.woodside.com/docs/default-source/current-consultation-activities/australian-activities/north-west-shelf-project-extension---appendices.pdf>

- Perdaman Urea project
- Methanol facility proposal

Ramboll used tools such as the EPA’s Proposal Search Tool and related assessment documentation (such as Environment Document Review or Works Approvals) to provide data on future proposed developments. The model performance was validated at a number of locations using real-world air quality monitoring data provided by DWER and industrial operators in the region. This indicated that NO₂ concentrations predicted by the model were “similar ranges at Karratha, but the model is biased high at Burrup Road and Dampier” which indicates that modelled outcomes at these locations on Murujuga are conservative. It also indicates that assumptions for model inputs are appropriate.

The Jacobs 2019 assumptions were developed with “reasonable and conservative emission estimates” for the purposes of completing a robust risk and impact assessment of industrial sources, such as elevated flare rates (Jacobs 2019). This is the “Future Burrup Strategic Industrial Area state (existing, approved and referred) with proposed emission reductions in place” referred to in Table 6-5 of the NWS Project Extension ERD⁸². The Jacobs 2019 report drew on an earlier aggregated air emissions inventory for the Pilbara region developed by SKM (2003) for sources such as biogenic emissions, vegetation sources and other natural sources, and other previous modelling studies. The Jacobs 2019 model outputs were compared with real-world air quality monitoring results from multiple locations, which indicated that the model was “performing well in terms of being able to accurately predict a variety of statistical results for NO₂. as measured by Woodside at the Burrup, Dampier and Karratha monitoring stations.” In addition to validating model performance, this also demonstrates that the assumptions used for existing emissions sources were appropriate.

Ramboll 2022 estimated that NO_x loads to the Murujuga airshed (1.33 km grid encompassing Dampier Archipelago, Murujuga, Karratha and Roebourne) from industrial sources were estimated to be 13,937 tonnes per year in 2014, representing the baseline scenario, and are forecast to decrease to 12,052 tonnes per year by 2030, within this reference frame. A significant contribution to this reduction is associated with commitments by the NWSJV to reduce NO_x emissions from the Karratha Gas Plant by 40% by 2030. The Ramboll study did not predict NO_x air concentrations in excess of current air quality standards in any modelled scenario.

The assumptions for Murujuga airshed NO_x emissions underpinning Ramboll 2022 are suitably conservative for reviewing contribution of KGP and Pluto for the onshore processing of Scarborough gas using information provided by the respective facilities, as described below:

Table 6-29: Comparison of modelled NO_x emission assumptions with recent reported information

	Pluto		KGP	
	<i>NO_x emission rate annual avg (g/s)</i>	<i>Source/comment</i>	<i>NO_x emission rate annual avg (g/s)</i>	<i>Source/comment</i>
Baseline Scenario (2014)	34.1 g/s (Train 1)	Jacobs 2019	281.1	Jacobs 2019
Current	29.1 g/s (Train 1 - 15% below modelled baseline)	Reported NPI data, 2022/23 period	248.7 (12% below modelled baseline)	Reported NPI data, 2022/23 period
Future emissions scenario assumptions	35.6 (Train 1) + 33.59 g/s (Train 2)	Train 2 estimates – Jacobs 2019	149.2 g/s (40% reduction commitment)	NWS Extension ERD commitment (Table 6-9, p 106)

The current trajectory of aggregated emissions in the Murujuga airshed indicates that the future emissions scenario assumptions considered by Ramboll 2022 were conservative because:

- Assumptions for Pluto Train 1 and Train 2 include conservatism as set out in the Jacobs report. Assumptions for Train 2 equipment are based on vendor specified performance, which is a conservative basis for emission estimation. This performance will be measured and validated in accordance with Condition 38 of the Pluto Train 2 Works Approval⁸³ which will include a summary of the environmental performance of equipment against design specifications and the Pluto AQMP (which is consistent with Jacobs 2019). Validation is also covered in section 5 of the Pluto AQMP

⁸² https://www.woodside.com/docs/default-source/current-consultation-activities/australian-activities/north-west-shelf-project-extension---environmental-review-document.pdf?sfvrsn=a8b10277_4

⁸³ https://www.der.wa.gov.au/our-work/licences-and-works-approvals/lwa-available-for-public-appeal/item/download/12092_8dfe908804d6cc7505eb20a79d09f08f

- KGP has commenced the NO_x reduction committed in the NWS Extension ERD⁸⁴ (see Table 6-9 on pg 106) with one LNG train planned to be taken offline between late 2024 and mid 2025 (Woodside 2024)
- Emissions estimates for the Perdaman urea project in Jacobs 2019 are 8.93 g/s. It is acknowledged that the current Perdaman Urea Project Air Quality Management Plan (2021) references an Air Quality Impact Assessment (Jacobs 2020) which estimates ‘based on engineering and other data’ total NO_x emissions for the plant of 11.7 g/s. This increase is 0.7% of the Ramboll future scenario and therefore negligible in context of the broader airshed
- It is Woodside’s understanding that the proposed Methanol plant is no longer proceeding⁸⁵, which for context was expected to contribute 28.05 g/s

Woodside is not aware of any reason why the future emissions scenario assumptions for contribution to the Murujuga airshed from non-Woodside sources are not appropriate. Any potential future development not considered in this scenario would be required to undergo its own assessment process under regulatory frameworks (described below). Further, the MRAS/MRAMP is expected to identify any ongoing or future trends in air quality which could potentially impact rock art.

The Ramboll 2022 study found that “SO₂, NO₂, PM_{2.5}, PM₁₀, CO and NH₃ peak ground level concentrations are centered at industrial facilities near or on the Burrup Peninsula, showing that industrial sources and shipping contribute to emissions in the area, but with total air concentrations for these compounds remaining below current air quality standards except for PM_{2.5} and PM₁₀.” The report also noted that the governing driver for particulate matter concentrations was dust, rather than industrial emissions. As stated in the report “There are no accepted or commonly applied standards for assessing deposition of acidic air pollutants on land surfaces or on sensitive receptors such as the Burrup Peninsula rock art. While this assessment report provides results for acidic deposition, no assessment, or commentary is provided about the potential impacts on areas of sensitivity such as the rock art.”

Some recommendations are provided in the Ramboll 2022 report related to potential improvements in accuracy regarding terrain datasets, modelling approach for dust and treatment of plumes in the model grid, and uncertainty related to emissions estimates including NPI data. However, “significant effort was made to obtain the most accurate information available with particular focus on sources located near or on the Burrup peninsula” and the comparison of modelled emissions with latest data shown in Table 6-29 indicates that conservatism exists in assumptions. The NWS Project Extension ERD Air Quality Impact Assessment compared measured ground level concentrations of NO₂ from 2009-2015 with NEPM criteria and found no exceedances. The report states that there was “no currently accepted or commonly applied standards for assessing deposition of air pollutants on land surfaces, such as Burrup Peninsula rock art” and the report does not provide any assessment or commentary on potential impacts to rock art.

Applying expected NO_x emission rates from Table 6-28, whilst assuming no production downtime, annual NO_x emissions associated with processing of Scarborough gas through Pluto are conservatively estimated to average approximately 1,800 t/yr over an assumed 30 year field life. It is estimated that this would account for approximately 15% of the total estimated industrial 2030 NO_x load in the Murujuga airshed. Application of this estimate over the expected life of the development results in a total NO_x emission estimate of approximately 54,000 t. This estimate is considered conservative because it carries conservatisms described above, and doesn’t fully account for likely equipment turndown (reduced power demand) as production rate naturally declines over field life.

It is noted that the 2 Mtpa Perdaman urea proposal estimates 11.7 g/s NO_x emissions representing up to 370 tpa. If gas from the Scarborough project is processed at the Karratha Gas Plant, it would displace another source of gas processed at this facility and therefore not result in a net increase in total NO_x emissions to the airshed. Therefore, the Pluto estimate above is considered conservative.

Processing of gas from the Scarborough project is therefore not predicted to increase NO_x within the Murujuga airshed beyond historic maximum levels, which as described in section 4.9.6 has resulted in no scientifically conclusive evidence for anthropogenic change to rock art on Murujuga. The reduction in future NO_x load within the Murujuga air-shed presented in the Ramboll study is reflective of commitments made by third party proponents that are publicly disclosed either in Ministerial Statements or Air Quality Management Plans.

Existing Regulatory Framework

Facilities associated with the onshore processing of LNG are not subject to the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth). Assessment and management of these emissions is required pursuant to various State and Commonwealth legislative frameworks. Impacts associated with atmospheric emissions are subject to an appropriate level of independent assessment by regulatory agencies and management measures are in place which are sufficient to ensure the environment performance outcome of this PAP can be achieved.

⁸⁴ https://www.woodside.com/docs/default-source/current-consultation-activities/australian-activities/north-west-shelf-project-extension---environmental-review-document.pdf?sfvrsn=a8b10277_4

⁸⁵ <https://www.parliament.wa.gov.au/pq/qsearch.nsf/5ba5221642b0ed73482569d60026c3a7/504273a549cd5b5148256df2007b9bbc?OpenDocument>

A summary of the relevant legislation, approvals and governance measures in place to manage atmospheric emissions from onshore processing facilities (Pluto LNG facility, NWS Karratha Gas Plant and Perdaman Urea facility) are outlined below.

Environmental Protection (EP) Act 1986 (WA)

The EP Act is the principal legislation in WA that provides for “the prevention, control and abatement of pollution and environmental harm” and for “the conservation, preservation, protection, enhancement and management of the environment”.

The object of the EP Act is to protect the environment of Western Australia, having regard to a number of principles, including:

- the precautionary principle, which holds that where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, decisions are to be guided by:
 - careful evaluation to avoid, where practicable, serious or irreversible damage to the environment
 - an assessment of the risk-weighted consequences of various options
- the principle of intergenerational equity, which holds that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
- the principle of waste minimisation, which holds that all reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment
- principles relating to improved valuation, pricing and incentive mechanisms, which include the ‘polluter pays principle’ whereby those who generate pollution and waste should bear the costs of containment, avoidance or abatement.

Assessment of Proposals under Pt IV of the EP Act

In Western Australia, it is the role of the independent Environment Protection Authority (EPA) to assess proposals against the requirements of the EP Act and EPA objectives.

Section 15 of the Act establishes the objectives of the EPA (Authority): It is the objective of the Authority to use its best endeavours to protect the environment; and to prevent, control and abate pollution and environmental harm. The object and principles guide the overall application of the powers of the Act. The principles are matters to which the EPA is required to have regard as a condition of the valid exercise of its powers to assess and report on proposals and schemes under the Act. The EPA only recommends that the Minister approve a proposal if it can be demonstrated the proposal is aligned with the Act including any relevant objectives.

Under the EPA’s Air Quality Environmental Factor Guideline, the EPA has an objective to *maintain air quality and minimise emissions so that environmental values are protected*⁸⁶ (Air Quality Objective). The Air Quality Environmental Factor Guideline identifies that this objective recognises the fundamental link between good air quality and the environmental values it supports. It also recognises the principle of waste minimisation as set out in the EP Act. In the context of this factor and objective, the EPA recognises that maintaining good air quality and minimising emissions protects human health and amenity, as well as the broader environment. When considering the significance of potential impacts to air quality, the EPA may have regard to the various matters outlined in Section 5 of the Statement of Environmental Principles, Factors and Objectives⁸⁷, including the Air Quality Objective.

Applicable assessments by the EPA and subsequent decisions by the Minister for Environment under Part IV of the EP Act include Ministerial Statement (MS) 757 for the Pluto LNG Facility, MS 1180 for the Perdaman Urea Project, and MS 536 for LNG trains 4 and 5 at the Karratha Gas Plant (KGP). MS 1233 was also recently issued for the North West Shelf (NWS) Project Extension, published in December 2024, which allows for continued operation of the NWS Project and processing of third party gas at KGP. Further information regarding conditions of implementation is detailed in sections below.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The EPBC Act is the Australian Government’s key piece of environmental legislation providing for the protection of the environment and the conservation of biodiversity. The EPBC Act requires approval for activities with a significant impact on a number of matters of national environmental significance including for example, National Heritage places and listed threatened species or endangered communities.

The NWS Project Extension (a proposal to extend operation of the NWS Project beyond 2030) has been assessed under the EPBC Act by the WA EPA under an accredited process (Refer EPA Report 1727). The controlling provision for the proposed action is ‘National heritage places’, and the Project is subject to assessment by accredited assessment

86 EFG - Air Quality - 03.04.2020.pdf (epa.wa.gov.au)

87 Statement of environmental principles, factors, objectives and aims of EIA (epa.wa.gov.au)

under Part IV of the EP Act at the level of Public Environment Review. The Commonwealth Minister for the Environment will make an approval decision once the State process has completed.

Aboriginal Heritage

Aboriginal sites are of cultural heritage importance to both the Aboriginal and wider community. The Aboriginal Heritage Act 1972 (AH Act) is the principal legislation providing for the preservation of Aboriginal sites and objects in WA. All Aboriginal heritage sites or places to which s.5 of the AH Act applies are protected, whether or not they are registered with the Department of Planning, Lands and Heritage (DPLH). It is an offence under the AH Act to excavate, destroy, damage, conceal or in any way alter any Aboriginal site unless the consent of the Registrar or the Minister for Aboriginal Affairs is first obtained.

Approvals under Pt V of the EP Act

DWER regulates certain premises through a works approval and licensing process to prevent, control, abate and mitigate pollution and environmental harm, under Part V of the EP Act.

Woodside currently holds the following licences for facilities operated on the Burrup Peninsula:

- Pluto Liquefied Natural Gas (LNG) Project (L8752/2013/2)⁸⁸
- Woodside Onshore Gas Treatment Plant (KGP) (L5491/1984/18)⁸⁹

The abovementioned licences specify air emission limits for individual emission points. NO_x concentration in Pluto turbine exhausts is limited to 100 mg/m³ over a stack test average period not less than 30 minutes; and at KGP 350 mg/m³ for trains 1, 2 and 3 and 100 mg/m³ for trains 4 and 5. Monitoring of emissions points is required at the facilities annually and quarterly (respectively). Woodside is required under these licences to submit an Annual Audit Compliance Report identifying compliance with the conditions of the licences ensuring emissions remain within acceptable levels. Copies of the Annual Audit Compliance Reports are available on the DWER's website.

Other Regulatory Measures in Place for Management of Atmospheric Emissions

National Environmental Protection (Ambient Air Quality) Measure (Cth)

The National Environment Protection Council (NEPC), comprising Commonwealth, State, and Territory Ministers, finalised the NEPM (Ambient Air Quality), on 26 June 1998. The National Environment Protection Council Act 1994 (Cth) allows the National Environment Protection Council to make National Environment Protection Measures (NEPMs). NEPMs are a special set of national objectives designed to assist in protecting or managing particular aspects of the environment. The NEPM [Ambient Air Quality] outlines ambient air quality monitoring protocol that allows for the adequate protection of human health and well-being.

National Environment Protection (National Pollutant Inventory) Measure 1998 (Cth)

The National Pollutant Inventory (NPI) is a public database that provides information on 93 selected air pollutants and their emissions, produced as a result of industry, transport, commercial premise, and household activities, and emitted to air, land, and water in Australia. The NPI is a Commonwealth Government initiative and each state and territory is responsible for implementing the program. The objective of the NPI is to inform the community about emissions to water, air, and land and acceptable emissions levels. It also provides information for policy and decision making, environmental planning and management, and minimising waste.

The Woodside operated facilities on the Burrup Peninsula have been reporting emission data to the NPI from the NWS Project since the 1998/1999 reporting period and Pluto since the commencement of operations in 2012. Other facilities located on the Burrup Peninsula including Yara Pilbara Fertilisers Pty Ltd have reported since 2005.'

Other Relevant Frameworks and Programs

Murujuga National Park Management Plan

As outlined in Section 4.9.5, Murujuga National Park management plan objectives are achieved through measures which include Conservation Agreements, funding and support, and Cultural Heritage Management Plans (Section 6.10). It is under the Conservation Agreement that Woodside continues to support research into, and monitoring of, the National Heritage values of the Park, and conducts its activities in a manner not inconsistent with the Murujuga National Park management plan.

Program: Murujuga Rock Art (Western Australian Government)

The Western Australian Government publish on their Aboriginal heritage conservation website a summary of their Murujuga Rock Art Program, the partnership with Murujuga Aboriginal Corporation, and the Murujuga Rock Art Strategy. A description of the program is provided in Appendix K, courtesy of Govt of Western Australia Website: <https://www.wa.gov.au/service/aboriginal-affairs/aboriginal-heritage-conservation/program-murujuga-rock-art>

Murujuga Rock Art Monitoring Program

⁸⁸ https://www.der.wa.gov.au/component/k2/item/download/4517_d69d5c4f5e6e32e9687a81cd206801d1

⁸⁹ https://www.der.wa.gov.au/component/k2/item/download/6862_f7458bf91f1480d35d8f604ed3b129e0

In recognising the high level of stakeholder concern and scientific uncertainty regarding the links between anthropogenic emissions and risks to rock art (see Appendix F), in 2019 the Department of Water and Environmental Regulation (DWER) produced the Murujuga Rock Art Strategy⁹⁰ (MRAS), which builds on the research to date, and according to DWER will establish a world's best practice program to monitor, evaluate and report on factors that could affect the condition of Murujuga rock art. This is being undertaken in consultation with the Murujuga Aboriginal Corporation, a team of national and international experts in relevant disciplines and is funded by industry, including Woodside. The MRAS describes a risk-based approach for the management of impacts to the rock art that is consistent with the State Government's responsibilities under the EP Act.

A program being executed as part of the MRAS is the Murujuga Rock Art Monitoring Program (MRAMP) which will monitor, evaluate, and report on changes and trends in the integrity of the rock art, specifically to determine whether anthropogenic emissions are accelerating the natural weathering, alteration, or degradation of the rock art. This will enable timely and appropriate management responses by the Western Australian Government, industry and other stakeholders to emerging issues and risks. The following extract from the WA Government website MRAS website outlines this. (Courtesy of Govt of Western Australia (December 2023) <https://www.wa.gov.au/service/aboriginal-affairs/aboriginal-heritage-conservation/program-murujuga-rock-art#frequently-asked-questions>):

How will the Murujuga Rock Art Strategy provide protection for the rock art?

The initial studies will allow the scientific team to determine the levels of various air emissions that may cause accelerated weathering of the rock art. These levels will not necessarily be identified during the field studies on Murujuga Country, in which case they will be informed by laboratory tests.

The research will inform an environmental quality management framework. Specifically, the levels of air emissions at which accelerated weathering is deemed to occur will be used to inform environmental quality criteria. The ongoing monitoring program, administered by MAC and the department, will gather data and ensure that emissions do not exceed the criteria. Industry will also be regulated to ensure their emissions will not cause the criteria to be exceeded.

There are two types of environmental quality criteria under the framework: environmental quality standards and environmental quality guidelines. Guidelines provide early warning of potential environmental effects, while standards indicate where the level of risk is no longer acceptable, triggering a management response to prevent environmental harm. In the case of the rock art, an exceedance of the standard means there is a high risk of permanent loss or damage to the rock art.

While environmental quality criteria have been used successfully in other contexts, it is important to remember that there are no environmental quality standards or guidelines values currently available anywhere in the world that can be applied to engraved rock art.

What is the connection with World Heritage listing?

The World Heritage nomination for Murujuga includes a comprehensive and effective management framework that outlines how the potential 'Outstanding Universal Value' of the area will be protected, conserved and monitored. As part of this framework, the State Government and MAC will demonstrate how they are working closely together to protect the rock art through the Murujuga Rock Art Strategy and the Murujuga Rock Art Monitoring Program.

The DBCA website has more information on the [World Heritage nomination](#)

In recent EPA assessment reports for industrial facilities on the Burrup Peninsula, the EPA has recommended a condition mandating relevant facilities to comply with air quality standards such as those derived from the MRAMP.

In the EPA's North West Shelf Project Extension Assessment Report 1727 (EPA Report 1727), the EPA recommends the 'Air Quality Outcome' for recommended condition 3 be 'to ensure that no air emissions from the proposal have an adverse impact accelerating the weathering of rock art within Murujuga beyond natural rates.'

Recommended condition 3-3 states that if the Minister notifies the proponent in writing of one or more air quality standards to be met (including standards derived from the results of the Murujuga Rock Art Monitoring Program) and the proponent complies with all those standards, and any amendments to the standards the proponent is taken to have achieved the Air Quality Outcome.

EPA Report 1727⁹¹ specifies that the proponent is to achieve compliance with any detailed air quality standards to ensure that there are no adverse impacts accelerating the weathering of rock art within Murujuga beyond natural rates. The EPA expects that this will include environmental quality objectives and environmental quality standards derived from the results of the MRAMP.

Ministerial Statement 1233 was subsequently issued for the North West Shelf Project Extension, published in December 2024, adopting the above mentioned EPA recommended conditions relating to air quality.

⁹⁰ <https://www.wa.gov.au/system/files/2020-07/DWER-Murujuga-rock-art-strategy.pdf>

⁹¹ North West Shelf Project Extension Proposal (epa.wa.gov.au)

The Ministerial Statement for the Perdaman Urea Project (MS 1180) includes the same air quality outcome condition that is proposed in EPA Report 1727 and MS 1233.

The Pluto LNG Facility has a Cultural Heritage Management Plan and Air Quality Management Plan (AQMP) (required under Ministerial Statement 757). Statements and commitments made by Woodside within the North West Shelf Air Quality Management Plan and the Pluto LNG Facility Air Quality Management Plan commit to manage potential impacts to Aboriginal rock art on the Burrup Peninsula in accordance with the MRAS and as a member of the Murujuga Rock Art Stakeholder Reference Group. Woodside actively supports the implementation of the Murujuga Rock Art Strategy through membership of the Murujuga Rock Art Reference Group and provides funding associated with the Murujuga Rock Art Monitoring Program. Woodside also supports the coordinated approach for an atmospheric deposition monitoring program to be established under the Strategy, and currently provides data to the program from the Woodside Atmospheric and Ambient Air Quality Monitoring Programs

Onshore Facility Air Emission Design Mitigations

Under the regulatory Conditions and Part IV Air Quality Management Plans of onshore processing facilities on the Burrup, operators are required to implement a number of controls and risk management practices related to air emissions, including the demonstration of best practice design, and monitoring and abatement programs.

It is noted that there is currently no arrangement in place to treat Scarborough gas at KGP, however this may be pursued as an opportunity in future. The interconnector which may transport gas from Pluto to KGP is connected to the newer LNG processing trains at KGP (Trains 4 and 5). The NWS Extension Environment Review Document⁹² details how the most recent LNG trains (Trains 4 and 5) constructed at the existing North West Shelf Project, which are those which may process Scarborough gas, are already equipped with lower NOx technology for gas turbines. KGP's Ministerial Statement 536⁹³ (February 2000) applicable for the construction and operation of Train 4 and Train 5 included the requirement to install low-NOx burners on new gas equipment.

Condition 11-1 of Ministerial Statement 757⁹⁴ required the development of an Assessment of Best Practice for Minimising Emissions to Air from Major Plant (Best Practice Report) for the Pluto LNG Facility and condition 11-2 required the development of the Pluto LNG Facility Air Quality Management Plan to demonstrate that best available practicable and efficient technologies are used to minimise and monitor air emissions from the plant. This demonstration was required to meet the requirements of the Minister for the Environment on advice of the Environmental Protection Authority prior to Woodside applying for and obtaining a Works Approval to construct the Pluto LNG facility. In 2019, these reports were updated to include Pluto Train 2 and subject to an independent peer review commissioned by the EPA, before being approved by the Minister for Environment in 2020 on advice of the EPA.

Best practice technologies to minimise air emissions implemented in Pluto LNG design and operation include:

- Dry Low NOx emissions control systems on gas turbines
- Specification of activated methyldiethanolamine (aMDEA) in the acid gas removal system to reduce co-absorption of benzene, toluene and xylene (BTX) and other hydrocarbons.
- installation of a regenerative thermal oxidiser on the acid gas removal unit
- flare design integrated smokeless flaring technologies implemented for the storage and loading flare system, cold dry flare, warm wet flare and common spare flare.

Best practice technologies to minimise air emissions implemented in Pluto LNG (Train 2) design and operation include:

- Dry Low Nox emissions control systems on gas turbines
- specification of aMDEA in the acid gas removal system to reduce co-absorption of BTX and other hydrocarbons.

The Pluto Ministerial Statement 757 requires the Pluto Air Quality Management Plan to include:

- targets and standards
- an emissions monitoring programme to cover specified pollutant compounds
- an ambient air monitoring programme and a nitrogen deposition monitoring programme
- provisions for annual reporting

Annual compliance reporting against these requirements is provided to the WA EPA, and published on the Woodside website – Pluto LNG Environmental Compliance Reporting⁹⁵.

⁹² https://www.epa.wa.gov.au/sites/default/files/PER_documentation2/NWS%20Project%20Extension%20-%20Environmental%20Review%20Document.pdf

⁹³ <https://www.epa.wa.gov.au/sites/default/files/1MINSTAT/Ministerial%20Statement%20536.pdf>

⁹⁴ https://www.epa.wa.gov.au/sites/default/files/1MINSTAT/Ministerial%20Statement%20757_0.pdf

⁹⁵ <https://www.woodside.com/what-we-do/operations/pluto-lng/pluto-lng-environmental-compliance-reporting>

Ministerial Statement 1233 (MS 1233⁹⁶) for the North West Shelf Project Extension, published December 2024, requires that:

...no air emissions from the proposal have an adverse impact accelerating the weathering of rock art within Murujuga beyond natural rates.

MS 1233 contains a number of conditions related to air quality and NOx emissions, including but not limited to:

- Within 12 months of issue of MS 1233, the Air Quality Management Plan must be revised in consultation with Murujuga Key Stakeholders
- Compliance with all air quality objectives and standards, including, if applicable, those derived from the results of the MRAMP
- At a minimum, reduce NOx emissions to 3065 tpa by 31 December 2030, corresponding to a 60% reduction
- Include provisions for adoption of continuous or predictive emission monitoring technologies on each stack of LNG processing trains by 30 June 2030
- Identification of best practice design and operational measures and efficient technologies implemented or to be implemented:
 - Specifying when each measure will be implemented
 - Methodology for determination of effectiveness of the measure in minimising air emissions
 - Independent Peer Review Report assessing these measures against international and Australian industry best practice

Monitoring data and compliance reporting is required to be provided to the WA EPA and made public.

The existing NWS Air Quality Management Plan includes the following management actions:

- MA4: Adopt practicable and efficient technologies to reduce air emissions. The AQMP states that Woodside has identified and evaluated credible opportunities to achieve a long term reduction in air emissions, and commits to a 40% [updated to 60% in MS1233 Condition] reduction in NOx emissions from a baseline set between 2013 and 2018. Measures which the NWS has or is considering include implementation of technology such as water injection, dry-low NOx, ultra dry-low NOx, selective catalytic reduction (SCR) systems on turbines, or ceasing operation of older non-DLN equipment with proportionally higher NOx emissions.
- MA5: Implement an adaptive management plan addressing the potential impact to rock art from industrial emissions. This is described in the AQMP, stating that since it is difficult to set appropriate management actions given the current lack of scientific understanding of the impacts of air emissions on petroglyphs, actions will be monitored, reviewed, evaluated and updated considering a range of factors including outcomes from MRAS.

Should credible scientific evidence emerge that industrial emissions are causing accelerated weathering of Murujuga rock art as an outcome of MRAMP, the impact profile of onshore atmospheric emissions may change. In this scenario, sufficient provisions exist in the relevant onshore regulatory frameworks as described above to ensure that onshore atmospheric emissions are limited to acceptable levels, which may require review of controls currently in place at onshore processing facilities to manage potential impacts (for example under condition 3 of MS1233 for NWS, or section 10 of the Pluto AQMP). In such a case whereby impact is attributed to the onshore processing of Scarborough gas, the EP change management process would apply (Section 7.2.7) as required by Regulation 39. Until the report is published, it is not feasible to pre-emptively lay out a planned response to such an outcome because there is a broad range of potential findings, severity of change, mechanism timeframes, attribution considerations, and outcomes from stakeholder engagement. However, potential options are available to reduce NOx emissions in this context and to achieve the 60% reduction in NOx emissions at NWS required under MS1233, which may include:

- Retrofitting NOx reduction technology such as DLN (or other technologies as noted above under description of NWS AQMP MA4) on, or ceasing operation of older non-DLN equipment at KGP which emits proportionally higher NOx concentration, noting that Scarborough gas will not be processed through these older trains in any case

Implementation of further NOx reduction measures or technologies which may no longer be considered disproportionate in context of a proven impact pathway, such as water injection, dry-low NOx, ultra dry-low NOx.

Both Pluto LNG Facility and NWS Karratha Gas Plant are also subject to cultural heritage management obligations detailed in MS757 and MS1233 respectively – further described in Section 6.10.

⁹⁶https://www.epa.wa.gov.au/sites/default/files/1MINSTAT/1727%20Statement%201233%20for%20publishing%20North%20West%20Shelf_0.pdf

Detailed Impact Assessment

Offshore Atmospheric Emissions

Air Quality

Facility and vessel emissions, predominantly flaring, have the potential to result in localised, temporary reduction in air quality, and generation of dark smoke. Potential impacts of emissions depend on the nature of the emissions, as well as the location and nature of the receiving environment.

Facility design (including the rapidly dispersive characteristics of the gas turbine exhausts, flare and other emissions), the estimated level of pollutants in the emissions, and the absence of elevated background ambient levels have been considered in estimating the potential for interaction with human and environmental sensitivities. The PAA is in a remote offshore location, with no expected adverse interaction with populated areas or sensitive environmental receptors associated with air emissions.

Birds (including migratory birds) are known to opportunistically roost on offshore facilities. Given the highly dispersed nature of facility air emissions, no adverse impacts to birds are anticipated due to air emissions.

Potential impacts are expected to be temporary, localised air quality changes, limited to the airshed local to the FPU. Air emission impacts are not expected to have direct or cumulative impacts on sensitive environmental receptors, or above National Environmental Protection (Ambient Air Quality) measures and are expected to disperse well before the nearest populated area (Exmouth).

The flare and potential black smoke resulting from emissions may impact visual amenity. The offshore location of the Petroleum Activities Program is not directly visible from the nearest landfall (Exmouth, ~230 km from the PAA where these emissions may occur). Hence, no impacts to visual amenity for residential communities are expected. Visual amenity impairment to tourism activities is not expected.

Indirect Emissions from Gas Processing Onshore – Assessment of Potential Impacts

Contribution to Accelerated Weathering of Murujuga Rock Art

The Dampier Archipelago, including the Burrup Peninsula and surrounds, traditionally referred to as Murujuga (which means ‘Hip Bone Sticking Out’ in the Ngarluma-Yaburara language) is located in the Pilbara region of WA. With more than one million images, Murujuga is home to one of the largest, densest and most diverse collections of rock art in the world⁹⁷.

The presence of industry on the Burrup Peninsula has generated concerns from some stakeholders that these emissions may lead to an accelerated weathering of rocks on which rock art is present which may reduce the visibility or destroy the rock art. Research to date on the impacts of emissions on rock art has not been conclusive, and there are currently no set air quality thresholds for the protection of rock art.

As outlined in Section 4.9.6, industrial emissions on the Burrup Peninsula are subject to extensive scientific studies to understand any potential pathway to impact on rock art, including wet and dry deposition which may alter the pH of rocks as well as the supply of nutrients which may promote microbial activity, the metabolic by-products of which may interact with rock surfaces.

The history of research on this subject, set out in more detail in Section 4.9.6 may be broadly divided into four periods. The earliest period, from 2002 to 2009, aligns with the studies conducted by the Burrup Rock Art Monitoring Management Committee (BRAMMC) but also includes work conducted by others, primarily Bednarik who identified potential impact pathways through acid formation and microbial impacts. During this period MacLeod (2005) also took some comparative pH samples between in-situ rocks and museum samples. None of this parallel work established that industrial emissions were impacting rock art, or the levels of emissions at which impacts may be expected to occur. This period concluded with the 2009 BRAMMC report which stated that “there is no scientific evidence to indicate that there is any measurable impact of emissions on the rate of deterioration of the Aboriginal rock art in the Burrup” (BRAMMC 2009) but recommended the establishment of the Burrup Rock Art Technical Working Group (BRATWG) to conduct ongoing monitoring.

The second period of research aligns with this monitoring from 2010 to 2017. A significant component of this monitoring involved the monitoring of rock art colour. In 2016 Black and Diffey produced an unpublished paper critiquing the statistical methods applied by the CSIRO, which led to a review by Data Analysis Australia (DAA) which also raised “substantial doubts about the reliability of the data”. A final report from the CSIRO adapted its statistical methods to respond where possible to the conclusions from DAA but the results were described as “not fully conclusive”. Also during this period the BRATWG also commissioned an extreme condition weathering study which found that the dissolution of chemicals began at lower pH levels than previously estimated, however this work was only preliminary and should not be relied upon in setting thresholds for potential impacts.

The third research period, although overlapping with the conclusion of the BRATWG and initial years of the MRAS and MRAMP, is marked by the absence of any results from a coordinated, well-resourced research program and instead

⁹⁷ <https://www.wa.gov.au/system/files/2020-07/DWER-Murujuga-rock-art-strategy.pdf>

comprises a number of independent studies between 2017 and 2023. As a result, it is difficult to characterise these studies consistently. Some (Black et al 2017a, Dorn 2020; Smith 2022a) critiqued or re-stated conclusions of previous studies. Black et al 2017b repurposes historic pH data and concludes that “theoretical evaluation using electrochemical equilibrium principles” indicates impacts to rock art will result from an decreased pH since pre-industrial times; CGB Solutions 2020’s analysis of historic pH and contemporary measurements found that pH was not decreasing and that any correlation between acidity and LNG production sites could not be statistically supported. Both studies suffer from significant issues with the available data.

Other studies (Black et al 2018; Gleeson et al 2018) discuss possible impact pathways but stop short of drawing conclusions on whether impacts to rock art are resulting from industrial emissions. Smith et al (2022b) does hypothesise that industrial emissions may be responsible for some reported impacts but acknowledges that the methodologies applied are subject to considerable errors that prevent a definitive conclusion being drawn. A series of studies by MacLeod (2020, 2021, MacLeod and Fish 2021) report on the results of monitoring conducted for Yara Pilbara Nitrates. The outcomes of these reports are inconsistent. Solo reports by MacLeod (2020, 2021) both state that “There is unequivocal evidence that the changes in colour contrast are affected by the changes in the mean and in the minimum pH observed on the rock art sites at the reference positions” though the results include increased acidity correlating in some places with increased contrast and elsewhere with decreased contrast. MacLeod and Fish (2021) then state that “there is presently no adverse impact on the rock engravings from industrial pollution owing to a lower NO_x level than when the studies commenced 14 years ago”. This conclusion is critiqued by Smith et al (2022a).

As noted in the MRAMP conceptual model, “*while many of these studies form useful datasets to include in subsequent analyses, in general these studies have been inconclusive or failed to show any significant impact of anthropogenic impact on the rock art or chemical/biological species composition and abundance (Commonwealth of Australia, 2018). Nor have they produced any definitive relationships to inform a conceptual impact model, which is instead reliant on fundamental scientific studies in other regions to inform the likely processes occurring at Murujuga (e.g. Dorn, 2020⁹⁸).*”

In December 2023, the first interim report of MRAMP⁹⁹ was published (refer to Section 4.9.6), marking the start of a fourth period of research. The report states that results remain inconclusive with regards to whether industrial air emissions are resulting in anthropogenic change to rock art and recommends that further scientific studies are required. The MRAMP report noted that while some spatial trends in electrochemical parameters (such as pH) and rock surface elemental composition have been found, more work is required to determine causal relationships for these trends (as relationships were not as expected). Spatial trends were also identified as appearing for several measured air pollutants such as Nitrogen Dioxide that are generally consistent with earlier air quality modelling by Ramboll (Ramboll 2022).

The MRAMP monitoring report outlined that similar trends exist for the pH measurements taken in March–April 2022 and the measured NO₂ levels generally. This relationship was the reverse of what would be expected to confirm the acid deposition hypothesis in previous literature as MRAMP found pH values in March–April 2022 were highest where NO₂ concentrations are highest; whereas with acid deposition, pH is expected to be lower where NO₂ is higher, as NO₂ is often a precursor to the formation of nitric acid, which has a low pH. Neutral pH is around 7, with low pH indicating potentially acidic conditions. The results in the MRAMP monitoring report have been reinterpreted by Smith (2024) in addition to original research but fails to address this unexpected correlation. Smith (2024) claims that “the damaging impact of acidic emissions on the rock surfaces is not in doubt” but does not provide adequate detail on the original research to allow its reliability to be considered, nor does it provide reason to question the conclusions of the MRAMP report, which stress that the available data is insufficient to draft any meaningful conclusions.

Throughout this ongoing period of research, new information will continue to be considered and responded to. However, the resourcing, scope and expertise available to MRAMP make it by far the most significant source of research on the cultural impacts of industrial emissions on Murujuga. MRAMP is also co-managed by MAC and emphasises Indigenous decision making and management, aligned with international guidance and standards, including the United Nations Declaration on the Rights of Indigenous Peoples and ICOMOS Charter for the Protection and Management of the Archaeological Heritage. For these reasons, the results of the MRAMP are prioritised in understanding the potential for emission to impact Murujuga’s rock art.

The contribution of emissions from processing of Scarborough gas to the Murujuga airshed is relatively small. Further, there is inconclusive evidence for any causal link between industrial air emissions and anthropogenic change to rock art on Murujuga. Given this, and that downstream facilities are subject to separate regulatory assessment outcomes, the risk of processing of Scarborough gas at onshore facilities adversely impacting rock art on Murujuga is considered to be low and no impact significance has been evaluated.

Potential Impacts to Human Health

It is recognised that gaseous emissions causing a reduction in ambient air quality have the potential to impact human health as regulated by the NEPM. Both the Pluto LNG Facility and NWS Project Air Quality Management Plans have modelled and assessed the potential impacts of industrial emissions on human health in accordance with the requirements of Western Australian regulatory requirements and international standards (e.g. World Health

⁹⁸ <https://www.wa.gov.au/system/files/2023-12/murujuga-rock-art-monitoring-program-conceptual-models.pdf>

⁹⁹ <https://www.wa.gov.au/system/files/2023-12/murujuga-rock-art-monitoring-program-monitoring-studies-repo2023.pdf>

Organisation). Ambient air quality monitoring programs are in place which demonstrate that current air pollution levels were well below standards set to protect human health and well-being¹⁰⁰. The magnitude of emissions from processing Scarborough Gas are insufficient to lead to the exceedance of any relevant health criteria on the Burrup Peninsula or surrounding region.

Both Pluto LNG facility and the NWS Project have committed to maintaining an ongoing air quality monitoring program that is in place to monitor the ambient ground-level concentrations of relevant gases on the Burrup Peninsula, with comparisons being made against the NEPM standards and reported to DWER.

Ambient air quality monitoring results from Pluto and NWS Project will be summarised in the relevant facilities Annual Environment Report, including any observed exceedances of ambient air quality standards.

As part of the NWS Extension proposal, the EPA assessed the residual impact to human health and amenity from the proposal's nitrogen dioxide (NO₂), SO₂, NH₃, ozone (O₃), and particulate (as PM₁₀ and PM_{2.5}) emissions at sensitive receptors both in isolation and in a cumulative context with other existing and future emission sources. Predicted ground level concentrations (GLCs) at Dampier, Karratha, Hearson Cove, and Deep Gorge (Ngajarli) remain below applicable current and future proposed air quality criteria at 'standard operating conditions' and 'worst case' cumulative impact scenarios, with the exception of annual PM₁₀ and PM_{2.5} GLCs at Hearson Cove and Deep Gorge (Ngajarli), which slightly exceed the applicable criteria due to high levels of natural background dust. Subject to recommended conditions, the impact of the proposal was considered as being consistent with the EPA's objective for air quality in respect of human health.

Noting the absence of any current impacts to human health from industrial activity on Murujuga and presence of a comprehensive regulatory regime including monitoring program, the risk of processing of Scarborough gas to human health is assessed as Negligible.

Summary of Assessment Outcomes

<i>Receptor</i>	<i>Impact</i>	<i>Receptor Sensitivity Level</i>	<i>Magnitude</i>	<i>Impact Significance Level</i>
Air quality	Change in air quality	Low value	Slight	Negligible (F)
Socio-economic	Accelerated weathering of rock art	No consequence assigned ¹⁰¹		

Overall Impact Significance Level:

The overall impact significance level for routine and non-routine atmospheric emissions is negligible (F) based on a slight effect on air quality. The impact significance levels for individual receptors are consistent with the levels rated in the Scarborough OPP.

Noting the relatively small contribution of emissions from processing of Scarborough gas to the Murujuga airshed, outcomes of regulatory assessments of downstream facilities and the inconclusive evidence for any causal link between industrial air emissions and anthropogenic change to rock art on Murujuga, the risk of processing of Scarborough gas at onshore facilities adversely impacting rock art on Murujuga is assessed as low and no impact significance has been evaluated.

Demonstration of ALARP

<i>Control Considered</i>	<i>Control Feasibility (F) and Cost/ Sacrifice (CS)</i>	<i>Benefit in Impact/Risk Reduction</i>	<i>Proportionality</i>	<i>Control Adopted</i>
Legislation, Codes and Standards				
The Murujuga Rock Art Strategy and Monitoring Program (MRAS/MRAMP), run by DWER and MAC, is in place to protect the	F: Yes CS: Aligned with existing practice	Benefit as defined in sections detailed above: <ul style="list-style-type: none"> Program: Murujuga Rock 	Control based on legislative requirements – must be adopted.	Yes C 7.1

¹⁰⁰ Pluto Air Quality Management Plan, Rev 2

¹⁰¹ No consequence has been assigned because there is no conclusive evidence of a causal link between industrial air emissions and potential anthropogenic change to rock art on Murujuga (as described in the section above and Section 4.9.6). Woodside will continue to monitor the outcomes of MRAMP (as per C 7.1), apply a precautionary approach through implementation of Controls listed in this Section, and update or change manage the EP accordingly (Section 7.2.7)

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>Aboriginal rock art by providing a long-term framework that builds on previous work to deliver an improved approach to monitoring, analysis and management.</p> <p>The MRAS describes an approach for the management of impacts to the rock art that is consistent with the State Government's responsibilities under the Environmental Protection Act 1986 (WA).</p> <p>Woodside will maintain membership of the Murujuga Rock Art Reference Group</p> <p>Woodside funding contributes to the execution of the MRAS and MRAMP</p> <p>Woodside monitors the outcomes of the MRAMP and assesses relevance to this activity as part of the implementation strategy of this EP.</p>		<p>Art (Western Australian Government)</p> <ul style="list-style-type: none"> • Murujuga Rock Art Monitoring Program <p>Further studies by an DWER/Murujuga Aboriginal Corporation are required to provide scientific certainty and allay stakeholder concerns.</p>		
<p>Onshore processing facilities (i.e. Pluto LNG, NWS Karratha Gas Plant and Perdaman Urea) are subject to regulatory assessment and compliance under the Environmental Protection Act 1986 (WA);</p> <p>This includes implementation of potential EQMF developed as an outcome of MRAS; and measures such as NOx concentration limits at emissions point sources under EP Act Part V licenses, and implementation of Part IV conditions. The NWS AQMP also includes MA5 which requires development of an adaptive management plan addressing potential impact to rock art from industrial emissions.</p>	<p>F: Yes.</p> <p>CS: Aligned with existing practice</p>	<p>Implementation of activities and associated controls to ALARP and acceptable levels supports the maintenance of cultural features and heritage values.</p> <p>NWS AQMP MA4 commits to adoption of practicable and efficient technologies to reduce air emissions. MS 1233 requires a reduction of NOx emissions from KGP of 60% by 2030, and identification and implementation of best practice (with peer review).</p> <p>Pluto MS 757 required an Assessment of Best Practice for Minimising</p>	<p>Control based on legislative requirements – must be adopted.</p>	<p>Yes.</p> <p>C 7.2</p>

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Onshore facilities which may process Scarborough gas are required to adopt practicable and efficient technologies (including to minimise NOx emissions)		Emissions to Air from Major Plant. Further information on these requirements is described above, under Onshore Facility Air Emission Design Mitigations		
Vessels will comply with Marine Order 97 (Marine pollution prevention – Air pollution).	F: Yes. CS: Minimal cost. Standard practice	Legislative requirements to be followed may slightly reduce the likelihood of air pollution.	Control based on legislative requirements – must be adopted.	Yes C 6.1
Implement the PAP in a manner that is not inconsistent with the objectives of the Murujuga National Park Management Plan 78, through execution of the Conservation Agreement and Deep Gorge Joint Statement.	F: Yes CS: Significant potential cost. Legal requirement.	Legal requirement to carry out activities not inconsistent with the Murujuga National Park Management Plan.	Control based on legislative requirements – must be adopted.	Yes. C 7.3
Good Practice				
Forecast, measure and or estimate facility emissions (in accordance with NPI) to inform optimisation management practices and minimise environmental impact of direct Scarborough emissions.	F: Yes CS: Minimal cost. Standard practice.	Minimises environmental impact of emissions through planning, ongoing review, governance and optimisation. It combines with good operating practice to maximise production and reduce flaring and fuel emissions at Scarborough and onshore processing to manage cost, which improves energy intensity (e.g., cleaner production), optimising emissions. Fuel and flared gas are potential product streams, as such, Woodside applies routine short and long term optimisation and opportunity management	Control is WMS requirement – must be adopted.	Yes C 6.5

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		framework to identify and prioritise enhancement opportunities. Annual fuel and flare target setting and monthly review of performance will be completed for Scarborough, and also at onshore processing facilities for Scarborough gas.		
Professional Judgement – Eliminate				
Treat gas offshore to minimise NOx.	F: No – NOx is formed by the reaction of nitrogen and oxygen at high temperatures such as fuel combustion. Since the atmosphere is composed mainly of nitrogen, treatment of gas prior to combustion would have no effect. CS: Not considered – control not feasible	No benefit in impact.	Not considered – control not feasible.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solutions				
Maintaining flare to maximise efficiency of combustion and minimise venting, incomplete combustion waste products.	F: Yes. CS: Minimal cost. Standard practice.	Flare tip integrity and ignition system functionality minimises potential for venting, incomplete combustion waste products and smoke emissions.	Benefits outweigh cost/sacrifice	Yes C 6.11
Processing of Scarborough gas into LNG will use LNG trains equipped with Dry Low NOx (DLN) technology (Note: the onshore infrastructure which may transport Scarborough gas to KGP enables LNG	F: Yes CS: Minimal cost, equipment already in place at onshore facilities	DLN is a turbine combustion control technique based on pre-mixing fuel and air prior to entering the combustion chamber. This enables turbine	Proportional, and specified in design in line with Best Practice technology assessment and selection (as per C 7.2).	Yes C 28.1

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
processing only through KGP Trains 4 and 5, which have turbines equipped with DLN)		power output at proportionally lower combustion temperature, thereby materially reducing NOx concentration in exhaust (by approximately 70%)	Emissions performance monitoring requirements specified in EP Act Pt V Licences	
Selective Catalytic Reduction (SCR) at onshore processing facilities ¹⁰²	<p>F: Potentially; subject to sufficient space and technical integration and safety requirements. Installation of SCR on gas turbines to reduce NOx emissions is proven in the power industry. Woodside is not aware of any instances where this has been retrofitted to mechanical drive turbines.</p> <p>CS: Substantial cost and significant business disruption</p> <p>The installation of SCR systems introduces material new hazards to facilities, including the need to import significant amounts of ammonia daily, and potentially introduces risks associated with ammonia emissions while operating (which are also being monitored for potential impact to rock art). New gas</p>	<p>SCR technology converts NOx to other compounds using a catalyst and gaseous reagent, usually ammonia or urea.</p> <p>If feasible, the installation of SCR on existing turbines could deliver a material reduction in NOx emissions from onshore processing.</p> <p>..</p>	<p>Not proportional based on current impact profile. SCR was not selected for Pluto Train 1 nor recent Train 2, however the design was subject to peer review and EPA assessment with regard to best practice emission controls.</p> <p>Retrofitting on operational processing facilities carries significant cost, safety considerations and complexity.</p>	No

¹⁰² Proposed by Friends of Australian Rock Art in consultation (Refer to Appendix F)

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	fired boilers would be required to replace lost ability to extract heat from best-practice exhaust waste-heat recovery systems.			
Electrostatic pollution control equipment ¹⁰³	F: Yes CS: Substantial cost	Potential reduction in particulate matter emitted from onshore processing – does not reduce NOx concentration in exhaust	Not proportional. Emission of particulate matter from onshore processing is not a material environmental or social concern	No
Wet scrubber technology ¹⁰⁴	F: Yes CS: Substantial cost	Potential minor reduction in NOx emissions from onshore processing. This technology involves a high-pH reducing agent to convert contaminants. Wet scrubber technology is more frequently applied for other contaminants which are more soluble.	Not proportional. Wet scrubber technology (as distinct from SCR) is not considered as effective in reducing NOx as other technologies, and may produce a material waste water stream.	No

¹⁰³ Proposed by Friends of Australian Rock Art in consultation (Refer to Appendix F: Consultation)

¹⁰⁴ Proposed by Friends of Australian Rock Art and Individual 2 in consultation (Refer to Appendix F: Consultation)

Demonstration of ALARP

ALARP Statement:

On the basis of the environmental risk assessment outcomes and the use of the relevant tools appropriate to decision type A for offshore activities, and B for indirect emissions from gas processing onshore, Woodside considers the adopted controls appropriate to manage the risk.

Air emissions from onshore processing at Pluto LNG Facility are managed under Ministerial Statement 757.

Air emissions from onshore processing at the NWS Project have been assessed and approved in accordance with Ministerial Statement 536 (and others). Air emissions from onshore processing at the NWS Project Extension (i.e. an extension of the life the NWSV beyond 2030) have been assessed by the EPA under Assessment Report 1727 and approved by Ministerial Statement 1233. Both facilities are subject to the provisions of Commonwealth and State legislation to ensure unacceptable environmental impacts are avoided.

The assessment in this section reflects the current status of controls related to routine atmospheric emissions, in the context that there is currently no scientific consensus that anthropogenic emissions are accelerating weathering of Murujuga rock art. These current controls are considered to appropriately implement a risk-weighted precautionary principle.

As described above, established programs and frameworks such as MRAS/MRAMP are designed to investigate theorised impact pathways and determine whether impact is occurring. Should credible scientific evidence emerge that anthropogenic emissions associated with processing of Scarborough gas are causing accelerated weathering of Murujuga rock art as an outcome of MRAMP, the impact profile of onshore atmospheric emissions may change. In this eventuality, sufficient provisions exist in the relevant onshore regulatory frameworks to ensure that onshore atmospheric emissions are limited to acceptable levels, which may require review of controls currently in place at onshore processing facilities to manage potential impacts.

As no reasonable additional/alternative controls were identified that would further reduce the impacts without being grossly disproportionate the impacts and risks are considered ALARP.

Societal Values

Consultation was undertaken for this program to identify the views and concerns of relevant stakeholders, as described in Section 5 and Appendix F: Consultation. Industrial air emissions on the Burrup Peninsula are being managed by the EPA as part of the EP Act Part IV assessment process and DWER as part of their EP Act Part V process and via the MRAS. It is important to note that operators of the Pluto LNG Facility and Northwest Shelf Karratha Gas Plant have both made public commitments to supporting the outcomes of MRAS.

Atmospheric emissions associated with onshore processing of Scarborough gas and potential for impact of those emissions on rock art was noted as a material issue for relevant persons consulted in the course of preparing this EP. All feedback, claims or objections from relevant persons has been appropriately responded to, addressed and assessed (see Appendix F: Consultation), and controls proposed have been assessed in the EP.

Summary of ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision type B for indirect emissions), the adopted controls are appropriate to manage the indirect impacts of air emissions related with processing Scarborough gas onshore. The adopted controls meet NEPM, EP Act Part IV and Part V legislative requirements and include application of precautionary measures to protect environmental cultural heritage values. As no reasonable additional/alternative controls were identified that would further reduce the impacts without being grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability
Acceptability Criteria and Assessment
<p>Acceptability Statement: Offshore Activities Atmospheric Emissions</p> <p>Given the adopted controls, atmospheric emissions represent a negligible impact that is unlikely to result in greater than isolated impacts with close proximity of the facility, in an unpopulated area approximately 230 km from the nearest community receptor. The adopted controls are considered good oil-field practice/industry best practice and meet requirements of Australia Marine Orders and National Pollutant Inventory reporting.</p> <p>The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of atmospheric emissions to a level that is broadly acceptable.</p> <p>Acceptability Statement: Indirect Atmospheric Emissions</p> <p>The impact assessment concludes that indirect atmospheric emissions from the onshore processing of Scarborough gas contribute only a minor portion to the overall industrial emission airshed load on the Burrup Peninsula. Atmospheric emissions within the Murujuga airshed from both Pluto LNG, NWS Project Extension and Perdaman Urea have undergone independent assessment by the WA and agencies and have been considered acceptable, and are subject to management conditions. Woodside supports the ongoing management of heritage values under listings; Murujuga Cultural Landscape, Murujuga National Park and Dampier Archipelago (Including Burrup Peninsula) National Heritage Place. Planned activities under the PAP are not inconsistent with relevant heritage legislation, management plans and agreements under which these values are protected.</p> <p>Based on the implemented controls and the inconclusive evidence for any causal link between industrial air emissions and anthropogenic change to rock art, uncertainty and precaution are addressed by the existing State regulatory processes including the MRAS, which can apply adaptive management and mitigation measures as further scientific knowledge of potential pathways and indirect links to rock art are established. NOx emissions to the Murujuga airshed are regulated under the EP Act and Ministerial Conditions. Therefore, based on application of a risk-weighted precautionary principle and existing regulatory frameworks, impacts from indirect air emissions as a result of onshore processing of Scarborough gas are considered Acceptable.</p>

Environmental Performance Outcomes, Standards and Measurement Criteria			
<i>EPO</i>	<i>Adopted Control(s)</i>	<i>EPS</i>	<i>MC</i>
<p>EPO 13 Impacts of routine offshore atmospheric emissions will be limited to planned activities and impacts described as part of the Petroleum Activities Program.</p> <p>EPO 14 Prevent accelerated weathering of Murujuga rock art or impact to human health from air emissions that result from onshore processing of Scarborough gas.</p>	<p>C 6.1 Vessels comply with Marine Order 97 (Marine Pollution Prevention – Air Pollution) including:</p> <ul style="list-style-type: none"> • International Air Pollution Prevention (IAPP) Certificate, required by vessel class • Use of low sulphur fuel; • Ship Energy Efficiency Management Plan (SEEMP), where required by vessel class • Onboard incinerator to comply with Marine Order 97. 	<p>PS 6.1 Refer to Section 6.7.6</p>	<p>MC 6.1.1 Refer to Section 6.7.6</p>
	<p>C 6.5 Forecast, measure/estimate and monitor FPU fuel and flare emissions. Measurement / estimates will be in accordance with NGRS/NPI and WMS procedures named in Section 7.2.4, to inform process optimisation decisions.</p>	<p>PS 6.5.1 Refer to Section 6.7.6</p>	<p>MC 6.5.1 Refer to Section 6.7.6</p>
	<p>C 6.11</p>	<p>PS 6.11.1</p>	<p>MC 6.11.1</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	Maintaining FPU flare ignition and monitoring mechanisms, to maximise efficiency of combustion and minimise venting, incomplete combustion waste products and smoke emissions.	Refer to Section 6.7.6	Refer to Section 6.7.6
	<p>C 7.1 The Murujuga Rock Art Strategy and Monitoring Program (MRAS/MRAMP), run by DWER and MAC, is in place to protect the Aboriginal rock art by providing a long-term framework that builds on previous work to deliver an improved approach to monitoring, analysis and management.</p> <p>Woodside will maintain its support of the MRAS/MRAMP, and monitor the outcomes as part of the implementation strategy of this EP</p>	<p>PS 7.1.1 Scarborough processes gas through Burrup onshore facilities where a functioning MRAS and MRAMP framework is in place (or subsequent position on risk/impact and applicable program or controls if relevant). Continued support for the MRAS / MRAMP by Woodside and implementation of relevant findings or recommendations as required.</p>	<p>MC 7.1.1 Annual review of MRAS/MRAMP (or subsequent applicable program or controls) associated results, and applicability for managing the associated risk.</p> <p>MC 14.1.2 Records demonstrate Change Management and Management of Knowledge processes have been followed where new controls or management measures identified (Section 7.2.7)</p>
	<p>C 7.2 Onshore processing facilities (i.e. Pluto LNG, NWS Karratha Gas Plant and Perdaman Urea) are subject to assessment and compliance under the Environmental Protection Act 1986 (WA), including:</p> <ul style="list-style-type: none"> • Existence of applicable Ministerial Statement(s) • Implementation of potential EQMF if developed as an outcome of MRAS • NOx concentration limits at emission point sources (via. EP Act Part V Licencing) • Implementation of Part IV conditions. Requirement to assess and implement NOx reduction measures, (e.g. Pluto Best Practice Report, NWS AQMP MA4) <p>This includes implementation of potential EQMF developed as an outcome of MRAS; and measures such as NOx concentration limits at emissions point sources under EP Act Part V licences, and implementation of Part IV conditions. The NWS AQMP also requires MA5 development of an adaptive</p>	<p>PS 7.2.1 Verify Scarborough gas onshore processing facilities (Pluto LNG, NWS Karratha Gas Plant and Perdaman Urea) are subject to assessment under the Environmental Protection Act 1986 (WA)</p> <p>PS 7.2.2 Onshore processing facilities commit to implement adaptive management in the result of an adverse finding from MRAMP applicable to their operations, to appropriately reduce NOx emissions to acceptable levels. (Existing mechanisms require this, for example under section 2 of MS1233 for NWS, or section 10 of the Pluto AQMP)</p>	<p>MC 7.2.1 Ministerial statement(s) applicable to onshore processing facilities, and compliance demonstrated via required annual compliance reports</p> <p>MS 7.2.2 Onshore facility approvals documents include change/adaptive management obligations. In response to relevant MRAMP findings, records demonstrate that appropriate measures are taken at onshore facilities which process Scarborough gas to reduce NOx emissions to acceptable levels.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	management plan to address the potential impact to rock art from industrial emissions.		
	C 28.1 Processing of Scarborough gas into LNG will use LNG trains equipped with Dry Low NOx (DLN) technology	C 28.1.1 Ensure processing of Scarborough gas uses LNG trains equipped with Dry Low NOx (DLN) technology. Emissions performance monitored annually in compliance with applicable EP Act Part V Licence(s).	MC 28.1.1 Records demonstrate that processing of Scarborough gas uses LNG trains equipped with Dry Low NOx (DLN) technology, and monitoring compliance demonstrated via required annual compliance report(s).
	C 7.3 Implement the PAP in a manner that is not inconsistent with the objectives of the Murujuga National Park Management Plan 78, through execution of the Conservation Agreement and Deep Gorge Joint Statement.	PS 7.3.1 Comply with relevant commitments and obligations under the Conservation Agreement and Deep Gorge Joint Statement	MC 7.3.1 Records demonstrate continued compliance with relevant commitments and obligations under the Conservation Agreement and Deep Gorge Joint Statement.
		PS 7.3.2 Ensure Onshore Processing Facilities comply with relevant facility Cultural Heritage Management Plan(s)	MC 7.3.2 Onshore processing facilities Annual Compliance Reports demonstrate compliance with facility Cultural Heritage Management Plan(s).

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6.7.8 Physical Presence: Interactions between diurnal migratory/foraging seabirds and shorebirds and the FPU

Scarborough OPP – Relevant Impact Assessment Section														
Not Applicable														
Context														
Relevant Activities FPU Installation and Mooring Hook-up– Section 3.6 Offshore Facility Commissioning – Section 3.7 Offshore Facility start-up – Section 3.8 Scarborough Operations – Section 3.9				Existing Environment Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5				Consultation Consultation – Section 5						
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Migratory / foraging seabirds and shorebirds interacting with the FPU for roosting and or nesting.					✓	✓		A	F	-	-	LCS GP P ₂	Broadly Acceptable	EPO 5
Description of Source of Impact														
<p>The long term, physical presence of the FPU introduces a new emergent feature in the ocean that may provide a temporary refuge for migratory / foraging seabirds and possibly shorebirds; or a more permanent refuge if behaviours such as nesting are displayed. Unlike nocturnal seabirds, which can be impacted by facility lighting through attraction or disorientation (refer to Section 6.7.3), diurnal seabirds and shorebirds are attracted to the offshore facility because of its presence and refuge potential.</p> <p>The potential presence of marine birds on the FPU introduces the safety and environmental risk of bird strike during helicopter operations (addressed in Section 6.8.10). In addition, the build-up of large volumes of guano can impact maintenance of a safe working environment, leading to increased risk of potential slips/trips/falls and potential biological waste hazards for workers.</p> <p>Given the absence of other permanent facilities within the offshore marine environment of the Exmouth Plateau, the potential for the FPU to be used by seabirds and/or shorebirds for this purpose is unconfirmed, including the species assemblage, number of individuals or the specific location of potential refuge on the FPU.</p>														
Detailed Impact Assessment														
Assessment of Potential Impacts														
<p>The NWMR provides a variety of habitats, including BIAs, for numerous threatened and migratory marine bird species. The spatial and temporal distribution of species within the NWMR can vary seasonally, depending upon the resource requirements of different behaviours and/or life stages of the bird species present. The FPU Operational Area is located 375 km west-north-west of Dampier and the nearest offshore island (Barrow Island) is ~238km away; the nearest anthropogenic emergent feature is ~190km (Santos Spar-2 Facility). Seabirds utilising the waters within and surrounding the FPU Operational Area are expected to comprise migrating and foraging pelagic seabirds. Nearshore seabirds and shorebirds coastal distributions largely exclude their presence in and around the location of the FPU with the exception of possible migration pathways. Given the distance from shore, including nearest offshore islands, the numbers of</p>														

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individual such birds traversing the FPU Operational Area are expected to be low compared to areas of the NWMR closer to shore.

The PMST report determined that 16 species of threatened or migratory seabird / shorebird species may occur within the Petroleum Activities Area (Table 4-13). Not all of these are truly pelagic marine bird species however or are likely to utilise waters of the FPU Operational Area. Table 6-30 lists the species which are likely or possible to interact with the FPU, noting only two of the five identified are EPBC Act listed, threatened or migratory species (Common noddy, Roseate tern).

While there are reports of migratory shorebirds utilising ships as resting stopovers (e.g. Sara et al. 2023), reports of this behaviour within Australian waters are absent, reflecting either a lack of reporting or few such events. Occurrences of migratory shorebirds utilising offshore platforms of the NWMR would most likely be associated with a low number of individuals being blown off course during inclement weather events, rather than birds utilising facilities as a strategy to conserve energy during migration by large numbers of individuals.

Of the pelagic seabirds, wedge-tailed shearwaters are known to use offshore waters for foraging during the breeding season (Cannell et al. 2019). Like other species of the Procellariiform order, shearwaters do not rest or roost on emergent features, coming to land only to breed, incubate eggs and provision chicks. Roosting and resting behaviours are undertaken on the water surface in offshore environments. Interaction of Procellariiforms with offshore platforms are typically due to attraction of individuals to artificial light owing to their nocturnal life history traits. The risk of lighting impacts on nocturnal seabirds is assessed in Section 6.7.3. The focus of this assessment and resulting controls relate to the risks posed to diurnal seabirds and shorebirds due to the physical presence of the FPU.

Considering behaviour and reports of seabird use of offshore platforms, species considered likely and possible to utilise the FPU for resting and/or roosting are summarised in Table 6-30. It is noted that the two pelagic seabird species listed as likely, have wide-ranging distributions but their designated BIAs do not overlap with the FPU location. The species considered possible to utilise the FPU are not typically found at such distances offshore as the FPU Operation Area and there is no overlap of designated BIAs, however some of these species have been reported utilising not-normally-crewed offshore platforms on NWS.

The use of the FPU may lead to a positive impact on these species by providing resting/roosting habitat and potentially increased foraging efficiency should fish and other prey species aggregate around the subsea structures associated with the FPU. However, the increased presence of species may result in injury or death if individuals become entangled or trapped in topside infrastructure or as a result of collision with helicopters (Ronconi et al. 2015) – these unplanned impacts are considered in Section 6.8.10. Other safety risks include hazards associated with fouling caused by guano deposits, which could cause health and safety issues for workers accessing the facility.

Other Woodside facilities located closer to shore and the islands of the Dampier Archipelago such as Pluto (designed to be operated not-normally-attended or minimally attended) and Angel, have experienced bird roosting activities. These facilities are located 160km and 123km respectively north-west of the Karratha Gas Plant, on the Burrup Peninsula, with Pluto being 75km north of Barrow Island. On Angel platform, the installation of temporary bird proofing exclusion devices has been carried out, to enable the maintenance of a safe working environment for personnel and reduce risks to common noddys (from helicopter strike and other potential harm from processes on the facility).

The potential impacts of the FPU presence on seabird species considered likely to rest or roost on the FPU are considered negligible given that use of the FPU by seabirds is not expected to alter population size, habitat use or distribution at the NWMR level and will most likely result in a temporary behavioural change

Table 6-30: Seabird species most likely to interact with the FPU.

Species Common Name	Seasonality	Type of Interaction	Source/Example
Likely			
Brown Booby	Winter	Roosting/resting	Pluto and Angel platforms (not-normally-attended) production platforms (Woodside) Montara Venture – Timor Sea
Common (Brown) Noddy	Winter/all year	Roosting/resting	Pluto and Angel platforms (not-normally-attended) production platforms (Woodside) Montara Venture – Timor Sea
Possible			
Crested Tern	All year	Roosting – particularly fledglings	Pluto and Angel platforms (not-normally-attended) production

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			platforms (Woodside), Worley Consulting 2024a. Platforms located in proximity to the Lowendal Islands
Lesser Crested Tern	All year	Roosting	Platforms located in proximity to the Lowendal Islands
Roseate Tern	All year	Roosting	Platforms located in proximity to the Lowendal Islands

Source: Worley Consulting 2024b.

Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level
Seabirds and migratory shorebirds	Change in fauna behaviour	High value species	No lasting effect	Slight (E)
<p>Overall Impact Significance Level: The overall impact significance level for disturbance to seabirds and migratory shorebirds from installation and operation of the FPU is E based on a Slight impact to the high value receptors (seabirds and migratory shorebirds). The impact significance levels for individual receptors are consistent with the level in the OPP.</p>				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
None identified				
Good Practice				
Implement the Woodside Frontline Offshore Seabird Management Plan (SBMP) on the FPU and all vessels during PAP: <ul style="list-style-type: none"> For vessels the SBMP is only relevant where activities overlap with a Seabird BIA or will occur within 20 km of a Seabird BIA. 	F: Yes. CS: Minimal.	Increased knowledge and awareness of seabird management and care, increasing likelihood of positive outcomes from avifauna interactions and/or appropriate management in the case of avifauna death.	Potential benefits outweigh cost/sacrifice	Yes C 3.3

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Ensure that <i>Woodside Frontline Offshore Seabird Management Plan</i> training or awareness information has been delivered to relevant crew or Woodside personnel, including the information in Section 7.9.9	F: Yes CS: Minimal	Training and awareness in the Seabird Management Plan will ensure Woodside Environment Advisers and relevant vessel crew are aware of their obligations and the appropriate action to take in the event of bird encounters, ultimately increasing the likelihood of positive outcomes for seabirds.	Potential benefits outweigh cost/sacrifice.	Yes C 3.4
Carry out avifauna interaction survey or data analysis post FPU installation, to understand bird presence and use of facility	F: Yes CS: Minimal	Verifying bird interaction risk profile for the facility will help inform requirements for installation of bird deterrent or management devices.	Benefits outweigh cost/sacrifice.	Yes C 25.1
Professional Judgement – Eliminate				
Carry out maintenance campaigns outside periods of peak presence.	F: No CS: Maintenance campaign timing is driven by equipment requirements, resource availability and extenuating circumstances like breakdowns, weather events and incidents.	Avoidance of carrying out maintenance campaigns (associated with increased personnel presence / numbers on the facility) could reduce bird/human interactions and interface and reduce impact potential.	Cost/sacrifice outweighs benefit. Maintenance campaigns are influenced by a range of factors, some of which are outside of Woodsides control (i.e. weather, breakdowns, incidents). Limiting or reducing the time periods during which maintenance can occur may leave the facility in an unsafe state or result in escalation to further process/equipment issues.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
<p>ALARP Statement:</p> <p>On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.3), Woodside considers the adopted controls appropriate to manage the impacts of interactions between diurnal migratory/foraging seabird and shorebirds and the FPU and activities associated with the Petroleum Activities Program. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.</p>				

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Demonstration of Acceptability				
Acceptability Criteria and Assessment				
<p>Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 6.3 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):</p> <ul style="list-style-type: none"> • Overall impact significance levels for individual receptors are consistent with the levels rated in the OPP. • EPOs and controls in the OPP that are relevant to disturbance to pelagic seabirds have been adopted. • There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation. 				
<p>Acceptability Statement:</p> <p>The impact assessment has determined that, given the adopted controls, the Petroleum Activities Program is unlikely to result in an impact significance level greater than Slight. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered consistent with industry good practice and meet the requirements of Woodside relevant systems and procedures.</p> <p>The potential impacts are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2). Therefore, Woodside considers the adopted controls appropriate to manage the impacts of disturbance to seabirds to a level that is broadly acceptable; and demonstrate the EPOs are met.</p>				

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
EPO 5 Prevent injury or mortality to seabirds as a result of the Petroleum Activities Program.	C 3.3 Implement the Woodside <i>Frontline Offshore Seabird Management Plan (SBMP)</i> on the FPU and all vessels during the PAP. For vessels, the SBMP is only relevant where activities overlap with a nocturnal seabird species BIA or will occur within 20km of a Seabird BIA.	PS 3.3.1 Refer to Section 6.7.3 .	MC 3.3.1 Refer to Section 6.7.3 .
	C 3.4 Woodside Frontline SBMP training or awareness information delivered to relevant facility, vessel crew and Woodside Environment Adviser(s).	PS 3.4.1 Refer to Section 6.7.3 .	MC 3.4.1 Refer to Section 6.7.3 .
	C 25.1 Carry out avifauna interaction survey or data analysis post FPU installation, to understand bird presence and use of facility	PS 25.1.1 Within 18 months of FPU installation, carry out review of bird interaction reporting data to identify: <ul style="list-style-type: none"> • Trends in bird interaction timing (do birds utilise the FPU more in certain months); • Trends in bird behaviour (roosting / nesting / resting); 	MC 25.1.1 Documented review of bird interaction reporting data.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
		<ul style="list-style-type: none"> • Avifauna species information; • Frequency and severity of interactions i.e. is there evidence driving a need for intervention or installation of deterrent devices. 	
		<p>PS 25.1.2</p> <p>During the initial few maintenance campaigns (i.e. first two or three) following period(s) of the FPU being unattended – carry out an inspection of the facility to determine bird usage and behaviour. Particularly:</p> <ul style="list-style-type: none"> • Any areas of the FPU that are being utilised by birds for roosting or nesting; • Noting if usage of the facility by birds is different to when the facility is minimally attended; • Is there evidence driving a need for intervention or installation of deterrent devices. 	<p>MC 25.1.2</p> <p>Documented inspection of the facility to determine bird usage of the FPU, during maintenance campaigns following initial unattended periods.</p>
		<p>PS 25.1.3</p> <p>Use data collected on facility usage by birds, to determine if adaptive management actions are required to continue to reduce risks to seabirds to ALARP.</p> <p>Adaptive management should not increase risk of harm to birds or introduce any new risks.</p> <p>Adaptive management may include:</p> <ul style="list-style-type: none"> • modification of equipment or facility design, • changes to when/ how work areas are used; • local passive controls such as windows / screens or doors to limit bird access to work areas. 	<p>MC 25.1.3</p> <p>Evidence that data collected has been considered and implementation of adaptive management controls if required.</p>

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6.7.9 Routine and Non-routine Discharges: Vessels

Scarborough OPP – Relevant Impact Assessment Section																
Section 7.1.7 – 7.1.10 – Routine and Non-Routine Discharges																
Context																
Relevant Activities Vessel-based Activities – Section 3.11			Existing Environment Regional Context – Section 4.2 Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5					Consultation Consultation – Section 5								
Impacts and Risks Evaluation Summary																
Source of Risk	Environmental Value Potentially Impacted						Evaluation									
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tool	Acceptability	Outcome		
Discharge of sewage, grey water and putrescible waste from vessels (including ASV) to the marine environment.			✓					A	E	-	-	LCS GP PJ	Broadly Acceptable	EPO 15		
Discharge of deck, bilge and drain water from vessels (including the ASV) to the marine environment.			✓					A	E	-	-					
Discharge of brine and cooling water from vessels (including the ASV) to the marine environment.			✓					A	E	-	-					
Description of Source of Impact																
<p>Discharge of Sewage, Putrescible Waste and Grey Water from Vessels</p> <p>Vessels (Section 3.11) (excluding the USV) will routinely generate/discharge treated sewage, putrescible wastes and grey water to the marine environment.</p> <p>Sewage onboard vessels is routinely treated (either via sewage treatment plant (STP) or macerator) prior to discharge. Treatment systems may require routine maintenance or repair during operations, which may require infrequent, short periods in which sewage is directly discharged overboard as treatment systems are not always operational. The ASV is equipped with a sewage treatment plant certified under the International Convention for the Prevention of Pollution from Ships 1973.</p> <p>The volume of sewage, putrescible waste and grey-water generated are estimated based on the following POB:</p> <ul style="list-style-type: none"> vessels – up to approximately 200 POB for the largest vessel during hook-up and commissioning of the FPU; will be considerably less for Support Vessels ASV – up to 500 POB. This is likely to be considerably less (typically ~300 POB) due to limitations in the number of people that can be work on the FPU at any one time. <p>Using a rate of 0.375 m³/person/day as a guide (NERA, 2017), the following discharge volumes are estimated, noting that actual volumes will vary depending on personnel requirements:</p>																

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- vessels – up to 75 m³/day (based on 200 POB the largest vessel) per vessel
- ASV – up to 188 m³/day (Based on 500 POB).

Note that wastes may also be stored and transported to shore for disposal.

Discharge of Deck, Bilge and Drain Water from Vessels (including ASV)

Vessels and the ASV will routinely generate and discharge relatively small volumes of bilge water. Bilge tanks receive fluids from many parts of the vessel, including machinery spaces. Bilge water can contain water, oil, detergents, solvents, chemicals, particles and other liquids, solids or chemicals. There is also variable discharge of drainage water from decks directly overboard or via deck drainage systems. Deck drainage may contain traces of chemicals. Potential sources could include rainfall events and/or from deck activities such as cleaning/wash-down of equipment/decks.

Discharge of Cooling Water and Brine (from Reverse Osmosis) from Vessels (including ASV)

Seawater is pumped on board and used as a heat exchange medium for the cooling of machinery engines on vessels. It is subsequently discharged to the sea surface at a potentially higher temperature. Cooling water is often treated with additives including scale inhibitors and biocide to avoid fouling of pipework. Scale inhibitors and biocide are usually used at low dosages, and are typically consumed in the inhibition process, so there is little or no residual chemical concentration remaining upon discharge. Seawater used for cooling purposes will be routinely discharged at a temperature expected to be less than 70°C and rates ~50 m³/d.

Potable water, primarily for accommodation and associated domestic areas, may be generated on vessels and the ASV using a reverse osmosis (RO) plant. This process will produce brine, which is diluted and discharged at the sea surface. Discharged brine is typically 20 to 50 percent higher in salinity than the intake seawater (depending on the desalination process used) and may contain low concentrations of scale inhibitors and biocides, which are used to avoid fouling of pipework (Woodside, 2014).

Detailed Impact Assessment

Assessment of Potential Impacts

Water Quality

Monitoring of vessel sewage discharges has demonstrated that a 10 m³ sewage discharge over 24 hours from a stationary source in shallow water reduced to about 1% of its original concentration within 50 m of the discharge location (Woodside, 2008). Monitoring stations confirmed that discharges were rapidly diluted or nutrients rapidly metabolised and no elevations in water quality parameters (e.g. total nitrogen, total phosphorous and selected metals) were recorded above background levels at any station.

Discharge of food waste has the potential to change the local water quality for a short period through the addition of a temporary nutrient source, however this nutrient loading would rapidly return to background conditions following dispersion in the water.

Drainage and treated bilge water discharges may contain a range of chemicals, oil, grease and solid material; however these discharges are expected to rapidly dilute in the water column (Shell, 2010). In addition, vessels are typically moving during discharges of treated bilge water, which promotes mixing and dilution.

The key physicochemical stressors that are associated with reject brine and cooling water discharge include salinity, pH, temperature and chemical toxicity. Water quality of the surrounding environment may be altered through the addition of chemicals and an increase in salinity. Scale inhibitors and biocides are commonly used within the systems described above to prevent fouling. Scale inhibitors are typically low molecular weight phosphorous compounds that are water-soluble, and only have acute toxicity to marine organisms about two orders of magnitude higher than typically used in the water phase (Black et al., 1994). The biocides typically used in the industry are highly reactive and degrade rapidly (Black et al., 1994).

The potential impacts on water quality due to cooling water discharge include chlorine toxicity and increased water temperatures. Discharges will disperse and dilute rapidly, with impacts to water quality localised to the discharge point.

Reject brine water is typically 20–50% higher in salinity to the surrounding water and based on models developed by the US EPA (Frick et al., 2001), discharges of brine water will sink through the water column where it will be rapidly mixed with receiving waters and dispersed by ocean currents, decreasing in salinity rapidly as distance from source increases.

Generally, reject brine and cooling water containing chemical additives are inherently safe at the low dosages used. They are usually consumed in the inhibition process, so there is little or no residual chemical concentration remaining upon discharge.

Impacts from routine and non-routine discharges from vessels on water quality will have no lasting effect due to the transient nature of discharges, which will occur in a localised mixing zone, with a high level of dilution into the open water marine environment of the PAA. As such, the impact significance level for water quality has been identified as Negligible (F).

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Marine Fauna

A change in water quality from the discharge of sewage and greywater could result in injury or mortality to marine fauna. This could be the result of oxygen depletion in the waters due to nutrient enrichment, or due to toxins and chemicals present in the discharged wastes. Open marine waters are typically influenced by regional wind and large-scale current patterns resulting in the rapid mixing of surface and near surface waters where sewage discharges may occur. This means nutrients from the discharge of sewage will not accumulate or lead to eutrophication due to the highly dispersive environment. Therefore, the receptors with the greatest potential to be impacted are those in the immediate vicinity of the discharge (NERA, 2017). Given that sewage discharges are at or near the surface, and remain buoyant, the receptors with the potential to be impacted are also those within or on surface waters; i.e. plankton, fish and other marine fauna.

Discharge of food waste into the marine environment has the potential to attract some opportunistic marine fauna including fish and seabirds to the area in response to the increased food availability or, indirectly because of attraction of prey species. However, given the small quantities of food waste to be disposed, any attraction is likely to be minor, temporary and localised.

As a result of a change in water quality, further impacts to receptors may occur, which include injury or mortality to marine fauna resulting from exposure to toxins in drainage and treated bilge water discharges. The discharges, which may include non-organic contaminants, will rapidly dilute. Such discharges are expected to be intermittent and in very small quantities and concentrations as to not pose any significant risk to any relevant receptors.

Increased salinity and other toxins from chemical additives in brine and cooling water discharges could potentially harm marine fauna. Due to the relatively inert properties and low concentrations of scale inhibitors and biocides within the brine and cooling water discharge, the high level of dilution and mixing within the receiving offshore environment and the limited area of impact, impacts (if any) to pelagic species are expected to be highly localised.

As discharges will be sporadic (i.e. no continuous flow), there is no potential for fluids to accumulate in the water column.

It is possible that marine fauna transiting the localised area may come into contact with the discharges outlined above (e.g. marine turtles, whales, whale sharks; Section 4.6) as they traverse the PAA. While the likely presence of marine fauna varies at different times of the year depending on migration, foraging and breeding patterns in the region, the potential for impact remains low due to the localised nature of discharges and rapid dilution. No BIAs for marine fauna overlap the Offshore Operational Area; and activities in the Trunkline Operational Area will be limited to a Support Vessel. As such, the impact significance level for Marine fauna has been identified as slight (E).

Plankton

Routine and non-routine discharges may affect the ecophysiology of marine organisms as a result in changes of salinity. Studies indicate that effects from increased salinity on planktonic communities in areas of high mixing and dispersion are generally limited to the point of discharge only (Azis et al., 2003). Research has demonstrated that zooplankton are not affected in areas of sewerage or greywater discharge for transient vessels (Mearns et al., 2003; Ytreberg et al., 2020). Plankton communities are expected to rapidly recover from short term, localised impacts due to their naturally high mortality, and rapid replacement rates (UNEP, 1985).

Planktonic productivity in the NWMR is low. No significant impacts from the planned routine discharges are expected, because of the minor quantities involved, the expected localised mixing zone and high level of dilution into the open water marine environment of the PAA. Impacts to plankton from routine and non-routine discharges are not expected. As such, the impact significance level for Plankton has been identified as Negligible (F).

AMPs

The Trunkline Operational Area overlaps the Montebello AMP. The North-west Marine Parks Network Management Plan (DNP, 2018a) lists the natural values of the Montebello AMP as including a range of threatened, migratory, marine or cetacean species listed under the EPBC Act and cultural values which are intrinsically linked to those natural values. For activities occurring within the Montebello Marine Park, the short-term and localised impacts of routine and non-routine discharges in open waters will not be inconsistent with the natural and cultural values and objective of the Multiple Use Zone (VI) to provide for ecologically sustainable use and the conservation of ecosystems, habitats and native species, or for the Habitat Protection Zone (IV) to provide for the conservation of ecosystems, habitats and native species in as natural a state as possible, while allowing activities that do not harm or cause destruction to seafloor habitats. Impacts are therefore not inconsistent with the objectives of the North-west Marine Parks Network Management Plan or the zoning of the Montebello AMP (DNP, 2018a). As such, the impact significance level for AMPs has been identified as slight (E).

Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level/Risk Consequence
Water quality	Change in water quality	Low value (open water)	No lasting effect	Negligible (F)
Migratory shorebirds and seabirds	Injury/mortality or behavioural changes to marine fauna	High value species	No lasting effect	Slight (E)
Fish, sharks and rays		High value species	No lasting effect	Slight (E)
Marine mammals		High value species	No lasting effect	Slight (E)
Marine reptiles		High value species	No lasting effect	Slight (E)
Plankton		Low value (open water)	No lasting effect	Negligible (F)
AMPs		High value	No lasting effect	Slight (E)
<p>Overall Impact Significance Level/Risk Consequence: The overall impact significance level for routine and non-routine discharges of sewage, putrescible waste, grey water, bilge water, drain water, cooling water and brine is E based on no lasting effect to marine fauna. The impact significance level for water quality is consistent with the level rated in the Scarborough OPP. Potential impacts to marine fauna and AMPs have been additionally assessed in this EP. There is no change in magnitude of impact (no lasting effect); however, the impact significance level is slightly higher due to the higher receptor sensitivity level.</p>				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Marine Order 95 – marine pollution prevention—garbage (as appropriate to vessel class) which requires putrescible waste and food scraps to pass through a macerator so it is capable of passing through a screen with no opening wider than 25 mm.	F: Yes. CS: Minimal cost. Standard practice.	No reduction in likelihood or consequence would result.	Controls based on legislative requirements – must be adopted.	Yes C 8.1
Marine Order 96 – Pollution prevention – Sewage (as appropriate to vessel class) which include the following requirements: <ul style="list-style-type: none"> a sewage treatment plant approved by an issuing body that complies with Regulation 9 of Annex IV (of MARPOL) and other guidelines as required; or a sewage comminuting and disinfecting system approved by an issuing body, that complies with Regulation 9 of Annex IV; or a holding tank approved by an issuing body, that complies with Regulation 9 of Annex IV. 	F: Yes. CS: Minimal cost. Standard practice.	No reduction in likelihood or consequence would result.	Controls based on legislative requirements – must be adopted.	Yes C 8.2

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/ Risk Reduction	Proportionality	Control Adopted
<p>Marine Order 91 – Oil (as relevant to vessel class) requirements, which include mandatory measures for the processing of oily water prior to discharge:</p> <ul style="list-style-type: none"> Oil Record Book Valid International Oil Pollution Prevention (IOPP) Certificate. Vessel specific SOPEP. 	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>No reduction in likelihood or consequence would result.</p>	<p>Controls based on legislative requirements – must be adopted.</p>	<p>Yes C 8.3</p>
Good Practice				
<p>Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.</p>	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>Environmental assessment of chemicals in discharges will reduce the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.</p>	<p>Benefits outweigh cost/sacrifice.</p>	<p>Yes C 8.4</p>
Professional Judgement – Eliminate				
<p>Capturing and treating all drainage.</p>	<p>F: No. Discharge from deck drainage is produced from rainfall events and is unavoidable. Collecting drainage during unstaffed operations is not possible as there is a risk of the collection tank overflowing, resulting in potential spillage of hydrocarbons. CS: Eliminating the discharge by collecting all contaminated run-off and storing it is not practicable due to the</p>	<p>Not considered – control not feasible.</p>	<p>Not considered – control not feasible.</p>	<p>No</p>

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/ Risk Reduction	Proportionality	Control Adopted
	size/weight and the unstaffed philosophy.			
Storing, transporting and treating/disposing onshore of sewage, greywater, putrescible and bilge wastes.	F: No. Would present additional safety and hygiene hazards resulting from the storage, loading and transport of the waste material. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional Judgement – Substitute				
None identified.				
Professional Judgement – Engineered Solution				
None identified.				
ALARP Statement:				
On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the impacts of routine and non-routine discharges from the vessels. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement:
The impact assessment has determined that, given the adopted controls, routine and non-routine discharges from the vessels are not expected to result in potential impacts greater than localised contamination not significantly above background levels outside a localised mixing zone. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet legislative requirements under Marine Orders 91, 95 and 96. The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2) including those with an First Nations connection or with traditional use in nearshore areas as defined in Section 4.9). Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of these discharges to a level that is broadly acceptable and demonstrate the EPOs are met.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
EPO 15 Vessel discharges shall meet requirements defined by Marine Orders and the Woodside chemical assessment and approval process.	C 8.1 Marine Order 95 – marine pollution prevention— garbage (as appropriate to vessel class) which requires putrescible waste and food scraps to pass through a macerator, so it is capable of passing through a screen with no opening wider than 25 mm.	PS 8.1.1 Vessels compliant with Marine Order 95 – Pollution prevention – Garbage.	MC 8.1.1 Records demonstrate vessels are compliant with Marine Order 95 – Pollution prevention (as appropriate to vessel class).

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
	<p>C 8.2 Marine Order 96 - pollution prevention – sewage (as appropriate to vessel class) which include the following requirements:</p> <ul style="list-style-type: none"> • a sewage treatment plant approved by an issuing body that complies with Regulation 9 of Annex IV (of MARPOL) and other guidelines as required; or • a sewage comminuting and disinfecting system approved by an issuing body, that complies with Regulation 9 of Annex IV; or • a holding tank approved by an issuing body, that complies with Regulation 9 of Annex IV. 	<p>PS 8.2.1 Vessels compliant with Marine Order 96 – Pollution prevention – Sewage (as appropriate to vessel class).</p>	<p>MC 8.2.1 Records demonstrate vessels are compliant with Marine Order 96 – Pollution prevention – Sewage (as appropriate to vessel class).</p>
	<p>C 8.3 Marine Order 91 – oil (as relevant to vessel class) requirements, which includes mandatory measures for the processing of oily water prior to discharge:</p> <ul style="list-style-type: none"> • Oil Record Book Valid International Oil Pollution Prevention (IOPP) Certificate. • Vessel specific SOPEP. 	<p>PS 8.3.1 Discharge of machinery space bilge/oily water will meet oil content standard of <15 ppm without dilution.</p>	<p>MC 8.3.1 Records demonstrate discharge specification met for vessels.</p>
	<p>C 8.4 Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints</p>	<p>PS 8.4.1 Chemicals intended or likely to be discharged into the marine environment will be approved through the Woodside chemical assessment process (Section 3.9.16.5).</p>	<p>MC 8.4.1 Records demonstrate chemical selection, assessment and approval process for required chemicals is followed.</p>

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meter. The system is designed to achieve OIW concentration discharge below 15 mg/L, and process is monitored by a hydrocarbon/water interface level meter. Hydrocarbons collected from the open drains tank are directed to the waste drums for onshore disposal.

Drains from machinery spaces and diesel containing systems are directed towards the machinery open drains tank to capture and contain liquids before sending onshore for disposal. The machinery open drains are protected from rain ingress by being undercover or in enclosures.

The helideck area has a free-draining system to direct rainwater, fuel spillage and/or firefighting substances away from the helideck surface to overboard at safe locations. The helideck refuelling system is contained and connected to the non-hazardous open drain system. During routine operations the helideck fire deluge system will be tested for safety purposes and will involve the use and subsequent release of approximately 50L of water and fluorine free foam at the manufacturers recommended concentration.

Chemical storage areas have dedicated spill containment facilities, with segregation appropriate to prevent hazardous reactions from chemical mixing. Chemical spills can be directed to the open drains tank or direct to waste drums.

It is noted that cooling water and brine from the FPU will be co-mingled with produced water and are assessed as a combined discharge in Section 6.7.11.

Detailed Impact Assessment

Water Quality

Discharge of sewage, grey water and putrescible waste from the FPU has the potential to change the local water quality, with the addition of a temporary nutrient source. As discussed above (Section 6.7.9) a 10 m³ sewage discharge over 24 hours from a stationary source in shallow water, is reduced to about 1% of its original concentration within 50 m of the discharge location (Woodside, 2008). Monitoring stations confirmed that discharges were rapidly diluted or nutrients rapidly metabolised and no elevations in water quality parameters (e.g. total nitrogen, total phosphorous and selected metals) were recorded above background levels. Discharge of sewage (7 m³ to 28 m³) from the FPU may therefore be expected to disperse rapidly within a localised area around the FPU. Discharge of unmacerated sewage for limited time periods is not expected to increase potential impacts. This is supported by infield monitoring undertaken around the GWA platform, which indicated there was no detectable decrease in oxygen saturation, nutrients or increase in oxygen demand and that a 10 m³ discharge of sewage reduces to approximately 1% of its original concentration within 50 m of the discharge location (Woodside 2008).

Additionally, treated drainage water discharges from the FPU may contain a range of chemicals, oil, grease and solid material. Water quality of the surrounding environment may be altered through the addition of these contaminants; however, these discharges are expected to rapidly dilute in the water column given the deep, open water location of the FPU (Shell, 2010).

Impacts from routine and non-routine discharges from the FPU on water quality will have a slight effect on water quality around the FPU due to the nature of discharges, which will occur in an approved mixing zone, with a high level of dilution into the open water marine environment of the PAA. As such, the impact significance level for water quality has been identified as Negligible (F).

Marine Fauna

Discharge of sewage and greywater to the marine environment has the potential to result in injury or mortality to marine fauna. This could be the result of oxygen depletion in the waters due to nutrient enrichment, or due to toxins and chemicals present in the discharged wastes. Key factors influencing large open marine environments include large-scale current patterns and regional wind patterns, which lead to rapid mixing of surface and near surface waters where sewage and greywater discharges may occur. It is likely nutrients from the discharge of sewage will not accumulate or lead to eutrophication due to the highly dispersive environment. Due to the localised nature of discharge, receptors with the largest potential to be impacted are those in the immediate vicinity of the discharge area (NERA, 2017). Given that sewage discharges are at or near the surface, and remain buoyant, the receptors with the potential to be impacted are also those within or on surface waters; i.e. plankton, fish and other marine fauna.

Due to changes in water quality, receptors may be impacted further, with injury or mortality to marine fauna possible, resulting from exposure to toxins in drainage and treated bilge water discharges. The discharges, which could include non-organic contaminants, will rapidly dilute, with distance from the source. These kinds of discharges are anticipated to be in small quantities, small concentrations and intermittent in nature, as such are not likely to pose a significant risk to any receptors.

There is potential for marine fauna transiting the localised area (close to the FPU) to come into contact with the discharges discussed above, such marine fauna could include marine turtles, whales and whale sharks; Section 4.6. Although presence depends on time of the year and migration and foraging preferences, the potential for impact remains low due to the localised nature of discharges and rapid dilution. As discharges will be sporadic (i.e. no continuous flow), there is no potential for fluids to accumulate in the water column. There are no BIAs for marine fauna overlapping the Offshore Operational Area. As such, the impact significance level for Marine fauna has been identified as Slight (E).

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Plankton

Routine and non-routine discharges may affect the ecophysiology of marine organisms as a result in changes in water quality. Research has demonstrated that zooplankton are not affected in areas of sewerage or greywater discharge for transient vessels (Mearns et al., 2003; Ytreberg et al., 2020). Although the FPU is stationery and discharges will occur at a fixed location, discharges will be sporadic (i.e. no continuous flow) and there is no potential for fluids to accumulate in the water column. Plankton communities are expected to rapidly recover from localised impacts due to their naturally high mortality, and rapid replacement rates (UNEP, 1985).

Planktonic productivity in the NWMR is low. No significant impacts from the planned routine discharges are expected, because of the minor quantities involved, the expected approved mixing zone and high level of dilution into the open water marine environment of the Offshore Operational Area. Impacts to plankton from routine and non-routine discharges are not expected. As such, the impact significance level for water quality has been identified as Negligible (F).

Summary of Assessment Outcomes

<i>Receptor</i>	<i>Impact</i>	<i>Receptor Sensitivity Level</i>	<i>Magnitude</i>	<i>Impact Significance Level/Risk Consequence</i>
Water quality	Change in water quality	Low value (open water)	No lasting effect	Negligible (F)
Migratory shorebirds and seabirds	Injury/mortality or behavioural changes to marine fauna	High value species	No lasting effect	Slight (E)
Fish		High value species	No lasting effect	Slight (E)
Marine mammals		High value species	No lasting effect	Slight (E)
Marine reptiles		High value species	No lasting effect	Slight (E)
Plankton		Low value (open water)	No lasting effect	Negligible (F)

Overall Impact Significance Level/Risk Consequence: The overall impact significance level for routine and non-routine discharges of sewage, putrescible waste, grey water, bilge water and drain water is E based on no lasting effect to marine fauna. The impact significance level for water quality is consistent with the level rated in the Scarborough OPP. Potential impacts to marine fauna have been additionally assessed in this EP. There is no change in magnitude of impact (no lasting effect); however, the impact significance level is slightly higher due to the higher receptor sensitivity level.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
<p>Discharges from FPU machinery open drains system is compliant with Protection of the Seas (Prevention of Pollution from Ships) Act 1983 and Marine Order 91 – marine pollution prevention—oil (MARPOL Annex I) requirements, which includes mandatory measures for processing of oily water prior to discharge:</p> <ul style="list-style-type: none"> Liquids to pass through an Oily Water separator to achieve <15 ppm OIW concentration prior to discharge <p>Oil discharge monitoring and control system to stop any discharge over 15 ppm</p>	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>Managing machinery open drains system (Section 3.9.11.2) discharges to meet legislative requirements ensures oily water is discharged in accordance with MARPOL Annex I requirements and no substantial change in water quality will occur.</p>	<p>Controls based on legislative requirements – must be adopted.</p>	<p>Yes C 9.5</p>
Good Practice				
<p>Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.</p>	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>Environmental assessment of chemicals in discharges will reduce the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.</p>	<p>Benefits outweigh cost/sacrifice.</p>	<p>Yes C 8.4</p>

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Sewage system macerator maintained as part of facility preventative maintenance.	F: Yes. CS: Minimal cost. Standard practice.	Treating and macerating sewage is standard industry practice, ensuring the substance disperses in the receiving environment with minimal effects to water quality.	Benefits outweigh cost sacrifice.	Yes C 9.2
Putrescible waste from Scarborough facility will be macerated prior to overboard discharge	F: Yes CS: Minimal cost. Standard Practice	Macerating putrescible waste is standard industry practice, so that the substance disperses in the receiving environment with minimal effects on water quality.	Benefits outweigh cost sacrifice	Yes C 9.6
Deck drainage and bilge water discharges will be compliant with Woodside Engineering Standard	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. No change in consequence would occur.	Benefits outweigh cost/sacrifice.	Yes C 9.3
Professional Judgement – Eliminate				

<p>Capturing and treating all drainage.</p>	<p>F: No, not feasible given significant rainfall events expected at location.</p> <p>Non-machinery open drains will collect rainwater and cannot be entirely contained.</p> <p>Machinery space drains are designed to be entirely captured in the machinery open drains tank and routed to waste drums for onshore treatment/disposal . Since all machinery spaces are enclosed or undercover, the expected collection from machinery space is high concentration/heat diesel or lube oil only (with no water), meaning conventional oily water separators are not appropriate.</p> <p>. CS: Minimal cost</p>	<p>Not considered – control not feasible.</p>	<p>Not considered – control not feasible.</p>	<p>No</p>
<p>Storage, transporting and disposing of putrescible waste and food scraps onshore.</p>	<p>F: Yes CS: Minimal costs.</p>	<p>The FPU is not fitted with equipment to allow for the maceration of putrescible waste and food scraps.</p>	<p>Benefits outweigh cost sacrifice.</p>	<p>Yes C 9.6</p>
<p>Storing, transporting and treating/disposing onshore of sewage, greywater, and bilge wastes.</p>	<p>F: No. Would present additional safety and hygiene hazards resulting from the storage, loading and transport of the waste material.</p> <p>CS: Not considered – control not feasible.</p>	<p>Not considered – control not feasible.</p>	<p>Not considered – control not feasible.</p>	<p>No</p>
<p>Professional Judgement – Engineered Solution</p>				

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FPU's open hazardous drain system integrity maintained. Maintaining the FPU's open hazardous drain system integrity, as far as practicable.	F: Yes. CS: Minimal cost. Standard practice.	The open hazardous drain system is maintained to support appropriate disposal of environmentally hazardous liquids.	Benefits outweigh cost sacrifice.	Yes C 9.4
Engineering Design Standard: Manage liquid effluent and discharges from nearshore and offshore facilities in accordance with MARPOL Annex IV	Yes CS: Minimal cost, standard practice	Ensures design adequately captures potentially contaminated drainage from machinery space	Engineering standard requirement	Yes Adopted in design

ALARP Statement:

On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the impacts of routine and non-routine discharges from the FPU. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement:

The impact assessment has determined that, given the adopted controls, routine and non-routine discharges from the FPU are not expected to result in potential impacts greater than localised contamination not significantly above background levels outside an approved mixing zone. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet legislative requirements under Marine Orders 91, 95 and 96. The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2). Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of these discharges to a level that is broadly acceptable and demonstrates the EPOS are met.

Environmental Performance Outcomes, Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
EPO 16 Impacts from routine and non-routine discharges from FPU Operations (wastewater streams) will be limited to planned activities and impacts described as part of the Petroleum Activities Program.	C 8.4 Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.	PS 8.4.1 Refer to Section 6.7.9	MC 8.4.1 Refer to Section 6.7.9
	C 9.2 FPU Sewage system macerator maintained as part of facility preventative maintenance.	PS 9.2.1 FPU Sewage system macerator maintained as per the requirements outlined in vendor documentation, and a spare system stored onshore in case of malfunction.	MC 9.2.1 FPU Sewage system maintenance activity completion records.
	C 9.3 Deck drainage and bilge water discharges will be compliant with Woodside Engineering Standard.	PS 9.3.1 Deck drainage and bilge water discharges compliant with Woodside Engineering Standard.	MC 9.3.1 Records demonstrate deck drainage and bilge water discharges is compliant with Woodside Engineering Standard.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
	<p>C 9.4 FPU's open hazardous drain system integrity maintained.</p>	<p>PS 9.4.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.6) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for: F22 – Drains Systems (Hazardous, Non-hazardous area, Machinery Drains) to;</p> <ul style="list-style-type: none"> • support appropriate containment for disposal of environmentally hazardous liquids to avoid harm to the environment. 	<p>MC 9.4.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>
	<p>C 9.5 Discharges from FPU machinery open drains system is compliant with Protection of the Seas (Prevention of Pollution from Ships) Act 1983 and Marine Order 91 – marine pollution prevention—oil (MARPOL Annex I) requirements, which includes mandatory measures for processing of oily water prior to discharge:</p> <ul style="list-style-type: none"> • Liquids to pass through an Oily Water separator to achieve <15 ppm OIW concentration prior to discharge • Oil discharge monitoring and control system to stop any discharge over 15 ppm 	<p>PS 9.5.1 FPU practices comply with Protection of the Seas (Prevention of Pollution from Ships) Act 1983 and Marine Order 91 – marine pollution prevention—oil requirements, which includes mandatory measures for processing oily water prior to discharge.</p>	<p>MC 9.5.1 Records demonstrate discharge specifications met.</p>
	<p>C 9.6 Putrescible waste macerated prior to overboard discharge.</p>	<p>PS 9.6.1 Putrescible wastes macerated (specified to <25mm size) when discharged to sea</p>	<p>MC 9.6.1 Putrescible waste macerator system maintenance records</p>

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6.7.11 Routine and Non-routine Discharges: Floating Production Unit Operations (Comingled Produced Water/Seawater Return Stream)

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.1.10 – 7.1.11 – Routine and Non-Routine Discharges														
Context														
Relevant Activities Produced Water Treatment – Section 3.9.10 MEG Recovery and Regeneration – Section 3.9.9 Seawater System – Section 3.9.12.3			Existing Environment Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5					Consultation Consultation – Section 5						
Impact/Risk Evaluation Summary														
Source of Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tool	Acceptability	Outcome
Discharge of comingled produced water, cooling water and brine during routine and non-routine operations.		✓	✓		✓	✓		B	F	-	-	GP PJ	Acceptable if ALARP	EPO 17
Description of Source of Impact														
<p>During operations, the FPU produces a single comingled fluid waste stream that is discharged 8 m below sea-surface from the seawater dump caisson, and is comprised of:</p> <ul style="list-style-type: none"> • treated Produced Water (PW) from the processing of hydrocarbons (Section 3.9.10), which is distilled from the MEG regeneration process and treated in the Produced Water Treatment Plant (PWTP) • salts removed from the MEG recovery process when in salt-mode (if formation water is produced) • seawater discharge stream (SW) including seawater return from three systems (Section 3.9.12.3): <ul style="list-style-type: none"> ○ Seawater (SW) Cooling Medium Exchangers (largest flowrate) ○ Brine from RO Water Maker Package ○ Hypochlorite Generator Package. <p>After treatment, the PW discharge stream will be comingled topsides with the seawater discharge stream prior to discharge overboard via the seawater dump caisson. In salt mode, the treated PW stream is used to re-dissolve monovalent salts and suspend insoluble divalent salts removed from the MEG Recovery Unit (MRU) into a brine for combined overboard disposal. In upset scenarios, PW from the MRU may be directed to the rich MEG storage tank for short periods.</p> <p>The design enables removal of contaminants from the PW stream to ALARP using media beds (tertiary treatment), followed by the commingling of treated produced water and seawater return to maximise nearfield dispersion once discharged from the FPU. The seawater discharge volumes are in the order of 3,971 m³/h for normal operations which is approximately 1,000 times the volume of treated produced water/salts.</p> <p>FPU Normal Operations <u>Produced Water</u></p>														

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Produced Water (PW) is condensed water (water vapour present within gas that condenses when brought to the surface) or formation water (derived from a water reservoir below the hydrocarbon formation), or a combination of both, which dissolves into the rich MEG stream that returns from subsea to the FPU. PW on the FPU (in both salt-free or salt modes) is a byproduct of MEG regeneration. A description of the MRU and PWTP has been provided in Section 3.9.9 and Section 3.9.10, respectively.

The two operating modes of the PWTP include:

- Salt-free mode - condensed water from production gas. PW rate approximately 50 m³/d
- Salt mode - condensed water + formation water (and dissolved salts). PW rate up to approximately 76 m³/d.

A short-term peak produced water rate of up to 100 m³/day (the integrity limit of the system is 108 m³/day) may occur during coincident maximum formation water production and an increased MEG processing rate, to re-establish normal storage tank levels. The condensed water and produced formation water are distilled in the MRU, and may contain naturally occurring contaminants including dispersed oil, dissolved organic compounds (aliphatic and aromatic hydrocarbons, organic acids and phenols), inorganic compounds (e.g., soluble inorganic chemicals or dissolved metals) and residual process chemicals (including MEG).

Condensed water is expected for the majority of field life (no formation water) and therefore the MRU and PWTP will usually operate in salt-free mode, within the order of 50 m³/d PW rate. Wells are not expected to produce formation water within the first 5 years of operations until they begin to water out toward the end of well life, however the scenario is included in this EP in case it unexpectedly occurs due to reservoir uncertainty. Once wells start to water out this may result in produced water rates of up to 76 m³/day for approximately 1-2 years, or at lower rates for up to 5 years. Table 6-31 shows the maximum discharge volumes for all Woodside facilities and relative water depths for context.

Table 6-31:PW discharge volumes and water depths at other Woodside offshore facilities.

Facility	Maximum discharge volume (m3 /day)	Approximate Water depth (m)	Commenced PW discharge
Okha	18,000	80	2011
Pyrenees	9,000	198	2010
GWA	7,500	130	1995
Angel	4,800	80	2008
PLA	3,500	85	N/A
NRC	1,900	125	1984
Scarborough	100	950	N/A

Formation water has a different composition to condensed water, most significantly in that it contains salts from the reservoir. When formation water is produced, the MRU is operated in salt mode which means that the MEG solids handling system is in operation. This removes salts/particles from the MEG slurry that has precipitated in the MEG flash separator and recycle loop. The salts removed from the MEG are then re-dissolved (small amount remains undissolved) by a side stream of produced water which is then re-combined to be discharged with the comingled PW and seawater stream.

Produced Water Treatment

Following removal from the MEG process stream by distillation, produced water (in both operating modes) is directed to the produced water treatment system. A best-practice interchangeable adsorption media bed arrangement is used to remove hydrocarbons and mercury. This permanent tertiary treatment option is facilitated by the relatively low PW rates expected on the FPU

Seawater Discharge Stream

The FPU facilities have an indirect cooling water system where seawater is pumped up to the facility, treated with hypochlorite and passed through the heat exchangers where it cools a closed circuit cooling medium system, prior to discharge back overboard.

The hypochlorite system will inject chlorine to protect the seawater cooling system from biofouling. Seawater (containing residual chlorine) will be discharged overboard as part of the cooling water discharge stream. Residual free chlorine concentration in this discharged water is expected to be approximately 0.2 mg/L during normal operations.

Seawater used for cooling purposes, comingled with treated produced water and salts removed from the MEG stream (when MRU is in salt mode) will be routinely discharged overboard at a temperature less than 60°C and rates of up to 3,971 m³/h.

Monitoring and Management Framework

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This section describes the monitoring and management framework which Woodside has developed to support the monitoring of PW discharges from offshore assets. The monitoring and management framework comprises of:

- operational monitoring
- baseline monitoring
- Initial monitoring during the first 12 months of steady-state
- Initial salt mode monitoring after initiation of salt mode
- routine monitoring

Further details are provided in Section 7.2.5 which described Woodside's Offshore Marine Discharge Adaptive Management Plan (OMDAMP). The monitoring and management here will be implemented in accordance the OMDAMP.

Operational Monitoring

Oil in Water

OIW is monitored at the outlet of the PWTP (prior to comingling with seawater return) during routine operations via online analysers. Online analyser information is sent via transmitter and reported to the Scarborough distributed control system (DCS) and is also captured within the process historian database (PHD). The DCS facilitates visibility in the control room, for manual or automated process control changes to be made, and/or alarms enunciated (e.g. high OIW specification). PHD information is available onshore for analysis and trending.

During attended operation, manual samples of PW are taken weekly for OIW analysis with results compared with online analyser readings. During unattended operation, manual sampling is undertaken during each intervention visit (~every 28 days) and sent onshore via helicopter at the start of the visit for analyser QC checks at the onshore lab. The results are sent back to the operator to allow calibration of both analysers during the visit. As detailed in the **Section 3.9.10**, two analysers are installed on the facility. If one analyser is faulty or breaks down, any anomalies that are identified are investigated to determine the cause and may be addressed by corrective maintenance during the next attended period. In the event of high OIW readings, management measures are implemented to reduce OIW to below thresholds as described in *High OIW Management* below.

Analysers were selected from a range of technology solutions in the specific context of the facility and the range of possible flow rates and stream characteristics expected. A key consideration was ability detect and measure dissolved hydrocarbons, since dispersed/entrained hydrocarbon concentration is expected to be negligible. Dispersed hydrocarbons will be effectively measured in laboratory analysis.

High OIW Management

Increasing OIW concentration in the outlet of the PWTP may indicate approaching media bed saturation, triggering remote switching to the spare bed in accordance with operational procedures. If risk of OIW exceedance (24-hour rolling average) is anticipated, the off-spec water will be directed back inboard to the rich MEG tank while results are verified and the cause of the exceedance is investigated. The capacity of rich MEG tank to hold PW is limited to ~1170 m³. A Standard Operating Procedure for high OIW management is in place, with decision criteria to allow clear interpretation and facilitation of compliance with OIW standards.

Loss of Signal Management

During unattended operation, if there is a loss of signal from both OIW analysers, operators attempt to reset analysers remotely and monitor process stability for changes with the potential to result in an increase in the OIW concentration. If one of the analyser readings cannot be restored, the facility will apply the following remote response:

- Inboard PW water to Rich MEG tank (instead of discharge).
- Cut back water producing wells, if necessary.
- Prepare for a response visit to facility pending rich MEG tank ullage and timing with next facility planned intervention visit.
- Once re-attended, troubleshoot analysers and use manual sampling to monitor OIW discharges.

If there is a loss of signal from both OIW analysers during attended operation, Operators will take manual samples to monitor OIW concentrations using (4 times per day).

A Standard Operating Procedure for loss of signal is in place, with decision criteria to allow clear interpretation and facilitation of compliance with OIW standards.

Mercury

During attended operation, manual samples of PW are taken weekly for mercury analysis onshore. Attended operation is planned for the first ~2 years of facility operation (Section 3.9.6), providing sufficient operating experience to understand bed saturation trends and timeframes and achieve reliable operations, ahead of transitioning to unattended operation. Two media beds are onboard providing 100 % redundancy, with a third bed present in the FPU laydown or onshore being regenerated. During unattended operation, sampling is undertaken during each attended period (as described in Section 3.9.6) and sent onshore via helicopter at the start of the visit. The results are communicated to operators to allow for filter change out during the visit if required

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High Mercury Management

Increasing mercury concentration in the outlet of the PWTP may indicate approaching media bed saturation, triggering the vessel to be replaced with a non-saturated bed in accordance with the operating procedure.

If there is a risk that mercury levels may exceed the end of pipe trigger the off-spec water will be directed back inboard to the rich MEG tank while results are verified and the cause of the exceedance is investigated. The capacity of rich MEG tank to hold PW is limited to ~1170 m³. A Standard Operating Procedure for high mercury management is in place, with decision criteria to allow clear interpretation and facilitation of compliance with mercury standards.

Baseline Monitoring

A baseline monitoring program has been conducted at the Scarborough field location (ERM 2013). The study was completed in two parts, in wet season 2012 and dry season 2013. The objectives of the study was to characterise the benthic communities, seasonal water quality, sediment quality, plankton communities and seasonal primary productivity of the location in context of the broader region.

The study indicated that biophysical characteristics are generally typical of the North West Marine Bioregion tropical deepwater environments, including:

- No hydrocarbons were detected in the water and sediment samples.
- Metal concentrations were below ANZG guideline trigger values, with exception of mean concentrations for cobalt, copper and zinc in water samples and nickel in sediment samples. These concentrations are considered to likely represent natural conditions at the location.
- Nutrient concentrations were low.

Initial Monitoring

Post start-up, a period is required to optimise the PW treatment system and to understand how it operates and reacts to changes in the process (pressures, chemical concentrations, flow rates). It is expected that this will take approximately 4 months, in-line with the expected initial start-up duration. Once the facility achieves steady state operations, the PW stream is sampled to characterise the discharge stream. The system is considered to be in “steady state” once routine discharge commences, and contaminant concentrations (OIW and mercury measurements) are seen to remain steady. PW samples should represent normal operations, so sampling should only be undertaken during periods of normal production for the facility. Sampling should, as far as reasonably practicable, provide a representative sample with consideration of chemicals that may be present in the discharge stream.

PW samples should represent normal operations, so sampling should only be undertaken during periods of normal production for the facility. Sampling should, as far as reasonably practicable, provide a representative sample with consideration of chemicals that may be present in the discharge stream. Monitoring includes the following:

- Chemical characterisation to identify if toxicants with the potential to bioaccumulate exceed the 80% species protection guideline value at end of pipe (after comingling). If toxicants with the potential to bioaccumulate are predicted to exceed guideline values at end of pipe, further investigations are required as described in the Offshore Marine Discharges Management Plan (OMDAMP).
- WET testing will be conducted in parallel with chemical characterisation to verify 99% species protection safe dilutions for comparison with the approved mixing zone. If 99% safe dilutions are not predicted to be achieved at the boundary of the mixing zone, further investigations are required as described in the OMDAMP.
- Settling velocity and particle size distribution analysis will be conducted to ascertain the potential for contaminants to flocculate and settle out of solution and impact sediment quality. The results of these studies will inform requirements for non-routine sediment sampling.

Descriptions of monitoring techniques are provided under routine monitoring. Initial monitoring will then cover a 12-month period. The initial monitoring will be reviewed to confirm assumptions (chemical composition, particle size, toxicity etc) and used to determine potential for impact.

Salt-Mode Initial Monitoring

Due to uncertainty related to composition of salts removed from the MEG and comingled with the PW discharge stream, the initial suite of sampling and testing conducted following start-up (chemical characterisation, WET testing, settling velocity and particle size distribution) will also be carried out in reaction to commencement of formation water being produced from the reservoir and the MRU operation entering salt mode.

Routine Monitoring

Routine monitoring applicable to the facility, is undertaken to compare against trigger values (described in Table 6-32). Changes in discharge composition can be detected early and can indicate the potential for an impact to water quality prior to it occurring. Woodside analyses the PW sample as a uniform whole via WET testing, which includes all constituents along with their potential interactions. WET testing confirms if there is a potential for impact on biota. Chemical characterisation is undertaken to understand toxicants that may be driving toxicity in the WET test and to assess whether the discharge has changed significantly from the last WET test. It is not appropriate to monitor for changes in species composition, diversity, etc., as there are limited receptors in the direct impact zone (a surface buoyant plume), and such changes may be detected after an impact occurs, and therefore are not considered appropriate for early detection.

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Routine monitoring assesses the following

- Chemical characterisation to identify if toxicants with the potential to bioaccumulate exceed the 80% species protection guideline value at end of pipe (after comingling).
- WET testing to verify 99% species protection safe dilutions for comparison with the approved mixing zone is conducted in parallel with chemical characterisation to identify drivers of ecotoxicity

WET tests are undertaken on a broad range of taxa of ecological relevance. A minimum of eight toxicity tests are carried out with each PW sample during WET testing. Specific toxicity tests are listed in the OMDAMP which include a range of mainly tropical, Australian marine species and are selected based on their ecological relevance, known sensitivity to contaminants, availability of robust test protocols and known reproducibility and sensitivity as test species for assessing PW in marine environments. Tests can be exchanged over time if tests are not available, or become obsolete, however, preference would be for tests that mimic the receiving environment as closely as possible (i.e. for most facilities this would be tropical, marine water tests) (Warne et al. 2018). The dilutions required to protect 99% and 95% of species is calculated using the ANZG (2018) statistical distribution methodology on the results of direct toxicity assessment using sub-lethal chronic endpoints. The protection of 99% of species maintains a high level of ecological protection at the boundary of the approved mixing zone and is considered appropriate to account for the uncertainty in composition. The approved mixing zone boundary is 400 m.

Woodside previously sampled sediment at other Woodside operated facilities every six years and no benthic impacts from PW were detected. Therefore, based on this, maximum PW discharge being less than 5 years, the water depth (over 900 m) and the predicted plume behaviour no routine sediment sampling is included. Settling velocity and particle size distribution analysis is proposed as part of the initial monitoring of representative discharge to confirm potential for sediment impacts in addition to quarterly chemical characterisation end of pipe. Results of these studies will inform if non-routine sediment sampling is required.

Results of chemical characterisation and WET testing will be compared against OMDAMP trigger values (Table 6-32). Exceedances of trigger values require further investigation, including multiple lines of evidence. If further investigations confirm the trigger value has been exceeded, a review of single species testing is conducted¹⁰⁵, plus additional WET testing if required. Monitoring will be conducted in accordance with the OMDAMP and where appropriate routine monitoring triggers, methodologies and standards applied (e.g. requirements for WET testing) to ensure consistency and comparability of data.

Table 6-32 Trigger values and frequency of monitoring

Monitoring	Trigger Value	Frequency
Initial Monitoring (including once MRU operation enters salt mode)		
Review of continuous operational monitoring results	Increases in the average monthly OIW concentration by 5 mg/L total over six consecutive months or by 10 mg/L total over two consecutive months	Monthly
Chemical characterisation end of pipe sample – physio-chemical and toxicants	Results that are predicted to be higher than the 99% species protection guideline value at approved mixing zone boundary and above the value recorded during last WET test or above the last WET test where no guideline is available.	Quarterly (over a 12-month period)
	Toxicants with the potential to bioaccumulate are predicted to be higher than the 80% species protection guideline value at end of pipe	Quarterly (over a 12-month period)
WET testing	The 99% species protection safe dilutions derived from the WET testing species sensitivity distributions are not predicted to be achieved at the boundary of the approved mixing zone	Annually (with first chemical characterisation sampling event)
Sedimentation and settling studies	Particles >40 µm with the potential to settle are identified.	Annually (with first chemical characterisation sampling event)
Standard routine monitoring		

¹⁰⁵ Single species testing is conducted in parallel to chemical characterisation to support further investigations (See Section 7.2.4)

Review of continuous operational monitoring results	Increases in the average monthly OIW concentration by 5 mg/L total over six consecutive months or by 10 mg/L total over two consecutive months	Monthly
Chemical characterisation end of pipe sample – physio-chemical and toxicants	Results that are predicted to be higher than the 99% species protection guideline value at approved mixing zone boundary or above the value recorded during last WET test where no guideline value is available.	Annual
	Mercury with the potential to bioaccumulate is predicted to be higher than the 99% species protection guideline value at end of pipe.	Annual
WET testing	The 99% species protection safe dilutions derived from the WET testing species sensitivity distributions are not predicted to be achieved at the boundary of the approved mixing zone	Three yearly (calendar year), Conducted in parallel with annual chemical characterisation.
Discharge volume	Monthly mean discharge volume is equal to or above level required to meet the approved mixing zone boundary based on WET testing.	Monthly review

Detailed Impact Assessment

Potential impacts of PW discharge include:

- changes to water quality
- toxicity to biota
- changes to sediment quality.
- changes to Key Ecological Features (KEFs).

The maximum expected discharge rate is 100 m³/day. The average daily PW discharge rate is expected to be significantly less than the maximum rate as demonstrated on other Woodside facilities. However, as the total volume of PW is expected to increase as the field ages, environmental impacts have been assessed against maximum expected discharge rates.

Water Quality

Potential impacts to water quality are to be assessed through chemical characterisation of discharge and monitoring of ongoing discharge volumes. Variability is managed via the Monitoring and Management Framework.

Although formation water and gas samples are available from a number of wells, these are not deemed to be representative of PW characteristics at the FPU. There is significant difference between the natural compositions of PW associated with the reservoir compared to water condensed from the gas during processing. Condensed water has low levels of dissolved salts while PW from the reservoir typically contains high levels of salts. The presence of residual process chemicals further complicates any comparisons between formation water and offshore PW. Given the difference, reservoir samples are deemed to not be representative however they can provide an indication of the potential presence of contaminants. It is not possible to collect a sample of PW that is representative of the discharge prior to treatment facilities operating.

The discharge stream is expected to comprise primarily of condensed water and cooling water comingled prior to discharge. Woodside has successfully managed impacts from PW from six facilities via the OMDAMP and intends to implement this Monitoring and Management Framework to manage variability in PW at this facility.

Chemical Characterisation of PW (Physio-chemical and Toxicants in Water)

During appraisal drilling for the Scarborough project, samples of gas and water were obtained from three wells at various locations and depths within the reservoir with trace elements measured from each well in order to establish a basis for the process design (Table 6-33). The reported concentrations were based on the highest levels measured from any of the three wells sampled. The concentrations of mercury measured within gas samples within the three wells were highly variable ranging from 2 and 182 ug/m³. Given the low reservoir temperatures and expected reservoir fluid, mercury is expected to be <25 ug/Sm³ however to ensure the initial design and possible future expansions were robust to high mercury a design limit of 200 ug/Sm³ was adopted (Woodside, 2019c). Mercury process modelling was undertaken to understand the potential for mercury to partition from gas to the produced water stream. This modelling considered two scenarios; a worst case 200 ug/Sm³ and expected 20 ug/Sm³. The worst case modelling predicted that concentrations in produced water could be up to 95 ug/L prior to entering the produced water treatment system (Woodside, 2019d). After treatment mercury is expected to be 0.03 ug/L during operations and 0.11 ug/L during startup. Three and 11 dilutions are required to meet 99% species protection guideline values during operations and start up respectively.

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Table 6-33 Development Basis of Design Reservoir Metal Characteristic Concentrations.

Contaminant	Maximum measured concentration
Mercury	200 ug/Sm3
Arsenic	< 0.005 mg/Sm3
Sodium	12,153 mg/L
Potassium	1,186 mg/L
Calcium	285 mg/L
Magnesium	118 mg/L
Barium	12 mg/L
Strontium	30 mg/L
Chloride	20,617 mg/L
Sulphate	13 mg/L

The composition of PW is complex and may consist of additional components such as volatile aromatic compounds Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) and Polycyclic Aromatic Hydrocarbons (PAHs), concentrations of which vary throughout the field life. The composition of PW will be verified by the initial and subsequent monitoring and that toxicants with the potential to bioaccumulate are below 80% species protection at end of pipe.

Based on the potential for the discharge of these contaminants there is potential for slight, localised decrease in water quality at the discharge location and within the mixing zone with potential adverse effects on marine biota.

Residual Process Chemicals

Residual process chemicals may be present in the PW stream. Process chemicals are subject to Woodside’s chemical selection and approval process. The largest chemical by volume, MEG is rated OCNS Group E (lowest hazard) and is considered PLONOR. In addition, scale inhibitors are typically low molecular weight phosphorous compounds that are water-soluble, and only have acute toxicity to marine organisms about two orders of magnitude higher than typically used in the water phase (Black et al., 1994). The biocides typically used in the industry are highly reactive and degrade rapidly (Black et al., 1994).

Chemicals will decrease the water quality in the immediate area of the release (i.e. surface waters at the release location); however, the effect is expected to be temporary and localised due to dilution with the combined stream and the open ocean mixing environment, distance from sensitive receptors and relatively low volumes.

Sodium hypochlorite functions as a biocide in the cooling water system and is expected to readily dissociate and break down once discharged. Modelling was undertaken of assuming a residual concentration of 0.2 mg/L (normal operations) as described below.

Potential impacts to water quality are expected to be localised to the immediate vicinity of the FPU. Impacts from routine and non-routine discharges of comingled PW and cooling water will have a Negligible (F) effect on water quality.

Potential Impacts to Biological Indicators

Upon achieving steady state operations PW processing, initial monitoring of the PW will be completed in order to establish actual toxicity and to verify the approved mixing zone.

WET Testing

Most treated PW has low to moderate toxicity (Neff et al. 2011), with actual toxicity of discharge dependant on the chemical constituents of the PW and any added process chemicals, the level of treatment and dilution with condensed water prior to release, and the dilution of the discharge as it mixes with sea water. Most hydrocarbons in PW are considered non-specific narcotic toxins with additive toxicities; therefore, the toxicity of a PW will, in part, depend on the total concentration and range of bioavailable hydrocarbons (Neff, 2002).

WET testing is undertaken to allow for interactions between toxicants and take into account toxicants that cannot readily be measured or are not known to be present in the sample. A formation water sample from the Scarborough reservoir was unable to be obtained during exploration for WET testing (noting that actual 99% and 95% species protection safe dilutions will be provided from initial monitoring WET testing).

Woodside has extensive operational experience with PW characterisation from gas condensate facilities on the North West Shelf of Western Australia. WET testing data (Table 6-34) from existing operating facilities were reviewed to determine an analogue for Scarborough in order to define an approved mixing zone.

The dilutions from the onshore Pluto LNG MEG effluent were selected as the best analogue for this assessment. Given Pluto effluent is generated from a MEG reclamation process conceptually similar to that implemented on the Scarborough FPU. Required dilutions are also comparatively high and likely to be conservative given the sample

location used was prior to water treatment. Following initial monitoring the WET testing results will be used to review and clarify the approved mixing zone boundary.

Table 6-34: Whole effluent toxicity testing data (highest recorded value)

Facility	Dilutions required (PC99)	Year
GWA	1 in 1,388	2023
Angel	1 in 417	2022
NRC	1 in 3130	2017
Okha	1 in 157	2023
Pluto Onshore MEG effluent	1 in 1,282	2022

Determination of Mixing Zone

The principal aim of the dispersion modelling was to quantify the likely extents of the near-field and far-field mixing zones and therefore the potential impact of the combined PW and cooling water discharge to the marine environment. Site specific modelling was undertaken from the Scarborough FPU discharge. Modelling methods were integrated to simulate the potential dispersion, a near-field discharge model (CORMIX), and a far-field advection and dispersion model (CHEMMAP) (RPS, 2023c). Ocean current data, from the Scarborough FPU location, was sourced from a ten-year hindcast data set of combined large-scale ocean (HYCOM) and tidal currents (Hydromap). The dispersion of contaminants will depend, initially, on the geometry and hydrodynamics of the discharge itself, where the induced momentum and buoyancy effects dominate over background processes. This region is generally referred to as the near-field zone and is characterised by variations over short time and space scales. As the discharge mixes with the ambient waters, the momentum and buoyancy signatures are eroded, and the background, or ambient, processes become dominant. The far-field modelling expands on the near-field work by allowing the time-varying nature of currents to be included, and the potential for recirculation of the plume back to the discharge location to be assessed. The near-field simulations consider steady-state unidirectional currents, while the far-field simulations account for currents that vary in speed and direction over time and space, far field modelling represents minimum dilutions achieved 95% of the time. Validation of tidal predictions was performed using the model output and independent predictions of tides at the Scarborough FPU location. All comparisons show that the model produces a very good match to the known tidal behaviour for a wide range of tidal amplitudes and clearly represents the varying diurnal and semi-diurnal nature of the tidal signal.

Modelling was conducted to quantify the likely extents of the near-field and far-field mixing zones based on the required dilution levels for contaminant levels in the co-mingled cooling water and PW discharge.

As described above, the comingled discharge comprises:

- PW from the processing of hydrocarbons
- seawater discharge stream (SW) including seawater return from three systems:
 - Seawater Cooling Medium Exchangers (largest flowrate)
 - Brine from RO Water Maker Package
 - Hypochlorite Generator Package.

Two scenarios were modelled, scenario 1 (normal operations) and scenario 2 (start-up). Each scenario was modelled with and without chlorine degradation applied. The main distinction between the two scenarios, normal operations and start-up, are the flow rates of the commingled discharges, influenced entirely by the SW flow rate. The dilution modelling results are based on the maximum design flow rates of 100 m³/day for PW representing the worst-case load to the environment. At lower actual discharge rates, dilutions levels are expected to be achieved closer to the discharge point than those predicted by the modelling due to reduced loading to the environment.

The potential area that may be influenced was assessed for three distinct seasons: (i) summer (December to February); (ii) the transitional periods (March and September to November); and (iii) winter (April to August). An annualised aggregation of outcomes was also assembled. Current strengths of weak, medium and strong were also considered.

Table 6-35: Summary of the combined discharge characteristics

Parameter	Scenario 1 Normal Operations	Scenario 2 Start-up
Flow rate (m3/hr)	3,971 (PW: 4.1; CW: 3,967)	1,988 (PW: 4.1; CW: 1,984)
Number of outlet ports	1	
Outlet port internal diameter (m)	1.092	
Outlet port orientation	Vertical Downward	

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Depth of ports below sea surface (m)	8
Hypochlorite degradation rate (hr-1)	0.395

Prior to discharge PW will be diluted 968 times in scenario 1 and 484 times in scenario 2 by comingling with cooling water. Further information on near field and far field modelling is described below.

Near field modelling

The near-field modelling of the comingled cooling water discharge indicates the following general outcomes (results by operational scenario are shown in Table 6-36:

- A turbulent mixing zone is created in the immediate vicinity of the discharge point by the momentum of the discharge. This turbulent zone emerges at a depth of 8 meters below the water surface and reaches depths of up to 23 m below the sea surface.
- Medium and strong currents are shown to increase the extent of the turbulent mixing zone. Following this initial mixing, the positively buoyant plume is predicted to rise in the water column.
- For all combinations of discharge case and season, the primary factor influencing dilution of the plume is the strength of the ambient current. Weak currents allow the plume to reach the trapping depth (surface) closer to the discharge point, which slows the rate of dilution.

Table 6-36: Summary of near-field modelling results

Scenario 1 (Normal operations)	Scenario 2 (Start-up)
<ul style="list-style-type: none"> • Maximum horizontal distance: 76 m • Maximum plume diameter: 10 m • Annualised minimum dilution at trapping depth under medium currents: 1:24 • Annualised average dilution at trapping depth under medium currents: 1:40 	<ul style="list-style-type: none"> • Maximum horizontal distance: 88 m • Maximum plume diameter: 6 m • Annualised minimum dilution at trapping depth under medium currents: 1:18 • Annualised average dilution at trapping depth under medium currents: 1:30

The results for the Scenario 1 (normal operation) and 2 (start-up) discharges indicate that OIW, mercury and MEG were either already below threshold concentration at discharge or reached below threshold concentration in the nearfield. The modelling indicates a turbulent mixing zone in the immediate vicinity of the discharge point, induced by the momentum of the discharge. Before the buoyant plume is predicted to rise in the water column.

Far-field modelling

For the far- field model, a CHEMMAP model simulated the discharge into a time-varying current field with the initial dilution set by the near-field results. Both comingled water discharge operational scenarios were modelled as a continuous discharge using 50 simulations for each season. Once the simulations were complete, they were reported on a seasonal and annualised basis.

The model predicted higher dilutions (lower concentrations) are predicted during periods of increased current speed, whereas patches of lower dilutions (higher concentrations) tend to accumulate during the turning of the tide or during periods of weak drift currents. During prolonged periods of lowered current speed, the plume has a more continuous appearance, with higher-concentration patches, moving as a unified group. These findings agree with the research of King & McAllister (1997, 1998) who noted that concentrations within effluent plumes generated by an offshore platform were patchy and likely to peak around the reversal of the tides.

Applying the 972 or 484 dilutions achieved prior to discharge (comingling with seawater return prior to discharge), leaving a remaining 227 or 798 dilutions required after discharge to reach PC99. Based on modelling described above, the minimum distance required to achieve 1,282 dilutions is 400 m. In-situ measurement and analysis of PW plume dilution and mixing characteristics will be conducted. This study will focus on:

- obtaining background measurements of surface and sub surface temperature and salinity levels surrounding the FPU including the PW near-field mixing zone under different current conditions
- tracking the plume to quantify the horizontal and vertical plume dilutions achieved under different current conditions
- verifying no environmental impact at the approved mixing zone boundary

The purpose of these oceanographic field measurements will be to verify the plume dispersion model (RPS, 2018) used as the basis for assessing safe dilution levels of PW discharges.

A threshold concentration of 0.002 mg/L has been derived (Batley & Simpson 2020)., assuming a source concentration of 0.2 mg/L (normal operations) and 2.0 mg/L (start-up) and a decay constant (0.395 hr⁻¹), the discharge reaches the threshold at 100 m and 300 m respectively.

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Bioaccumulation

Bioaccumulation refers to the amount of a substance taken up by an organism through all routes of exposure (water, diet, inhalation, epidermal). The Bioaccumulation Factor is the ratio of the steady-state tissue concentration and the steady-state environmental concentration (assuming uptake is from food and water). The test developed to measure the ability of a substance to bioaccumulate, namely, the octanol-water partition (Pow), is based on the preferential partitioning of lipophilic organic compounds into the octanol phase. Partitioning into octanol can be correlated with the attraction for such compounds to the fatty tissue (lipid) of organisms.

Bioaccumulation of BTEX compounds has been observed to occur in the laboratory, only at concentrations far in excess of that discharged from facilities (for example refer to Berry, 1980); hence it is unlikely that BTEX would bioaccumulate at the exposure concentrations that may be experienced by biota around the FPU. Baseline characterisation of the PW discharge will verify BTEX levels in the PW from the FPU.

In contrast to BTEX compounds, PAH compounds have high Pow values indicative of the potential for bioaccumulation (Vik et al, 1996). Neff and Sauer (1996) based on available literature for laboratory and field studies investigating the bioaccumulation of PAHs. The bioaccumulation values for PAHs in marine organisms collected near PW discharges in the Gulf of Mexico reported by Neff and Sauer (1996) indicate that the highest bioaccumulation factor was in the tissues of bivalve molluscs and the lowest in the muscle tissue of fish.

The most comprehensive field study assessing bioaccumulation of hydrocarbons and metals from PW discharged into offshore waters is that by Neff et al (2011). At the request of the United States Environmental Protection Agency (USEPA), the Gulf of Mexico Offshore Operators Committee sponsored a study of bioconcentration of selected PW chemicals by marine invertebrates and fish around several offshore production facilities discharging more than 731 m³ per day of PW to outer continental shelf waters of the western Gulf of Mexico (by comparison discharges will be up to 100 m³/day). The target chemicals identified by USEPA included five metals (As, Cd, Hg, 226Ra and 228Ra), three volatile Monocyclic Aromatic Hydrocarbons (MAH), benzene, toluene, and ethylbenzene, and four semi-volatile organic chemicals, phenol, fluorene, benzo(a)pyrene, and di (2-ethylhexyl) phthalate. Additional MAH (m-, p-, and o-xylenes) and a full suite of 40 parent and alkyl-PAH and dibenzothiophenes were also analysed by Neff et al (2011) in PW, ambient water, and tissues at some platforms.

Concentrations of MAH, PAH, and phenol as determined by Neff et al (2011) were orders of magnitude higher in PW than in ambient seawater. There was no evidence of MAH or phenol being bioconcentrated. All MAH and phenol were either not detected (> 95% of tissue samples) or were present at trace concentrations in all invertebrate and fish tissue samples. Concentrations of several petrogenic PAHs, including alkyl naphthalene's and alkyl dibenzothiophenes, were slightly, but significantly higher in some bivalve molluscs, but not fish, from discharging than from non-discharging platforms. These PAH could have been derived from PW discharges or from tar balls or small fuel spills. Concentrations of individual and total PAH in mollusc, crab, and fish tissues were well below concentrations that might be harmful to the marine animals or to humans who might collect them for food at offshore platforms (Neff et. al., 2011). It is expected that bioaccumulation is unlikely to result in increased levels of BTEX or PAH in biota surrounding the FPU.

Mercury in the marine environment exists mainly as complexes of mercury (II) and as organomercurials (Hart 1982). Of particular concern is inorganic forms of mercury (of relatively low toxicity and availability to bioconcentrate) that may be converted by bacteria in situ into organomercury complexes (particularly methylmercury), which are more toxic and tend to bioaccumulate. Neff et al (2011) attempted to measure bioaccumulation of four metals (arsenic, barium, cadmium, and mercury), by two species of bivalve molluscs from platform legs and five species of fish collected within 100 m of produced water discharging and non-discharging platforms in the Gulf of Mexico. The study found no difference in metal concentrations between impact and control sites.

For bioaccumulating substances such as mercury, the ANZG 80% guideline value is expected to be met end of pipe prior to discharge and the 99% guideline value is anticipated to be met within 400 m. Potential impacts to biota from heavy metals would be localised to the immediate vicinity of the FPU. Therefore based on outcomes from studies (Neff et al 2011) and given the size of the mixing zone and the wide distribution of most species potential impacts would be limited to individuals and not impact on populations.

The potential environmental impact associated with bioaccumulation of PW constituents in the water column is considered to be a localised effect in waters immediately surrounding the FPU. The potential risk to fisheries is further reduced to ALARP as a result of negligible exposure given the PSZ prohibits fishing from or near the FPU. Given the nature of the PW discharge from the FPU, the potential for bioaccumulation of PW contaminants (in particular mercury) is considered to be restricted to sessile organisms growing on the FPU.

Marine Fauna

Given that PW will be managed to achieve 99% species protection at the approved mixing zone boundary potential for impacts to marine fauna are limited to a localised area in proximity to the FPU (within 400 m). In addition, toxicants are expected rapidly dilute and are not considered to cause acute toxicity. Therefore, impacts would be limited to fish communities associated with the FPU exposed to water quality changes. While transiting cetaceans, whale sharks or turtles (noting that there are no BIAs or critical habitats within the mixing zone) may pass through the plume they are not anticipated to spend long durations within the mixing zone and no impacts are expected. As such, the magnitude for fish, whale sharks, rays, cetaceans and marine reptiles has been identified as no lasting effect (F).

Plankton

A change in water quality as a result of comingled PW and cooling water discharges has the potential to result in the injury or death of planktonic species within the water column through toxicity effects. Early life stages of fish (embryos, larvae) and other plankton would be the most susceptible organisms to exposure from hydrocarbons and chemicals in the discharges, as they have limited mobility and are therefore likely to be exposed to the plume, if present. Impacts are predicted to be limited to within 400 m of the discharge location and impacts are expected to be slight. These types of organisms are known to have high levels of natural mortality and a rapid replacement rate (UNEP, 1985). Plankton is generally abundant in the upper layers of the water column and is the basis of the marine food web, so localised impacts in any one location are unlikely to have long-lasting impacts on plankton populations at a regional level. Reproduction by survivors or migration from unaffected areas is likely to rapidly replenish losses (Volkman et al., 2004).

Primary productivity appears to be enhanced along the northern and southern boundaries of the Exmouth Plateau, and along the adjacent shelf edge to the east of the plateau (Brewer et al., 2007). As described by Falkner et al. (2009), the centre of the plateau is characterised by moderate seafloor temperatures and low primary productivity. Given the total area of plankton and, significant distance (>150 km) from the periphery of the plateau that has been identified as having increased productivity (Brewer et al., 2007; Falkner et al., 2009) it is not anticipated that this discharge will impact the primary productivity of the KEF. As such, the impact magnitude for plankton has been identified as slight (E).

Key Ecological Features

The Offshore Operational Area occurs within the Exmouth Plateau KEF. The Exmouth Plateau is defined as a KEF as it is a unique seafloor feature with ecological properties of regional significance, which apply to both the benthic and pelagic habitats within the feature. Therefore as a result of a change in sediment and/or water quality potential impacts to the KEF may occur. Potential for impacts to sediment quality are not expected (see below). Therefore values of the Exmouth Plateau to be affected by PW discharges are limited to impacts to water quality. Modelling predicts the discharge will form a buoyant plume extending less than 400 m from the discharge point, therefore, impacts to values associated with the KEF are expected outside the approved mixing zone are anticipated.

Given the small amount of representative habitat within the KEF that overlaps the Offshore Operational Area (approximately 2.4% of the Exmouth Plateau KEF), noting that mixing zone would be an even smaller area, and predicted impact limited to slight change in water quality no impacts to marine ecosystem functioning or integrity of the KEF is expected.

Impacts from routine and non-routine comingled PW and cooling water discharges will have no lasting effect on KEFs.

Sediment Quality

Accumulation of PW contaminants in sediments depends primarily on the volume/concentration of particulates in PW discharges or constituents that sorb onto seawater particulates the area over which those particulates could settle onto the seabed (dominated by current speeds and water depths) and re-suspension, bioturbation and microbial decay of those particulates in the water column and on the seabed.

The benthic habitat at the FPU location is predominantly soft sediment with sparsely associated epifauna, (Section 4.5.1). Benthic communities of deposit feeders such as epifauna (living on the seabed): shrimp (crustaceans) and sea cucumbers (echinoderms), and infauna (living within the surface sediments) small, burrowing worms (polychaetes) and crustaceans (ERM, 2013).

The discharge plume is predicted to be buoyant, due to lower salinity and/or higher temperature than surrounding seawater. Therefore, potential contaminants in the PW discharge could only be introduced into sediments around the FPU through precipitations of soluble contaminants and flocculation and sedimentation of the particles in the PW plume. Studies into potential sediment accumulation from PW discharge have been undertaken by Woodside (Jacobs 2016). The study found that the PW at all facilities had very small amounts of solid material, with very little potential of settling or flocculation due to small particle sizes. Initial monitoring (described above) includes settling velocity and particle size distribution to confirm potential for precipitation and flocculation.

Dr Graeme Hubbert categorised particulate behaviour based on oceanographic experience and mathematical calculations using settling rates and resuspension velocities for various particle sizes. He determined that particles of a size 1 to 5 µm would never permanently settle out of the water column, and that particles of a size 5 to 40 µm would not permanently settle out of the water column, unless they were in very deep water (> 5000 m) or in areas where hydrodynamic conditions were very weak and did not continuously resuspend the particles.

The plume is not predicted to contact the seafloor and contaminants will be diluted well below ANZG 99% guideline values at 950 m water depth. It is not expected that PW will not impact sediment quality. Settling velocity and particle size distribution analysis is proposed as part of the initial monitoring of representative discharge to confirm potential for sediment impacts. Results will be considered and managed by the OMDAMP (See Section 7.2.4)

Summary of Assessment Outcomes

<i>Receptor</i>	<i>Impact</i>	<i>Receptor Sensitivity Level</i>	<i>Magnitude</i>	<i>Impact Significance Level</i>
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Water quality	Change in water quality	Low value	Slight	Negligible (F)
Fish, sharks and rays	Injury or behavioural changes to marine fauna	High value species	No lasting effect	Slight (E)
Marine mammals		High value species	No lasting effect	Slight (E)
Marine reptiles		High value species	No lasting effect	Slight (E)
Plankton	Injury/mortality to fauna	Low value	Slight	Negligible (F)
KEFs	Change in habitat	High value habitat	No lasting effect	Slight (E)
Overall Impact Significance Level: The overall impact significance level for routine and non-routine discharges of produced water and brine is E based on no lasting effect to the high value receptor (KEFs and marine fauna). The impact significance levels for individual receptors are consistent with the level in the OPP.				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
None identified.				
Good Practice				
Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.	F: Yes. CS: Minimal cost. Standard practice.	Environmental assessment of chemicals in discharges is expected to reduce the consequence of impacts resulting from discharges to the marine environment by assessing chemicals for environmental acceptability. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes C 8.4
Monitoring and management of OIW concentrations in accordance with PARCOM 1997/16 Annex 3 methodology. <ul style="list-style-type: none"> Limit average OIW to less than 20 mg/L 24hr rolling average during normal operations; Limit average PW OIW to less than 30 mg/L 24hr rolling average during restart. 	F: Yes. CS: Monitoring and implementation costs. 30 mg/L is aligned with the equipment vendor basis of design and vendors performance guarantee of 29 mg/L. There is risk involved in reduction of this 30 mg/L limit without operational performance data.	Limiting OIW concentrations within PW reduces potential impacts to the environment.	The adoption of a limit ensures that PW OIW is controlled. As a demonstration of commitment to achieving ALARP impact potential from OIW, Woodside is committing to 20mg/L 24hr rolling average during normal operations, however it's important to note that equipment vendor basis of design and vendors performance guarantee is 29 mg/L. For this reason, Woodside is maintaining a 30mg/L 24hr rolling average for	Yes C 10.1

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>20 mg/L limit is reinstated once steady state is achieved i.e. contaminant concentrations and discharge volumes remain steady.</p>	<p>Reduction of this limit is not considered feasible or practicable during restart. The 30mg/L limit is effective in managing potential impact of PW discharge during upset conditions.</p>		<p>restart scenarios when upset conditions may be experienced.</p> <p>This revised OIW Limit of 20 mg/L, 24hr rolling average is deemed appropriate on the following basis: the OSPAR (2014) dispersed oil concentration of 70 µg/L was used as the PNEC rather than the ANZG guideline value (low reliability) of 7 µg/L.</p> <p>The PNEC of 70 µg/L derived by Smit et al (2009) is considered more appropriate than the Tsvetnenko (1998) derived 7 µg/L as all tests used in the Species Sensitivity Distribution (SSD) were chronic as opposed to acute converted to chronic values with an acute chronic ratio (ACR) of 25 as used by Tsvetnenko (1998). TPH is expected to be below the guideline value prior to discharge. To meet the 70 µg/L 286 dilutions are required. By comingling with cooling water 968 dilutions are predicted.</p>	
<p>Monitoring of OIW concentrations at outlet of PWTP in accordance with PARCOM 1997/16 Annex 3 methodology.</p> <ul style="list-style-type: none"> Limiting average OIW to less than 10 mg/L 24hr rolling average. 	<p>F: Unknown CS: Monitoring and increased implementation costs.</p> <p>Equipment basis of design and vendor performance guarantee is 29 mg/L. Until equipment has been proven effective and understanding of OIW limits achievable, it is not feasible to commit</p>	<p>Limiting OIW concentrations within PW reduces impacts to the environment.</p> <p>A 10 mg/L reduces the extent of impact within the mixing zone to 300 m.</p>	<p>Unknown Feasibility and Disproportionate.</p> <p>This limit provides for a small reduction in predicted impact extent above the adopted limit, given low PW rates, with potential increased costs, onerous management and reduced operational flexibility. It is uncertain whether this limit is achievable, without actual operational data. This is not considered</p>	<p>No</p>

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	to a significantly lower limit.		proportionate to the impact reduction offered.	
Implement Monitoring and Management Framework for PW discharges including: <ul style="list-style-type: none"> • Initial monitoring. • monitoring of PW discharge volume • chemical characterisation (including BTEX, PAH's Organic Acids, metals and glycol) • WET testing timing of annual / triennial sampling to be representative aiming to detect change, • Sampling of MEG salts when initially operating in salt mode to verify assumptions and implement management measures if required. 	F: Yes. CS: Monitoring costs. Standard practice.	The OMDAMP manages changes to PW discharge characteristics (i.e. volumes, OIW concentration, chemical dosage, etc.) that may increase the impact or risk to the marine environment. The initial monitoring (including when operating in salt mode) will characterise the discharge stream, verifying assumptions and inform the understanding of risk and management. Monitoring is designed to detect if 99% species protection dilutions (WET) are achieved at the approved mixing zone boundary therefore confirming that the EPO has been met. Through the implementation of the OMDAMP, potential risks to the environment are reduced.	Woodside has developed the OMDAMP based on operational experience from other operating assets. The OMDAMP considers risk-based adaptive management measures.	Yes C 10.2
Online monitoring and/or procedural controls in place to monitor and control PW discharge volume and OIW concentrations and prevent discharge of PW with high OIW concentrations through OIW analyser, or off spec/outage procedures.	F: Yes. CS: Minimal cost. Standard practice.	The OIW analysers and flow meter provides optimal process control and safeguarding to monitor, control and prevent discharge of PW with high OIW concentration to the environment.	Online monitoring control is WMS requirement – must be adopted. Minor additional cost to resource manual sampling is proportionate to the environmental benefit during start-up of the Scarborough wells.	Yes C 10.3
The online analyser is calibrated with a	F: Yes.	Calibration of equipment to maintain quality control.	Calibrations undertaken at appropriate	Yes C 10.5

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
manual sample in accordance with Offshore Laboratory Determination of Oil in Water Standard Operating Procedure.	CS: Monitoring and implementation costs. Standard practice		frequency to maintain quality control and in line with procedures.	
Procedural controls in place to monitor mercury concentration and prevent discharge of PW with high mercury concentrations. <ul style="list-style-type: none"> switching mercury adsorption beds off-spec water directed inboard to the rich MEG tank 	F: Yes. CS: Monitoring and implementation costs. Standard practice	Manual sampling during commissioning and intervention visits provides process control and safeguarding to monitor, control and prevent discharge of PW with high mercury concentration to the marine environment.	Minor additional cost to resource manual sampling is proportionate to the environmental benefit during start-up and operation of the Scarborough wells.	Yes C 10.6
Inboard off-specification PW to maintain OIW concentrations, within limits of tank capacity.	F: Yes. However, tank capacity is limited to 1170 m ³ . CS: Monitoring and implementation costs.	In-boarding of PW is a contingency measure to ensure that rolling 24-hour period limits are not exceeded, even if a temporary spike in OIW concentration occurs. Limiting OIW concentrations within PW reduces impacts to the environment.	If the facility exceeds OIW limit for a short period, which places the rolling 24-hour period limit at risk, the facility is able to inboard PW in the MEG storage tank to prevent a breach of the OIW limit does not occur. This control allows the adaptive management of OIW to achieve the 24 hour rolling average limit.	Yes Embedded in C 10.1 as individual Performance Standard
<i>In situ</i> plume measurement and analysis of plume dilution and mixing characteristics (including water quality monitoring of potential PW indicators at approved mixing boundary).	F: Yes. CS: Monitoring and implementation costs.	<i>In situ</i> plume studies confirm the validity of the predicted mixing zone and dilutions from the model. This provides confidence in the ongoing application of the model outputs to understand dilutions of the PW. By using the measured WET testing and chemical characterisation results and applying the verified model dilutions as well as water quality monitoring at the approved mixing zone boundary confirms that the EPO has been met.	Additional cost is proportionate to the environmental benefit.	Yes C 10.8

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Limit mercury to less than 0.1 µg/L end of pipe (after comingling with cooling water but prior to discharge).	F: Yes. CS: Monitoring and implementation costs. The 0.1 µg/L limit aligns with current ANZG 2018 recommendation for inorganic mercury by adopting the 99% guideline value end of pipe due to potential for bioaccumulation.	Monitoring does not reduce impact but allows for detection of potential impacts and management measure to be implemented to reduce impact to the environment.	Additional cost is proportionate to the environmental benefit.	Yes C 10.9
Professional Judgement – Eliminate				
Reinjecting PW into reservoirs.	F: Yes. CS: Significant expense. Requires drilling an additional well, additional topsides and subsea infrastructure, potential impact to reservoir performance. ~\$300M.	Minor benefit – PW rates are low and not expected to exceed ecological thresholds.	Disproportionate. In addition to the significant expense, additional environment and safety risks associated with drilling an additional well such as acoustic emissions, seabed disturbance, discharges of cuttings and drilling fluids, emissions and unplanned releases. Not considered proportionate to the impact reduction offered.	No
Onshore MEG salt disposal.	F: Potentially feasible. Requires complex salt drying and handling facilities with onerous operational and maintenance requirements not aligned with minimally attended/unattended philosophy. No other offshore facilities were identified with this infrastructure. CS: Engineering, procurement and lifetime operations/maintenance costs.	Minor reduction. Salts are inert and naturally occurring from the reservoir. Proportion of time in which the facility will operate with formation water (MRU in salt-mode) is low, and comingling of salts with PW and seawater return stream effectively reduces toxicity.	Disproportionate. Processing and handling MEG salts for transport to shore requires complex equipment and introduces material safety concerns with handling. This is not considered proportionate to the impact reduction offered.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Professional Judgement – Substitute				
None identified.				
Professional Judgement – Engineered Solution				
Adoption of a permanent tertiary treatment stage to reduce OIW and mercury concentrations.	F: Yes. Relatively low PW rate makes this technology feasible. CS: Engineering, procurement and lifetime operations/maintenance costs.	Best practice removal of contaminants from PW stream via media adsorption.	Proportional. The relatively low PW rate, expected composition of the PW stream and operations/maintenance philosophy make adoption of a plug and play adsorption media beds to remove TPH and mercury from the PW stream an effective and practicable option.	Yes Adopted in design
Adoption of technology to further remove MEG contamination from PW stream.	F: Potentially feasible. MEG removal technology based on bio-treatment requires large deck space and weight allowance and has significant operational and maintenance requirements. CS: Cost associated with engineering, procurement and ongoing operations/maintenance.	Minor benefit. MEG concentration in PW already expected to be significantly below ecological thresholds.	Not proportional. MRU is already designed to maximise MEG recovery (minimising concentration in PW). Addition of large, heavy bio treatment package with onerous operational and maintenance requirements to reduce already low MEG concentration in PW not justified.	No
Online monitoring of mercury concentration in PW discharge.	F: No. Technology review did not identify any online analysers capable of reliably monitoring mercury at the expected concentrations and in all expected operational modes.	Negligible benefit. The mercury adsorption beds are in lead/guard arrangement and sampling between beds is sufficient to detect lead bed approaching saturation while the guard bed retains capacity to remove mercury from the PW stream.	Not feasible.	No
Online monitoring of MEG concentration in PW discharge.	F: No. Technology review did not identify any online analysers capable of reliably monitoring MEG at the expected concentrations.	Negligible benefit. MEG is considered PLONAR, and process monitoring with in the MRU and manual sampling are sufficient to identify process upsets.	Not feasible.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Professional Judgement – Procedures and Administration				
Routine in-situ ambient environmental monitoring beyond the requirements of Woodside’s OMDAMP.	F: Yes. CS: Increasing the frequency of field based monitoring would result in additional offshore demand on resources, safety hazards and costs associated with an offshore environmental monitoring program, such as vessel activities, logistics, manual labour, analytical laboratory and service provider costs.	In-situ monitoring following release is not an effective control to manage the nature of PW discharges and results in no impact reduction. Increases to in-situ monitoring beyond the adaptive management approach outlined in the OMDAMP does not follow good application of the hierarchy of controls and results in disproportionate sacrifice with regard to execution risks and costs for limited gain.	Long term monitoring of water and sediment (at other Woodside facilities as listed in Table 6-31) characteristics indicate the PW discharge is not detectable beyond the approved mixing zone. This also supports the appropriateness of non field based monitoring outlined in the OMDAMP as effective controls. Given the volume of discharge is an order of magnitude smaller (and therefore relatively small contaminant load) as well as increased water depth compared to other facilities, routine monitoring of water and sediment is not proposed. If initial monitoring indicates an increased risk to sediment that is likely to be detectable by <i>insitu</i> monitoring (elevated contaminant loads, increased particles size) non-routine monitoring may be undertaken. PW separation process design, optimisation, monitoring and surveillance offer the primary controls, with discharge OIW analysis in place to detect performance variations. Further, Woodside maintains a routine OIW monitoring program for the PW stream (including adaptive management via the OMDAMP, which assesses the need for in-situ monitoring). The initial monitoring and increased frequency of	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
			<p>end of pipe sampling are proposed to verify assumptions and demonstrate compliance at end of pipe. If triggers are not met end of pipe non routine <i>insitu</i> monitoring would be considered.</p> <p>The work undertaken to date provides Woodside with a sound understanding of the nature and scale of the environmental impacts from PW discharge, which would not be further improved by increasing the frequency of in-situ monitoring. The execution risks and cost of implementing this control is grossly disproportionate to the environmental benefit.</p>	
On an annual basis review routine monitoring results and determine if non routine sediment quality monitoring should be undertaken as per OMDAMP	F: Yes. CS: Monitoring and implementation costs. Standard practice.	Reviewing the monitoring results to determine if additional monitoring is required does not reduce environmental impact but does provide assurance impact is being appropriately defined.	Additional monitoring on a risk-based basis is proportional to the additional cost of implementation and part of the OMDAMP.	Yes C 10.4
Prior to next 5 year EP revision, review if OIW limit can be reduced further.	F: Yes. CS: Minimal cost.	Following commissioning and start-up and operating in steady state data will be available to support whether a reduction in the OIW limit is feasible. Reducing the OIW may result in a small reduction in environmental impact to water quality in the immediate vicinity of the FPU.	Although the reduction in environmental impact may be small a review of the limit once operating does not incur any large cost and demonstrates continual improvement and ALARP. It should be noted that regardless of the limit the system will be operated to the lowest practicable OIW concentration that can be achieved based on system design and functionality.	Yes C 10.7

Discussion of ALARP:

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p><u>Risk Based Analysis</u></p> <p>Application of Woodside’s Risk Management Procedures and implementation of the OMDAMP ensures the routine assessment of PW impacts, identification of changes to discharges, systematic assessment of risks and ongoing assessment/monitoring of discharge streams to reduce risk to ALARP, that includes:</p> <ul style="list-style-type: none"> • ongoing hazard identification, risk assessment and the identification of control measures • ongoing PW discharge monitoring. <p><u>Company Values</u></p> <p>Corporate values require all personnel at Woodside to comply with appropriate policies, standards, procedures and processes while being accountable for their actions and holding others to account in line with the Woodside Compass. As detailed above, the Petroleum Activities Program is undertaken in line with these policies, standards and procedures that include suitable controls to manage PW discharge.</p> <p><u>Societal Values</u></p> <p>Due to the Petroleum Activities Program’s proximity to sensitive receptors (e.g. Exmouth Plateau), the PW discharge consequence rating presents a Decision Type B in accordance with the decision support framework described in Section 2.3.3. Consultation was undertaken for this program to identify the views and concerns of relevant persons, as described in Section 5.</p> <p>ALARP Statement:</p> <p>On the basis of the environmental impact and risk assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the impacts of PW discharge. Woodside has undertaken risk-based analysis (PW discharge modelling) to inform the evaluation and assessment of environmental impacts and risks. Woodside also implements a risk-based adaptive OMDAMP. The outcomes of both the modelling studies and long-term monitoring have been considered in determining the ALARP position.</p> <p>As no reasonable additional/alternative controls are currently identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.</p>				

Demonstration of Acceptability
<p>To assess and determine the acceptable limits of impacts from PW discharges, Woodside has considered the following criteria, appropriate guidelines, principles of Ecologically Sustainable Development, Company Values and Societal Values.</p> <p>Other Requirements (includes Laws, Polices, Standards and Conventions)</p> <p>The adopted controls and acceptability assessment has considered regulatory guidance, in particular WA EPA (2016) Technical Guidance: Protecting the Quality of Western Australia’s Marine Environment and the ANZG (2018) guidelines. Both sources of Regulatory Guidance provide that environmental values should be identified and levels of ecological protection should then be set. To ensure ecosystem health is maintained overall, the cumulative size of the areas where lower levels of ecological protection apply should be proportionally small compared to the areas designated high and maximum.</p> <p>The Monitoring and Management Framework aligns to the levels of protection described by both WA EPA (2016) and the ANZG (2018) guidelines through the acceptable limits of change.</p> <p>The level of ecological protection provided to sensitive receptors is consistent with the North-west Network Management Plan (2018). By monitoring and managing to the 99% species protection safe dilutions at 400 m, there can be high confidence that potential impacts can be detected and managed via the OMDAMP in accordance with an appropriate representative mixing zone.</p> <p>The Minamata Convention 2013 (ratified by Australia in 2021) requires measures to be in place to control releases containing mercury or mercury compounds. Each of these measures, with information on how each measure is met for discharges of PW from the FPU is provided below:</p> <ul style="list-style-type: none"> • <i>Release limit values to control, and where feasible, reduce releases.</i> Trigger values related to mercury are in place and described above. • <i>The use of best available techniques and best environmental practices to control releases.</i> The implementation of permanent tertiary treatment in the form of mercury adsorbent beds on the FPU is considered best practice.

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- *A multi pollutant control strategy for mercury releases.* The monitoring framework implemented includes full chemical characterisation and WET testing of discharge stream, which allows understanding of holistic toxicity of the effluent considering all contaminants and potential additive effects.

Principles of Ecologically Sustainable Development

Woodside has established several research projects to understand the marine environments in which we operate, notably in the Exmouth Region and the Kimberley Region, including Rankin Bank, Glomar Shoal, Enfield Canyon and Scott Reef. Woodside's corporate values require that we consider the environment and communities in which we operate when making decisions. These principles of ESD were considered for this aspect:

- **Integration Principle**
 - the existing environment (Section 4) has been described consistent with the definition within regulation 5 of the Environment Regulations (i.e. includes ecological, socioeconomic, and cultural features), and any relevant values and sensitivities have been included within this impact analysis; therefore, the impact assessment process inherently includes economic, environmental and social considerations
 - Feedback, objections and claims from Relevant Persons were considered, see Appendix F
- **Precautionary Principle**
 - the impact consequence rating for this aspect is slight (E), therefore, potential for serious or irreversible environmental damage is not expected
 - although serious or irreversible environmental damage is not predicted to occur, there is some scientific uncertainty associated with the produced water composition however it is not expected to change the consequence level and PW will be monitored and managed as per the adopted control measures.
- **Intergenerational Principle**
 - the acceptable levels were developed consistent with the principles of ESD, including that the environmental impacts and risks of the offshore project will not forego the health, diversity, or productivity of the environment for future generations
 - as described above, the predicted environmental impact spatially limited to an area around the FPU, which is not considered as having the potential to affect ecological integrity. By maintaining ecological integrity the discharge of PW is not considered to have the potential affect intergenerational equity
- **Biodiversity Principle**
 - the existing environment (Section 7) identifies and describes relevant MNES, as defined in regulation 7(3) of the Environment Regulations; any relevant values and sensitivities are included within this (Section 9.1.12) impact analysis
 - as described above, the predicted environmental impact are spatially limited to an area around the FPU, which is not considered as having the potential to affect ecological integrity. By maintaining ecological integrity the discharge of PW is not considered to have the potential affect biological diversity.

Woodside looks after the communities and environments where we operate. Risks are inherent in petroleum activities; however, through sound management, systematic application of policies, standards, procedures and processes, Woodside considers that the predicted impact from PW discharge is acceptable.

Internal Context

The Petroleum Activities Program is consistent with Woodside corporate policies, standards, procedures, and processes as outlined in the Demonstration of ALARP and Environmental Performance Outcomes, including:

- Woodside Environment and Biodiversity Policy (Appendix A: Woodside Policies)
- Woodside Risk Management Policy (Appendix A: Woodside Policies)
- Woodside Environmental Performance Procedure (that specifies maximum mixing zones and minimum sampling requirements).

Woodside corporate values include working sustainably, with respect to the environment and communities in which we operate, listening to internal and external stakeholders (below) and considering HSE when making decisions.

External Context

Woodside recognises that its licence to operate from a regulator and societal perspective is based on historical performance, complying with appropriate policies, standards and procedures, and understanding the expectations of external stakeholders. External consultation was undertaken with relevant persons (**Section 5**), prior to the Petroleum Activities Program and feedback was incorporated into this EP where appropriate. Interest in discharges from the FPU was noted from one stakeholder, which was provided appropriate information in response.

By providing PW monitoring and control measures that are commensurate with the risk rating, location and sensitivity of the receiving environment (including social and aesthetic values), Woodside believes this addresses broad societal concerns to an acceptable level.

Acceptability Statement

Routine and non-routine discharges of PW have been evaluated as representing potential slight, localised, short-term impacts to water quality, marine sediment, marine fauna and ecosystem/habitat. As per Section 2.3.3, Woodside considers 'high order impacts' (Decision Type B impacts such as PW discharge) as acceptable if ALARP is demonstrated using good industry practice, consideration of company and societal values and risk based analysis, if legislative requirements are met and societal concerns are accounted for, and the alternative control measures are grossly disproportionate to the benefit gained. In addition, acceptability is assessed against the above criteria.

The adopted controls are considered good oil-field practice/industry best practice, are consistent with WA EPA (2016), ANZG (2018) and Woodside's internal requirements. Further opportunities to reduce the impacts have been investigated (refer ALARP demonstration) and considered to be grossly disproportionate to the benefit gained. Therefore Woodside considers the adopted controls appropriate to manage the impacts of PW discharge to an acceptable level and demonstrates the EPOs are met.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
EPO 17 No impact to the environment outside of the Approved Mixing Zone from planned discharge of comingled produced water / cooling water and brine.	C 8.4 Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.	PS 8.4.1 Refer to Section 6.7.9	MC 8.4.1 Refer to Section 6.7.9
	C 10.1 Monitoring and management of OIW concentrations in accordance with PARCOM 1997/16 Annex 3 methodology. <ul style="list-style-type: none"> • Limit average OIW to less than 20 mg/L 24hr rolling average during normal operations; • Limit average PW OIW to less than 30 mg/L 24hr rolling average during restart. <p>20 mg/L limit is reinstated once steady state is achieved i.e. contaminant concentrations and discharge volumes remain steady.</p>	PS 10.1.1 OIW is limited to a 20 mg/L 24 hr rolling average during normal operations and 30 mg/L during restart. PS 10.1.2 Inboard off-specification PW to maintain OIW concentrations, within limits of tank capacity	MC 10.1.1 Records demonstrate OIW limits are not exceeded.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
		<p>PS 10.3.1 (b) Online monitoring and/or procedural controls in place to monitor and control PW discharge volume, OIW concentration, and prevent discharge of PW with high OIW concentration by implementing the Scarborough Contaminated Water off-Spec Produced Water OIW Readings – Loss of Signal to OIW Analysers – Operating Procedure (<i>under development</i>), which includes response measures in the event of:</p> <ul style="list-style-type: none"> • increasing or off-spec PW OIW readings • loss of signal for two OIW analysers. 	<p>MC 10.3.1(b) Records demonstrate compliance with OIW Analyser off spec/outage procedure.</p>
	<p>C 10.4 On an annual basis review routine monitoring results and determine if non routine sediment quality monitoring should be undertaken as per the OMDAMP.</p>	<p>PS 10.4.1 Complete review of routine monitoring results and determine contaminant load and/or contaminants with the potential to impact sediments have increased and whether non routine sediment quality monitoring should be undertaken to determine extent of impacts.</p>	<p>MC 10.4.1 Records show annual review has been conducted as described.</p>
	<p>C 10.5 The OIW online analyser is calibrated with a manual sample in accordance with <i>Offshore Laboratory Determination of Oil in Water Standard Operating Procedure</i>.</p>	<p>PS 10.5.1 Complete calibrations of online analyser and manual OIW sampling equipment in accordance with <i>Offshore Laboratory Determination of Oil in Water Standard Operating Procedure</i>.</p>	<p>MC 10.5.1 Records demonstrate manual sampling and calibration undertaken during commissioning activities as appropriate.</p>
	<p>C 10.6 Procedural controls and management actions in place to monitor mercury concentration (via manual sampling weekly during attended operations) and prevent discharge of PW with high mercury concentrations.</p>	<p>PS 10.6.1 Complete manual sampling for mercury in PW:</p> <ul style="list-style-type: none"> • Weekly during attended operations. • During intervention visit between unattended periods 	<p>MC 10.6.1 Records demonstrate manual sampling undertaken during operations as required.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
	Management Actions include: <ul style="list-style-type: none"> switching mercury adsorption beds Off-spec water directed inboard to the rich MEG tank 	and implement management actions (if required).	
	C 10.7 Prior to next five-year EP revision review if OIW limit can be reduced further.	PS 10.7.1 Complete review to determine whether OIW limit can be reduced in the next five-year revision of the EP.	MC 10.7.1 Records show review has been conducted as described.
	C 10.8 Insitu plume measurement and analysis of plume dilution and mixing characteristics (including water quality monitoring of potential PW indicators at approved mixing boundary).	PS 10.8.1 Complete plume verification study within 12 months of reaching steady state operations including: <ul style="list-style-type: none"> obtain background measurements of surface and sub surface temperature and salinity levels surrounding FPU under different current conditions tracking the plume (using a dye or similar) to quantify the horizontal and vertical plume dilutions achieved under different current conditions. Water quality sampling at approved mixing zone to measure potential contaminant concentration 	MC 10.8.1 Records demonstrate <i>insitu</i> plume and mixing zone verification undertaken within 12 months of reaching steady state operation.
			MC 10.8.2 Technical report confirms predicted model outputs or modelling updated (if required).
	C 10.9 Limit mercury to less than 0.1 µg/L end of pipe (after comingling with cooling water but prior to discharge).	PS 10.9.1 Monitoring shows mercury is below 99% species protection at end of pipe	MC 10.7.1 Records shows mercury is below 99% species protection at end of pipe.

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6.7.12 Routine and Non-Routine Discharges: Subsea Operations, Activities and Contingent Trunkline Dewatering

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.1.7–7.1.10 – Routine and Non-Routine Discharges														
Context														
Relevant Activities Subsea IMMR activities – Section 3.9.1.6 Operational details – Section 3.9.6				Existing Environment Regional Context – Section 4.2 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6				Consultation Consultation – Section 5						
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Discharge of subsea control fluids.		✓	✓		✓			A	E	-	-	LCS GP PJ	Broadly Acceptable	EPO 18
Discharge of hydrocarbons remaining in subsea pipeworks and equipment as a result of subsea intervention works (including pigging).		✓	✓		✓			A	E	-	-			
Discharge of chemicals remaining in subsea pipeworks and equipment or the use of chemicals for subsea IMMR activities.		✓	✓		✓			A	F	-	-			
Discharge of minor fugitive hydrocarbons from subsea equipment.		✓	✓		✓			A	E	-	-			
Discharge of cement, grout and sand		✓	✓		✓			A	E	-	-			
Discharge of treated seawater from Trunkline during FCGT or dewatering activities			✓					A	E	-	-			

Description of Source of Impact/Risk
<p>Hydrocarbons and chemicals may be discharged as a result of planned routine and non-routine operations and activities as described below. Planned chemical discharges may occur during a range of subsea system operation and IMMR activities. However, these are either small volumes, or discharged intermittently. Operational chemicals to be used in the subsea infrastructure are selected and assessed using Woodside’s chemical selection and assessment guideline, as detailed in Section 3.9.16.5.</p> <p>Operational discharges include:</p>

Description of Source of Impact/Risk

- discharge of subsea control fluids – subsea control fluid is used to control valves remotely; it is an open-loop system, designed to release control fluid from the control system during valve operations (e.g. up to about 20 L from a single XT sweep)
- potential non-routine hydraulic fluid discharge associated with umbilical system losses/weeps
- discharge of minor fugitive hydrocarbon from wells and subsea equipment (e.g. weeps/seeps/bubbles)
- IMMR activities (nominal discharges described in Section 3.9.17) including:
- discharge of residual hydrocarbons in subsea lines and equipment associated with isolation testing and breaking containment
- discharge of residual chemicals in subsea lines and equipment associated with isolation testing and breaking containment
- during span rectification works, possible cement discharges from overflow while filling/filtering cement through cement bags for span rectification, line washout (down line cleaning); or cement until washout from on board vessel
- discharge of sand from stabilisation bags
- discharge of chemicals used to remove marine growth (e.g. sulphamic acid or equivalent).

As described in Section 3.9.17 environmental discharges during subsea IMMR activities are expected to be minor (e.g. during pressure/leak testing or flushing). Where practicable, flushing is performed before a subsea component is disconnected to reduce residual hydrocarbon or chemical releases to the environment upon disconnection. Where possible, flushed fluids will return to the platform.

Trunkline repair and Flooding, Cleaning, Gauging and Testing (FCGT) – Contingent Activities

If there is an emergency situation during Trunkline operations (i.e., dragged anchor or dropped object over/on the Trunkline), or the Trunkline fails to meet testing integrity requirements during IMMR, there may be a need for Trunkline repairs. Repairs may involve the removal of a damaged section of the Trunkline and the remaining good section of Trunkline being dewatered. It is necessary to carry out dewatering and repairs as soon as possible to minimize damage (corrosion) to the Trunkline internal lining, as described in Section 3.13.1.

If FCGT is used, the trunkline will be filled with treated seawater, hydrotested and dewatered, and potentially dried and inerted. Depending on where the damage in the Trunkline occurs, discharge volumes may vary. As a worst case, the whole Trunkline length may need to be dewatered should it become flooded with raw seawater during incident / from damage and require flushing to remove debris and desalinate. The activity will be conducted in several phases and may include pre-flooding to ensure control of flow as pigs move down the slope crossing.

In the event the Trunkline breaks and is flooded with seawater, the raw seawater ingress will be pushed out of the trunkline with treated water, which is used to prevent corrosion and maintain the integrity of the trunkline. The Trunkline would be dewatered from shore to offshore. The discharge could occur at any point along the Trunkline, with the location dependent on where the Trunkline was cut to remove the damaged section. Discharge volume and chemical concentrations are dependent on the dewatering option selected. These include:

- Pre-flooding of the trunkline with treated seawater: this involves first flooding the length of the trunkline with treated seawater. The discharge volume will increase the further along the Trunkline damage occurs, due to the greater volume of flushing required to reduce salt contamination in the Trunkline. Damage around KP 32 for example could result in a discharge of chemically treated seawater around 19,080 m³ while damage around KP432 (i.e. at the end of the trunkline) could result in a discharge of treated seawater approximately 243,256 m³. Discharge along the Trunkline route between these two points would have a volume around ~210,000 m³ (KP 190).
- Pre-flooding the trunkline with untreated seawater followed by treated freshwater slugs: this involves using a pig train separated by chemically treated fresh water (desalination) slugs to dewater the trunkline. The volumes of treated water would be up to approximately 1200 m³ of freshwater treated with chemicals up to 700 ppm.

Table 6-37: Estimated contingent Trunkline discharges

	Full Trunkline	Partial volume along Trunkline route
Discharge location	Commonwealth waters	Commonwealth waters
	Pipeline End Termination Assembly (Approx. KP 433)	Approx KP33
Ave Water depth (m MSL)	941	39.3
Discharge depth (m MSL)	938	39

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Description of Source of Impact/Risk		
Disposal of pre-flooding water and cleaning water (treated and filtered seawater)		
Discharge volume (m3)	254,300	N/A
Discharge duration	~ 11 days	
Disposal of cleaning water only (treated and filtered seawater)		
Discharge volume (m3)	N/A	N/A
Discharge duration		
Approx time between discharges to the environment	7 days	
Disposal of hydrotest squeezed water (treated and filtered seawater)		
Discharge volume (m3)	3,500	N/A
Discharge duration	~17 hours	
Approx time between discharges to the environment	3 days	
Disposal of hydrotest water and desalination water (treated and filtered seawater / freshwater)		
Discharge volume (m3)	243,256	19,080
Discharge duration	~22.5 days	~1.39 days

Water treatment chemicals

Chemicals used in water treatment for FCGT and trunkline dewatering activities ensure the integrity of the Trunkline is not compromised by internal corrosion development. These chemicals are typically comprised of an oxygen scavenger, biocide and corrosion inhibitor. These chemicals will be Hazard Quotient Colour Band ‘Gold’ (or OCNS Grouping E) with no substitution or product warnings.

Quantitative Risk Assessment

In order to understand the potential impacts and risks associated with contingent discharges of hydrotest fluids from the Trunkline, Woodside commissioned RPS to model the fate and transport of two representative discharge scenarios, one at the PLET and another in Commonwealth waters near the State waters boundary (RPS, 2021). To determine the fate, transport and dilution of the hydrotest discharge, both near-field and far-field modelling was undertaken as these are used to describe different processes and scales of effect. The modelled scenarios included:

- The full trunkline FCGT comprised of:
 - Pre-flooding / cleaning water of 254,300 m3
 - Hydrotest / squeeze water of 245,511 m3
- Nearshore damage:
 - Cleaning water of 29,000 m3

Stochastic modelling was conducted for this study, which compiled data from 150 hypothetical releases under different environmental conditions and seasons to determine the largest extent of plume dispersion. A three-dimensional, spatially-varying current data set surrounding the discharge locations for a ten-year (2006-2015) hindcast period were used, with summer, winter and transitional seasons modelled. The data set included the combined influence of drift and tidal currents and was suitably long as to be indicative of interannual variability in ocean currents. The current data set was validated against metocean data collected in the Scarborough Project Area.

Results of the replicate simulations were then statistically analysed and mapped to define contours of predicted dilutions.

Development of thresholds for impact assessment

Due to the proposed chemical additives with the hydrotest fluid (i.e., biocides, corrosion inhibitors, oxygen scavenger, fluorescent dyes), the discharges have the potential to impact sensitive receptors within the discharge area of influence, primarily through toxicological effects ranging from the inhibition of key biological processes (e.g., reproduction) to mortality. The outputs of the quantitative modelling are used to assess the environmental risk by delineating which areas of the marine environment could be exposed to chemicals exceeding toxicological threshold concentrations, and the expected time taken for concentrations to reduce to below thresholds.

The 99% species protection level concentration is suggested by the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018) for the development of environmental criteria for high conservation ecosystems or chemicals that have a tendency to bioaccumulate. Due to the unknown nature of chemicals to be used and lack of availability of whole effluent toxicity data for similar chemicals used previously for this activity; species protection level

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Description of Source of Impact/Risk

concentrations cannot be derived. Therefore, the 99% species protection value derived for Hydrosure 0-37670R was used as an analogue to interrogate the outputs of the model for the purpose of the impact assessment. Noting that Hydrosure 0-3670R will not be used as it does not meet the required performance standard, with regard to its OCNS rating.

Chevron Australia Pty Ltd (2015) conducted whole effluent toxicity (WET) testing on Hydrosure 0-3670R (Champion Chemicals Pty Ltd), diluted in seawater. WET testing was undertaken on five locally relevant species, for the NWMR, from four different taxonomic groups based on ANZECC & ARMCANZ (2000). Since Hydrosure 0-3670R is a mixture containing both the biocide and oxygen scavenger for chemical treatment, only one assay in each test species was necessary to evaluate the toxicity of the product. The results of the WET testing are described in Table 6-38. As expected, simpler life forms (e.g. algae and larvae) had a higher sensitivity to the chemical compared to be more complex life forms such as fish. From these results Chevron (2015) developed species sensitivity distribution curves to determine species protection concentrations (Table 6-39).

Table 6-38: Ecotoxicological test results for Hydrosure 0-3670R

Species	Duration (hrs)	NOEC (mg/L)
<i>Nitzschia Closterium</i> (Algae)	72	1.30
<i>Saccostrea echinate</i> (Mollusc)	48	0.250
<i>Heliocidaris tuberculata</i> (Echinoderm)	72	1.25
<i>Melita plumulosa</i> (Crustacean)	96	0.13
<i>Lates calcifer</i> (Fish) [#]	96	12.5

[#]toxicity test is defined as an acute test

Table 6-39: Species protection concentrations for Hydrosure 0-3670R

	PC 99% (mg/L)	PC 95% (mg/L)	PC 90% (mg/L)
Hydrosure (based on NOEC)	0.06	0.10	0.15

The results from this study established a 99% species protection value of 0.06 mg/L, which was applied in the modelling over a 48-hr rolling median (Chevron Australia Pty Ltd, 2015). The duration was a conservative approach to account for the fact that the hydrodynamics of the marine environment result in dilution of the chemical concentration after discharge therefore it is unlikely that concentrations would remain elevated for long durations. Therefore, the duration was based on the minimum test duration of 48 hours.

Based on the expected initial concentration of 350 mg/L for pre-flooding and cleaning water and damaged trunkline discharges; 5,833 dilutions are required. While for an initial concentration of 550 mg/L for hydrotesting, 9,167 dilutions are required to meet threshold concentration at the 99% species protection. Though this likely over represents the residual toxicity of the fluid following discharge as it was assumed that the residual discharge concentration of the chemicals within the fluid is the same as the initial dosing concentration with no degradation or decay during residence within the pipeline.

FCGT – trunkline modelling results

Nearfield modelling results for discharge at the offshore PLET location indicates that a turbulent mixing zone will be created at the seabed, for a horizontal distance of ~90 to 115 m, with a vertical distribution up to 40 m. Outside of this turbulent zone, a positively buoyant plume is expected to rise in the water column, which may reach a horizontal distance of up to ~425 m from the PLET prior to reaching trapping depth.

Farfield modelling for this discharge indicates that dilutions required to reach the threshold concentration (0.06 mg/L) at the 95th percentile (applied as a 48-hour rolling median) for the pre-flooding and cleaning water (additive concentration 350 mg/L) is achieved at a maximum distance of ~6,100 m from the PLET, however on average it is much less and was reached at 600 m (Table 6-40). Similarly, the maximum distance to achieve threshold concentration at 95th percentile (applied as a 48 hr rolling median) for the hydrotest discharges ranges from ~1,400 m (additive concentration 550 mg/L) to ~900 m (additive concentration 350 mg/l) from the PLET. Again, on average, the distances to achieve the threshold concentration were less and ranged from 500 to 600 m. The significantly greater spatial rate of dilution for hydrotest discharge when compared with pre-flood/cleaning is attributed to the lower rate of discharge. Noting that the discharge rate for the pre-flooding and cleaning water is 1000 m³/ hr whereas on average the discharge rate for the hydrotest discharge was ~430 m³/hr.

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Table 6-40: Average and maximum distances to achieve the threshold concentration at the 99% and 95% species protection

Scenarios	99% Species Protection		95% Species Protection	
	Average distance	Maximum distance	Average distance	Maximum distance
	Dosage concentration 350 ppb (5833 dilutions)		Dosage concentration 350 ppb (3500 dilutions)	
Pre-flooding / cleaning water of 254,300 m ³ (at 1000 m ³ /hr)	600 m	6.1 km	500 m	4.2 km
Hydrotest / squeeze water of 245,511 m ³ (at average of ~430 m ³ /hr)	500 m	900 m	300 m	500 m
	Dosage concentration 550 ppb (9167 dilutions)		Dosage concentration 550 ppb (5500 dilutions)	
Hydrotest / squeeze water of 245,511 m ³ (at average of ~430 m ³ /hr)	800 m	1.4 km	400 m	800 m

The maximum time for concentrations to fall below threshold concentration under weak current conditions (resulting in low mixing and low dilution) was 2.77 days. Therefore a minimum time period of 3 days will be applied between pre-flooding/cleaning and hydrotest discharges for the full trunkline FCGT.

Trunkline damage along route – State waters boundary worst case example

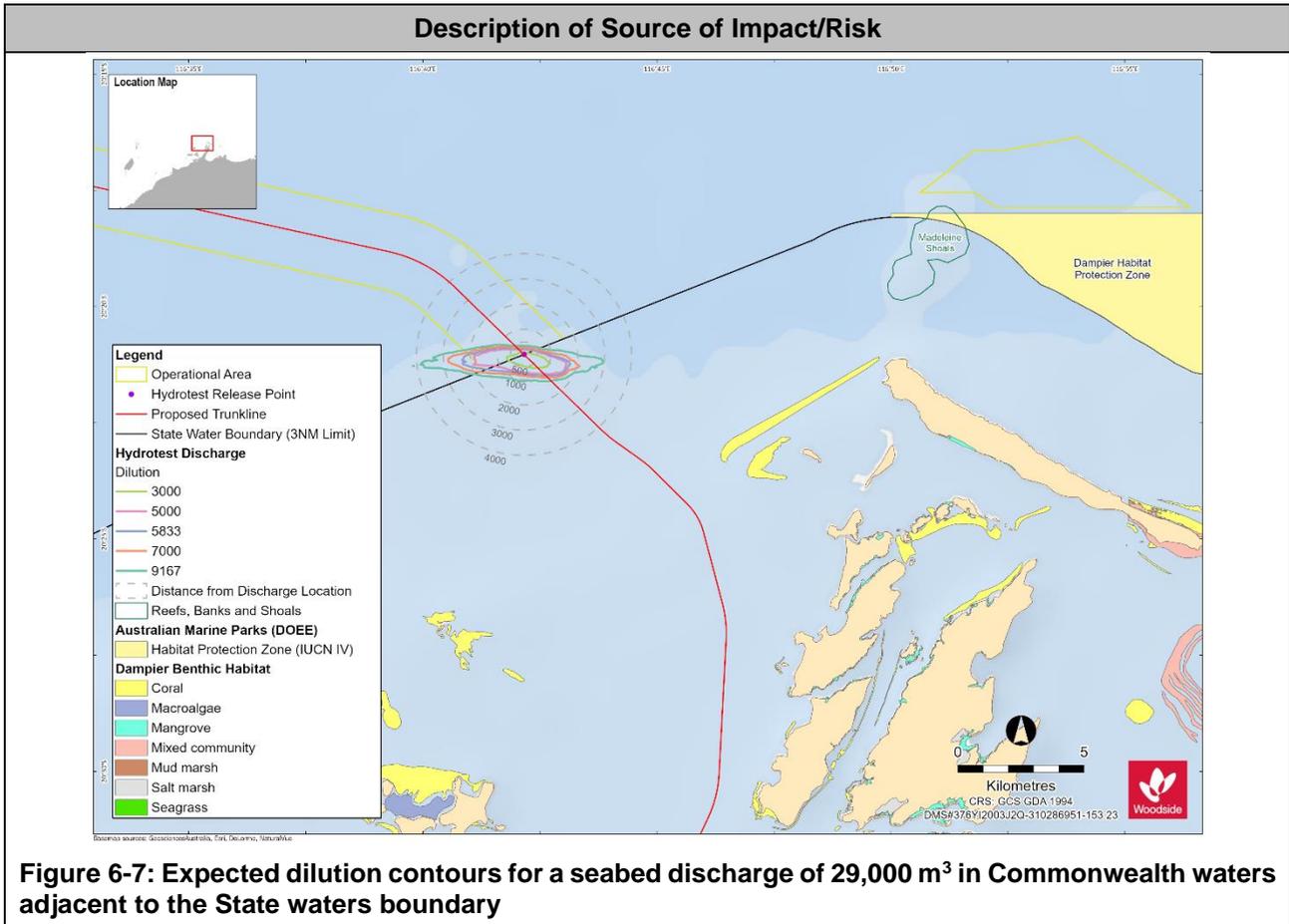
Nearfield modelling results for nearshore component discharge adjacent to the State waters boundary indicates that a turbulent mixing zone will be created at the seabed, for a horizontal distance of ~40 m, with vertical distribution around 10 m. Outside of this turbulent zone, a positively buoyant plume is expected to rise in the water column, which may reach a horizontal distance of up to ~60 m from the discharge location prior to reaching trapping depth.

Farfield modelling for this discharge indicates that dilutions required to reach the threshold concentration (0.06 mg/L) at the 95th percentile (applied as a 48-hour rolling median) for the pre-flooding and cleaning water (additive concentration 350 mg/L) is achieved at a maximum distance of ~2100 m from the release location however on average it is much less and was reached at 400 m. This was based on a discharge rate of 1000 m³/hr.

Table 6-41: Average and maximum distances to achieve the threshold concentration at the 99% and 95% species protection

Scenarios	99% Species Protection		95% Species Protection	
	Average distance	Maximum distance	Average distance	Maximum distance
	Dosage concentration 350 ppb (5833 dilutions)		Dosage concentration 350 ppb (3500 dilutions)	
Cleaning water of 29,000 m ³ (at 1000 m ³ /hr)	500 m	2.1 km	200 m	900 m

Dilution contours, representing 150 simulations, for this discharge in context of nearby receptors are shown in **Figure 6-7**.



Detailed Impact Assessment
Assessment of Potential Impacts
<p>There is potential for localised impacts to water and sediment quality, and impacts to marine biota as a result of planned routine and non-routine hydrocarbon and chemical discharges. However, planned discharges of hydrocarbons and chemicals are minor and are minimised as far as practicable via flushing of the lines back to the FPU. Discharge locations are either the PW stream, subsea valves (subsea control fluid), at disconnection points in subsea infrastructure, including during installation of PLRs, or via the export trunkline to onshore process.</p> <p>Water Quality</p> <p>Subsea control fluids are discharged in relatively small volumes during valve actuations and IMMR activities at or near the seabed. On release the subsea control fluids are expected to mix rapidly and dilute in the water column. Pigging activities are infrequent and result in relatively small releases of hydrocarbon (indicative discharge volumes associated with pigging the export trunkline are provided in Table 3-9. The small quantities of hydrocarbons that may be released as fugitives or during IMMR activities that break containment of isolated subsea infrastructure are buoyant and will float upwards towards the surface. Given the water depth, pressure, and the small volumes released, these hydrocarbons are not expected to reach the sea surface. Rather, the release will disperse and dissolve within the water column. Chemicals may be discharged intermittently and in small volumes, with similar dispersion influenced by buoyancy and water currents.</p> <p>There is potential for slight, localised decrease in water quality at planned discharge locations and potential impacts on marine biota. Impacts to pelagic fish are expected to be limited to avoidance of the localised area of the discharge and short-term, localised decline in planktonic organisms in the immediate vicinity of the discharge.</p> <p>Cement discharges may occur during span rectification works, from overflow, and can result in an increase in turbidity in the water column. Reduction in water quality will be temporary (limited to the cement operation discharges) and due to small volumes, are likely to rapidly disperse and dilute in prevailing currents. As such, the impact significance level for Water Quality has been identified as Slight (E).</p> <p>Sediment Quality</p>

Detailed Impact Assessment

Accumulation of contaminants in sediments depends primarily on the volume/concentration of particulates in discharges or constituents that adsorb onto seawater particulates, the area over which those particulates could settle onto the seabed (dominated by current speeds and water depths), and the resuspension, bioturbation and microbial decay of those particulates in the water column and on the seabed. Valve actuation discharges are frequent but low in volume (typically <6 L). Given the frequency and volumes of chemical releases, accumulation in sediments is not considered likely.

Cement discharges at the seabed are likely to be minimal and once cement has hardened, chemical additives are locked into the cement (Terrens et al., 1998) and are not expected to pose any toxicological risk to benthic biota from leaching or direct contact. The physical sediment properties of the area directly adjacent to the discharge location will be permanently altered however it will be highly localised physical footprint and is not expected to affect the overall diversity or ecosystem function of the benthic communities in the area.

The potential impacts to benthic communities caused by smothering from a surface release of cement are expected to be minimal due to small volumes, intermittent nature of these discharges, and high potential for dispersal by ocean currents. This impact on soft sediment communities is not expected to affect the diversity or ecosystem function in the area, and is considered to be a localised impact. As such, the impact significance level for Sediment Quality has been identified as Negligible (F).

Water and Sediment Quality – Contingent Trunkline FCGT and dewatering discharges

Stochastic and deterministic modelling of the FCGT discharge scenarios indicates that chemical concentrations are expected to be below the 99% species protection level within 6,100 m (based on the minimum dilutions) of the PLET, with changes in water quality predicted to return below the threshold value within approximately three days of completing the discharges. A smaller distance may be expected to achieve the required dilutions, in the event of discharging smaller volumes (not full Trunkline length) due to the lower discharge rate (~570 m³/hr). Depending on the location of Trunkline damage along the trunkline route, chemical concentrations can be expected to drop below the 99% species protection level within ~1-2 kilometres. This is based on the ~900 m and 2,100 m distances where chemical concentrations are expected to be below the 99% species protection level at the PLET (for hydrotest discharges) and at the state boundary release locations respectively.

The presence of chemical additives in discharged hydrotest fluids are expected to degrade, decay, dilute and disperse once released through both dynamic mixing in the nearfield and by prevailing currents in the farfield, due to the open oceanic waters of the Project Area. The discharge is expected to remain close to the seabed which means the temporary change in water quality will be restricted to deep waters at the PLET location and predominantly near seabed at the release location near the State waters boundary. As such, the discharge is expected to result in a temporary decline in water quality around the discharge locations, with no lasting effect on water quality is predicted.

As the discharge plume is expected to remain close to the seabed, a temporary change in sediment quality may occur. However, as demonstrated by the modelling, due to rapid dispersion of the treated seawater, the chemical additives will degrade and dilute rapidly following discharge with no predicted accumulation within seabed sediments and as such no lasting effect on sediment quality is predicted.

There are no variations in seasonal sensitivity in relation to water and sediment quality that would influence the effect of the discharge. Receptor sensitivity is low (low value, open water), and therefore Impact Significant Level of discharges on water quality and sediment quality is negligible.

Plankton

A change in water quality has the potential to result in the injury or mortality of planktonic species in the water column due to toxicity. Ichthyoplankton (eggs, larvae) are the most susceptible organisms to chemical exposure, as they have limited mobility and thus likely to be exposed to the plume if present. These organisms however, have a high natural mortality and rapid replacement rate and are therefore likely to recover after activity ceases.

Plankton populations may be affected by discharges around the FPU and along the trunkline route in the shallower waters of the continental Shelf within a limited area (~1-2 km) of the discharge location. However, given the expected rapid dispersion and dilution of any discharges plume by prevailing currents and the temporary nature of the discharge, impacts to plankton are likely to only occur in the immediate area of the discharge plume, over a period of days to weeks. Given the fast population turnover of open water plankton populations (ITOPF, 2011), the potential impacts are expected to be localised and temporary. For discharges from installed infrastructure in greater water depths, no lasting effect on plankton is expected, given phytoplankton and zooplankton are generally limited to near-surface waters (i.e., the photic and meso-photic zones).

Plankton – Contingent Trunkline FCGT and dewatering discharges

Stochastic and deterministic modelling of the FCGT discharge scenarios indicates that chemical additive concentrations are expected to be below the 99% species protection level within 6,100 m with changes in water quality predicted to return below the threshold value within approximately three days of completing the discharges. As described above, chemical concentrations resulting from a smaller Trunkline volume discharge can be expected to drop below the 99% species protection level within a ~1-2 kilometres of the discharge location.

Treated seawater discharge in the unlikely event of full Trunkline FCGT or Trunkline damage in deeper waters will occur close to the seafloor in water depths of about ~940 m at the PLET location. Given phytoplankton and zooplankton are

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Detailed Impact Assessment

generally limited to near-surface waters (i.e., the photic and meso-photoc zones) no lasting effect on plankton is expected.

Plankton populations may be affected by FCGT / dewatering along the trunkline route in the shallower waters of the continental Shelf within a limited area (~1-2 km) of the discharge location. However, given the expected rapid dispersion and dilution of the plume by prevailing currents and the temporary nature of the discharge, impacts to plankton are likely to only occur in the immediate area of the discharge plume, over a period of days to weeks. Given the fast population turnover of open water plankton populations (ITOPF, 2011), the potential impacts are expected to be localised and temporary.

FCGT / dewatering discharges will be restricted to a small area around the discharge point and will disperse rapidly in the environment. Impacts from contingent treated seawater discharges will have no lasting effect on plankton.

Epifauna and Infauna

The seabed in the PAA is dominated by soft sediments (as described in Section 4.4), with filter feeders such as sponges, ascidians, soft corals and gorgonians associated with areas of hard substrate. The only areas of hard substrate expected in the vicinity are artificial habitat associated with subsea infrastructure. Subsea control fluid is non-toxic and does not have the potential to bioaccumulate. Impacts to ecosystems are not expected due to the localised nature of discharges and limited potential for sediment quality impacts. Given the nature and scale of planned discharges, potential impacts are considered to be slight and short term (expected to recover once routine discharges cease). As such, the impact significance level for Epifauna and Infauna has been identified as Negligible (F).

Epifauna and Infauna – Contingent Trunkline FCGT and dewatering discharges

As a result of a change in sediment or water quality, impacts to benthic habitat receptors may occur. This may include sub-lethal effects or mortality to benthic epifauna and infauna resulting from the increased (water) or accumulation of (sediment) potential contaminants and toxins. Epifauna and infauna sensitivity to dewatering discharges is expected to be similar to pelagic invertebrate species such as plankton.

Discharges during pipeline repairs will be restricted to a relatively small area around the discharge point and will disperse rapidly in the environment. The extent of seabed exposure at levels where impacts could occur will be small, and potential impacts are expected to be localised, temporary and negligible. Impacts from contingent treated seawater discharges will have no lasting effect on epifauna and infauna. Receptor sensitivity of epifauna and infauna is considered low at the PLET discharge location. The Impact Significance Level of an FCGT/hydrotest discharge on epifauna and infauna has therefore been identified as Negligible (F). There are no variations in seasonal sensitivity in relation to epifauna and infauna that would influence the effect of the discharges.

Stochastic and deterministic modelling of a treated seawater discharge near the State waters boundary indicates that chemical additive concentrations are expected to be below the 95% species protection within 900 m and below the 99% species protection threshold within 2.1 km of the discharge location. Therefore, there is potential for a small, localised area of epifauna to be exposed to lethal and sub-lethal concentrations near the release location. Due to rapid dispersion of the treated seawater, uptake and bioaccumulation of contaminants is not expected to occur in sediments or benthic organisms beyond the point of release.

In the event of damage along the trunkline route, and discharge of a smaller Trunkline volume, chemical concentrations resulting from discharge of treated seawater can be expected to drop below the 99% species protection level between ~1-2 km as described above, depending on the location of the discharge. Section 4.4.2 describes benthic habitats and communities along the trunkline. The seabed along the trunkline route is generally featureless with occasional areas of hard substrate that may support patches of benthic filter feeder communities. Within the Montebello AMP (KP 109 and KP 192) soft sediment habitats predominate, with calcarenite outcrops supporting sponges, whips and gorgonians. Denser areas of filter feeders also occur in areas with more complex seabed structure. These areas of filter feeding benthos (sponges, soft corals, gorgonians, hydroids, sea pens, crinoids) are widely representative of benthos found both within the AMP (Advisian, 2019a) and regionally (potential impacts to the values of the AMP are evaluated further in the AMP section below). Rock pinnacles have been observed approximately 360 m south of the trunkline at KP 206. The pinnacles are isolated forms restricted to an area about 100 m long x 75 m wide, and do not constitute continuous reef. The structures provide habitat for a diverse range of epifaunal and demersal species that commonly occur across the NWMR, including a very low percentage cover of soft coral growing on top of the pinnacles. It is not possible to predict where Trunkline damage and repair may occur - in the unlikely event repair is required along the trunkline route in proximity to the more complex benthic habitats described (e.g. within the Montebello AMP or near the rock pinnacles), the extent of seabed exposure at levels where impacts could occur will be small and likely limited to within hundreds of metres of the discharge location. Potential impacts will be localised and temporary as the one-off discharge disperses rapidly within the water column. While a diverse range of epifaunal and demersal species are reported to be associated with these habitats, they commonly occur across the NWMR. Receptor sensitivity of epifauna and infauna is considered low to medium along the trunkline route. The Impact Significance Level of a FCGT/dewatering discharge on epifauna and infauna has therefore been identified as Slight (E). There are no variations in seasonal sensitivity in relation to epifauna and infauna that would influence the effect of the discharges.

Marine fauna

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Detailed Impact Assessment

Given the temporary nature of the discharges, impacts to protected species are not expected. Potential impacts to pelagic or demersal fish species from discharged fluids are expected to be confined to the vicinity of discharge point. Marine fauna are likely to be transient within the receiving environment adjacent to the discharge location, and as such are unlikely to be exposed to sufficient concentrations or durations of the discharge constituents to elicit a response. Furthermore, marine fauna have the capacity to adapt their behaviour in response to changes in environmental conditions and can be expected to move away from the discharge if exposed. Given the low likelihood of pelagic species being exposed to the discharge; and the ability of fauna to move away from the discharge plume, the potential for toxic impacts to occur from the temporary and small volumes of discharged fluids are considered to be localised, short-term and no lasting effect at the population or bioregional scale.

Marine fauna – Contingent Trunkline FCGT and dewatering discharges

Marine fauna could pass through the discharge plume however exposure would be at low concentrations and short duration. The 99% species protection threshold and the subsequent mixing zone have been determined through the application of chronic exposure ecotoxicological tests on sensitive life stage marine fauna. The toxicity of the water treatment chemicals is less on larger life forms as demonstrated by the WET testing (Table 6-38) which determined that the NOEC for a fish species was 12.5 mg/L. Modelling predicted that this would occur out to a maximum of 30 m from the release location. In addition, marine fauna are transient and as such are unlikely to be exposed to sufficient concentrations or durations of the discharge constituents to elicit a response.

The location of the FCGT discharge at the PLET does not overlap any BIAs for protected marine fauna and given the water depth (about ~940 m), toxicity and temporary nature of the discharge, impacts to protected species are not expected. The deep water and predominantly featureless, flat soft sediment seabed at the PLET discharge location is of low complexity and low productivity (see Section 4.5) and reduces the species diversity and richness of pelagic and demersal fish assemblages. Although sporadic upwelling events and increased primary productivity along the northern and southern boundaries of the Exmouth Plateau KEF may temporarily increase fish diversity, overall, fish fauna is not expected to be abundant at the FCGT discharge location, which is located >50 km from the periphery of the plateau. Continental slope fish communities off the west coast of Australia (including the Exmouth Plateau) have a low overall density, which appears to be linked to the low biological productivity of the overlying waters (Williams et al., 2001). Based on the low likelihood of pelagic species being exposed to the discharge; the ability of fish to move away from the discharge plume and the potential for toxic impacts to occur from contingent treated seawater discharge potential impacts are considered to be localised and short-term with no lasting effect at the population or bioregional scale.

Fish are perhaps most susceptible in their early life stages, particularly during egg and planktonic larval stages. Six key indicator commercial fish, and spawning depth ranges / seasonality, on the NWS are as follows:

- red emperor – depth range 10–180 m, spawns Sept–June (bimodal peaks Sept–Nov and Jan–Mar);
- Rankin cod – depth range 10–150 m, spawns June–Dec and Mar (peak Aug–Oct);
- goldband snapper – depth range 50–200 m, spawns Oct–May;
- bluespotted emperor – depth range 5–110 m, spawns Jul–Mar;
- ruby snapper – depth range 150–480 m, spawns Dec–Apr (peak Jan–Mar); and
- Spanish mackerel – depth range 1 m to at least 50 m, spawns Sept–Jan.

The Operational Area overlaps the depth ranges for these key indicator commercial fish species, and the timing of activities means that there would be overlap with peak spawning periods for a number of these species. However, it is believed that all of these species undergo group spawning throughout their range, rather than aggregating at specific locations. Therefore, that treated seawater is discharged impacts to fish spawn would be limited to a localised area around the discharge location and not expected to have a substantial adverse effect on the population.

In the event of Trunkline repairs along the trunkline route, discharge volumes of treated seawater will be limited to the length of pipeline requiring dewatering and will similarly result in a temporary reduction in water quality with negligible effect to protected fauna. In the unlikely event of a discharge located in the humpback whale migration BIA, pygmy blue whale migration BIA or interesting BIAs and Habitat Critical for a number of marine turtle species, during the migration / nesting season, potential impacts to protected marine fauna are highly unlikely given the potential toxicity, temporary nature of the discharge and transient nature of marine fauna.

Stochastic and deterministic modelling indicates that potential impacts to protected marine fauna, as well as pelagic or demersal fish species from Trunkline repair discharges are expected to be confined to the vicinity of discharge point.

KEFs

The Exmouth Plateau, Continental Slope Demersal Fish Communities and Ancient coastline at 125 m depth contour KEFs overlap the PAA. Discharge locations for hydrocarbons and chemicals are either at the subsea valves (subsea control fluid) or at dis/connection points in subsea infrastructure and therefore limited to the Offshore Operational Area, which overlaps the Exmouth Plateau KEF. There is potential for cement discharges associated with span rectification of the export trunkline within the three KEFs. There is potential for slight, short-term decrease in water quality and adverse effects on marine biota as a result of planned routine and non-routine hydrocarbon, chemical and cement discharges within the KEFs. However, these potential impacts will be highly localised and are unlikely to impact the

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Detailed Impact Assessment

ecological value of the KEFs (as described in Section 4.7). As such, the impact significance level for KEFs has been identified as Slight (E).

KEFs – Contingent Trunkline FCGT and dewatering discharges

The FCGT discharge location at the PLET occurs within the Exmouth Plateau KEF. The Exmouth Plateau is defined as a KEF as it is a unique seafloor feature with ecological properties of regional significance, which apply to both the benthic and pelagic habitats within the feature. Therefore, as a result of a change in sediment quality and/or water quality, potential impacts to this KEF may occur. Values of the Exmouth Plateau with the potential to be affected by dewatering is limited to impacts to benthic environments containing low habitat heterogeneity within the plume. There is no solids component in the discharge, and therefore no smothering or alteration of the seabed is expected to occur.

The seafloor composition within the area of the dewatering discharge is expected to primarily be mud and clay material. Survey of the plume area identified the seafloor to contain sparse marine life dominated by motile taxa typical of deep-water soft substrates (ERM, 2013; DEWHA, 2008).

The Trunkline Project Area has a minor overlap with the Continental Slope Demersal Fish Communities KEF at ~KP 200 for about 9 km (<0.05% overlap), and with the Ancient Coastline at 125 m depth contour KEF at ~KP190 for about 3 km (0.03% overlap). The Ancient Coastline KEF includes areas of hard substrate, and higher diversity and species richness relative to surrounding areas of predominantly soft sediment. The submerged coastline may facilitate mixing of the water column enhancing productivity. Combined with greater diversity of sessile benthic organisms, this may increase abundance of pelagic species such as fishes and cetaceans, impacts to which are discussed above. The Continental Slope Demersal Fish Communities KEF represents high levels of endemism of demersal fish species. Based on the assessment above, in the unlikely event of Trunkline repair discharges within a KEF - potential impacts to the values of the KEF would be highly localised to the Trunkline Project Area and temporary in nature as the treated seawater disperses within the water column.

Impacts from contingent discharges of treated seawater will have no lasting effect on KEFs.

Australian Marine Parks

The Trunkline Operational Area intersects the Montebello AMP (Multiple Use Zone (VI)) between KP 109 to KP191. There is potential for minor cement discharges associated with span rectification of the export trunkline (if required) within the AMP, which may result in a short-term decrease in water quality and localised adverse effects on marine biota. However, these potential impacts will be highly localised and are unlikely to impact the ecological value of the AMP (as described in Section 4.8). As such, the impact significance level for AMPs has been identified as Slight (E).

AMPs – Contingent Trunkline FCGT and dewatering discharges

There is potential for contingent FCGT / dewatering discharges to occur within the Montebello Marine Park, should Trunkline damage occur at this location. The maximum discharge volume would be ~210,000 m³ based on the trunkline length at KP 190. As described above, chemical concentrations resulting from a discharge can be expected to drop below the 99% species protection level within ~1-2 km of the discharge location. The North-west Marine Parks Network Management Plan (DNP, 2018a) lists the natural values of the Montebello AMP as including a range of threatened, migratory, marine or cetacean species listed under the EPBC Act. Potential impacts to benthic communities and marine fauna are assessed above. Impacts are predicted to have no lasting effect due to the one-off nature of the discharge and rapid dispersion of the treated seawater. Even if more than one discharge was to occur in the AMP there is no potential for cumulative impact given the chemical additives will degrade and dilute rapidly following discharge, with no predicted accumulation within seabed sediments. Potential impacts to the natural values of the AMP are a magnitude of 'no lasting effect'.

Changes to the functions, interests or activities of other users – Contingent Trunkline FCGT and dewatering discharges

The NWSTF is the only Commonwealth-managed fishery expected to be active within the PLET discharge location. Given the water depth of the full Trunkline discharge location (about 1400 m) and the temporary nature and rapid dilution of the discharge, impacts from the discharge of treated seawater such as changes to the functions, interest or activities of Commonwealth are unlikely.

Similarly, FCGT / dewatering discharges near the State waters boundary overlaps the State-managed fisheries, however given the rapid dilution of the discharge and hence duration of exposure, impacts are considered unlikely. In the event of trunkline repairs along the trunkline route, the presence of dewatering fluids will be temporary and disperse rapidly in the water column.

In general, given the oceanic locations and the localised and temporary nature of the contingent treated seawater discharges, exposure to fisheries is considered negligible.

Summary of Assessment Outcomes

<i>Receptor</i>	<i>Impact</i>	<i>Receptor Sensitivity Level</i>	<i>Magnitude</i>	<i>Impact Significance Level</i>
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Detailed Impact Assessment				
Water quality	Change in water quality	Low value (open water)	No lasting effect	Slight (E)
Sediment quality	Change in sediment quality	Low value	No lasting effect	Negligible (F)
Plankton	Injury/mortality to fauna	Low value (open water)	No lasting effect	Negligible (F)
Epifauna and infauna	Injury/mortality to fauna	Low value (open water)	No lasting effect	Negligible (F)
Fish, sharks and rays	Injury or behavioural changes to marine fauna	High value species	No lasting effect	Slight (E)
Marine mammals		High value species	No lasting effect	Slight (E)
Marine reptiles		High value species	No lasting effect	Slight (E)
KEFs	Change in habitat	High value habitat	No lasting effect	Slight (E)
AMPs	Change in habitat	High value habitat	No lasting effect	Slight (E)
Overall Impact Significance Level: The overall impact significance level for planned routine and non-routine hydrocarbon and chemical discharges is E based on no lasting effect to marine fauna. The impact significance level for water quality is consistent with the level rated in the Scarborough OPP.				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.	F: Yes. CS: Minimal cost. Standard practice.	Environmental assessment of chemicals in discharges will reduce the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.	Benefits outweigh cost/ sacrifice.	Yes C 8.4
Subsea infrastructure flushed where practicable prior to disconnection to reduce volume/concentration of hydrocarbons released to the environment.	F: Yes. Subsea infrastructure has been designed such that much of the hydrocarbon containing elements can be flushed back to the FPU. CS: Minor. Flushing may prolong the cessation of production required for subsea IMMR activities, leading to reduced production.	Flushing reduces the volumes/concentration of hydrocarbons released to the environment.	Benefit outweighs cost sacrifice.	Yes C 11.1

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Limit volume of subsea control fluid discharged to the marine environment through monitoring subsea control fluid use and investigating discrepancies.	F: Yes. The use of control fluid is monitored to maintain adequate fluid in the system. CS: Minimal cost.	Limits the volumes of subsea control fluid discharged to the marine environment.	Benefit outweighs cost sacrifice.	Yes C 11.2
Implement Woodside Engineering Operating Standard – Subsea Isolation). Proven isolation in place for relevant IMMR activities.	F: Yes CS: Minimal cost. Standard practice.	Maintaining and testing the ability to isolate wells and export trunklines will ensure barriers are in place and verified limiting the volume of hydrocarbon released.	Control is a WMS requirement – must be adopted.	Yes C 11.3
Chemicals used to treat hydrotest water will be Hazard Quotient Colour Band 'Gold' (or OCNS Grouping E) with no substitution or product warnings	F: Yes. CS: Minimal cost. Standard practice.	By limiting hydrotest chemicals to Hazard Quotient Colour Band 'Gold' (or OCNS Grouping E) consequence of impacts can be reduced to ALARP. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes C 11.4
Implement post discharge study if FCGT/dewatering carried out in the Montebello Marine Park which includes: <ul style="list-style-type: none"> Water sample collection at the discharge location Undertake hindcast modelling based on discharge concentration Confirm EPO 33 and 34 have been met 	F: Yes CS: monetary cost of monitoring activities (i.e. equipment, vessel hire, sample analysis), logistics of sample collection or monitoring equipment deployment (i.e. use of ROV, transport of samples to shore for analysis) and expertise required to develop an effective sampling program for dynamic, open ocean discharge environment.	Post discharge monitoring for contingent FCGT/dewatering recovery can serve to validate discharge modelling and impact predictions. In locations such as the Montebello Multiple Use Zone, monitoring can aid in showing impact meets requirements of the Northwest Marine Parks Network Management Plan	Benefits outweigh cost/sacrifice in the Montebello Multiple Use Zone	Yes C 11.5
If contingent Trunkline dewatering occurs at the PLET, Allow time (3 days) between FCGT/dewatering and hydrotest discharges to allow for concentrations to fall below defined 99% species protection level	F: Yes CS: Cost may be incurred depending on schedule	Avoids environmental concentration of additives becoming cumulative	Benefits outweigh cost/sacrifice.	Yes C 11.6

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
Installing closed-loop subsea valve control system.	F: Yes. Closed-loop subsea valve control systems can be installed; however, they may not perform as quickly/reliably as open-loop systems. CS: Significant. The design, procurement and retrofitting of a closed-loop valve control system would result in considerable offshore logistics, exposure to safety hazards during installation, and significant financial burden through direct costs and lost production.	The potential consequence of the discharges is ranked as incidental, based on the volume, frequency, location, and types of fluid discharged in an open-ocean environment, and avoiding the discharges would provide little or no environmental benefit.	When considering the negligible effect from the release of control fluids, the risk and costs of retrofitting a closed-loop subsea valve control system is considered to be grossly disproportionate to the environmental benefit.	No
Professional Judgement – Engineered Solution				
Routing hydrocarbons to vessel during disconnection of subsea infrastructure.	F: Yes. However, to do so would introduce significant safety risks to the vessel crew (fire, explosion, asphyxiation). CS: Significant. Equipping and training crew on-board Support Vessels to safely route hydrocarbons to the vessel would result in significant additional costs (in addition to the increased safety risk identified above).	Small environmental benefit from preventing low concentration hydrocarbon discharge.	Given the increased safety risk and the very low environmental impact from hydrocarbon releases during subsea IMMR activities, the cost of routing hydrocarbons to the vessel is grossly disproportionate to the environmental benefit.	No
Decreasing the frequency of valve actuation.	F: Yes. However, decreasing the frequency of valve actuation may adversely impact the safe functionality and reliability of valves. Reducing the performance of subsea valves may introduce operability impacts, and increased safety and	The potential consequence of the discharges is ranked as incidental, based on the volume, frequency, location and types of fluid discharged in an open-ocean environment, and reducing the number of discharges would provide little or no environmental benefit.	Decreasing the frequency of valve actuations would lead to a potential decrease in safe functionality and reliability of valves. When considering the potential safety and	No

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
contingent trunkline dewatering will be limited to planned activities and impacts described as part of the Petroleum Activities Program.	C 11.1 Subsea infrastructure flushed where practicable during IMMR intervention activities to reduce volume/concentration of residual hydrocarbons/chemicals released to the environment.	PS 11.1.1 Producing subsea infrastructure containing gas flushed to facility (where practicable) to a hydrocarbon concentration where further dilution provides disproportionate cost to environmental benefit, prior to disconnection.	MC 11.1.1 Records demonstrate subsea infrastructure flushing (to facility) where practicable.
	C 11.2 Limit volume of subsea control fluid discharged to the marine environment through monitoring subsea control fluid use and investigating discrepancies.	PS 11.2.1 Subsea control fluid discharges will be monitored reconciliation process whereby actual usage is considered against expected usage, to identify losses not associated with valve actuation.	MC 11.2.1 Records show subsea control fluid discharges are monitored through subsea control fluid use and losses not associated with valve actuation have been investigated.
	C 11.3 Implement Woodside Engineering Operating Standard – Subsea Isolation). Proven isolation in place for relevant IMMR activities.	PS 11.3.1 The Woodside Engineering Operating Standard – Subsea Isolation) will be implemented. Proven isolation in place for relevant IMMR activities. Proven isolation in place in compliance with Woodside Engineering Operating Standard – Subsea Isolation.	MC 11.3.1 Records demonstrate the Woodside Engineering Operating Standard – Subsea Isolation) is implemented. Records demonstrate that there was a proven isolation in place as required.
	C 11.4 Chemicals used to treat hydrotest water will be Hazard Quotient Colour Band ‘Gold’ (or OCNS Grouping E) with no substitution or product warnings	PS 11.4.1 Chemicals used to treat hydrotest water (i.e. oxygen scavenger, biocide, dye) will be Hazard Quotient Colour Band ‘Gold’ (or OCNS Grouping E) with no substitution or product warnings	MC 11.4.1 Records demonstrate chemicals used to treat hydrotest water Hazard Quotient Colour Band ‘Gold’ (or OCNS Grouping E) with no substitution or product warnings
	C 11.5 Implement post discharge study if FCGT/dewatering carried out in the Montebello Marine Park which includes: <ul style="list-style-type: none"> • Water sample collection at the discharge location • Undertake hindcast modelling based on discharge concentration • Confirm EPO 33 and EPO 34 have been met 	PS 11.5.1 Implement post discharge study should FCGT/ dewatering discharges occur in the Montebello Marine Park	MC 11.5.1 FCGT/dewatering discharge dilution study report

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	<p>C 11.6 If contingent Trunkline dewatering occurs at the PLET, allow time (3 days) between dewatering and hydrotest discharges to enable chemical concentrations to fall below defined 99% species protection level.</p>	<p>PS 11.6.1 3 days (72 hrs) elapsed between dewatering and hydrotest discharge if carried out at the PLET location.</p>	<p>MC 11.6.1 Records demonstrate time lapse between discharges</p>

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6.7.13 Routine and Non-routine Discharges: Floating Production Unit and Subsea Commissioning and Initial Start-up

Scarborough OPP – Relevant Impact Assessment Section														
Scarborough OPP Section 7.1.12 – Routine and Non-routine Discharges: Subsea Installation and Commissioning														
Context														
Relevant Activities FPU Installation and Hook-Up – Section 3.6 Commissioning – Section 3.7.3 Initial Start-Up – Section 3.8				Existing Environment Regional Context – Section 4.2 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6				Consultation Consultation – Section 5						
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Discharge of fluids during FPU commissioning and initial start-up activities to the marine environment		✓	✓		✓	✓		A	E	-	-	LCS GP PJ	Broadly Acceptable	EPO 19
Discharge of fluids during subsea infrastructure commissioning and initial start-up activities to the marine environment		✓	✓		✓	✓		A	E	-	-			
Description of Source of Impact/Risk														
<p>Routine and non-routine discharges will occur during commissioning and initial start-up of the subsea production/export systems and FPU. Discharges will be limited to the Offshore Operational Area. Discharges during this phase will, at times, include those as per normal operations, which are described and assessed in Section 6.7.10, Section 6.7.11, Section 6.7.12 and Section 6.7.12. This section is applicable to activities prior to steady-state operation of the produced water system. The system is considered to be in “steady-state” once routine discharge commences, and contaminant concentrations and discharge volumes are seen to remain steady. Post start-up, a period is required to optimise the PW treatment system and to understand how it operates and reacts to changes in the process (pressures, chemical concentrations, flow rates). It is expected that this will take approximately 6 months, in-line with the expected initial start-up duration.</p> <p>Subsea Commissioning</p> <p>Subsea infrastructure will be pre-installed (under a separate EP) and left flooded with treated seawater/freshwater, with chemical additives including corrosion inhibitor, biocide, oxygen scavenger and dye. The volumes and concentrations of the injected chemicals will be monitored and total chemical use measured. Following the connection of all mooring lines to the FPU, the subsea infrastructure will be pulled-in, hooked-up to the FPU and dewatered. Dewatering of the production and export systems will be performed from FPU end of the risers using a Nitrogen dewatering spread. Dewatering of risers, manifold and spool will result in multiple discharges subsea, including:</p> <ul style="list-style-type: none"> dewatering of production flowlines and risers: 6500 m³ (filtered and treated seawater; 600 ppm preservation fluid; split across multiple discharges) dewatering of export risers and spool: 1,100 m³ (filtered and treated seawater; 600 ppm preservation fluid; split across multiple discharges), 0.1 m³ (MEG from jumper hose) pigs for dewatering: 250 m³ filtered and treated freshwater, 40 m³ MEG, and glycol-based gel HP cap installation: 10 m³ filtered and treated seawater, 300 m³ MEG. 														

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Additional volumes of filtered and treated seawater/freshwater, MEG or glycol-based gel may be discharged if additional flushing is required due to damage or contamination during installation or hook-up (e.g. approximately 2,200 m³ filtered and treated seawater, 80 m³ filtered and treated freshwater, and 15 m³ MEG if a full flowline replacement was required).

Cold commissioning of the subsea infrastructure will involve testing of subsea controls communications from the FPU to the subsea control modules, in order to confirm system readiness for hydrocarbon introduction. It is an open-loop system, designed to release control fluid from the control system during valve operations (up to about 20 L per XT sweep).

FPU Commissioning

The FPU commissioning process involves activities to confirm the integrity of the interconnected facility, so it is RFSU with the introduction of reservoir hydrocarbons. Treated water may be discharged during planned commissioning activities (~200 m³ total). Unplanned discharges may eventuate from scenarios such as contamination, ineffective equipment preservation or unplanned maintenance. Fluids suitable for discharge will be over boarded or routed through the produced water treatment system, while fluids not suitable for discharge (e.g. waste oil) will be captured in a tank and transported onshore.

Facility Initial Start-up

After the FPU achieves RFSU and before a steady state of production can be achieved, an initial start-up period is required to allow clean-up of the wells and to introduce hydrocarbons to the topsides equipment and pressurise the export trunkline. Discharges during the initial start-up will occur via the same process as described in Section 6.7.11. PWT contaminant removal is expected to be at full efficiency during the start-up period and therefore contaminant concentrations at the outlet of the PWTP will be aligned to those in operations (see Section 6.7.11), although there may be short term peaks in contaminant values as equipment is brought online for the first time, but this is not expected, based on the system design (see Section 6.7.11 for discharge modelling).

During the well clean-up process, rich MEG coming onto the FPU from the online flowline will be contaminated with residual drilling and completions fluids. All dirty MEG will be held in a rich MEG tank and then either reclaimed (processed) onboard or send onshore. Criteria for reclamation will be based on whether the MEG is contaminated enough to impact the MRU. If the MEG is reclaimed onboard, the standard MEG reclamation process will be applied and subsequent PW discharges may contain additional contaminants from the drilling and completions process. These substances have been assessed in accordance with Woodside’s chemical assessment and selection framework under the Scarborough Drilling and Completions EP.

In the unlikely scenario where a well produces formation water during clean up, the formation water and well clean up liquids will be sent to a dedicated tank (base case for all well clean up liquids). If a well is identified to be producing formation water, it is expected that it will be immediately shut-in. In the unlikely event that a water-producing well was kept online for an extended period, the formation water would either be segregated with the other well clean up liquids (for disposal onshore) or alternatively, be sent to a rich MEG tank for processing and discharge as per the usual process. The formation water would only be discharged if it was on spec with the alternative being to re-direct it inboard to the rich MEG tanks if off-spec.

As the initial start-up progresses, the MRU will be brought online and uncontaminated MEG from cleaned-up wells will be directed to the MRU for treatment as per normal operations. It is expected that normal operation discharge limits will be achieved.

Monitoring and Management

During initial start-up, a laboratory technician and temporary laboratory will be located on the facility in order to manually calibrate and measure OIW levels. Samples of PW will be analysed for OIW and MEG content daily which can be performed onboard. Due to the more specialised equipment required, mercury analysis is performed onshore weekly. High OIW, MEG and mercury readings will be managed as per Section 6.7.11.

Discharge of Treated Ballast Water from the FPU

On first arrival and following hook-up, ballast water may be discharged from the FPU to the marine environment. This water will be a combination of:

- fresh or treated water taken onboard in China prior to sail down
- seawater taken onboard in high seas, which is filtered and dosed with hypochlorite to 2 mg/L on intake
- local seawater taken onboard in/around Scarborough field location, also filtered and dosed with hypochlorite to 2 mg/L on intake.

Discharges to the Marine Environment May Include Hypochlorite and Particles

During operations, ballast water may infrequently need to be taken onboard from the surrounding marine environment and eventually discharged to maintain FPU stability. This local water will be dosed with hypochlorite at a rate of 2 mg/L, which will degrade over time.

Detailed Impact Assessment

Assessment of Potential Impacts

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Detailed Impact Assessment

Impacts assessed in this section relate to commissioning/start-up specific discharges only. Discharges during these phases that align with normal Operations are assessed in Section 6.7.11.

Water and Sediment Quality

The presence of chemical additives in discharged fluids are expected to degrade, decay, dilute and disperse once released due to the open oceanic waters of the Offshore Operational Area. The discharges for subsea infrastructure are expected to remain close to the seabed which means the temporary change in water quality will be restricted to deep waters, while the discharges from topsides are expected to remain close to the surface (RPS, 2023) which means the temporary change in water quality will be restricted to surface waters. As such, the discharges are expected to result in a temporary decline in water quality around the discharge locations, with no lasting effect on water quality predicted.

As the discharge plumes from subsea infrastructure are expected to remain close to the seabed, a temporary change in sediment quality may occur. However, due to rapid dispersion of the discharge fluids, the chemical additives will degrade and dilute rapidly following discharge with no predicted accumulation within seabed sediments, as such no lasting effect on sediment quality is predicted. The modelling suggests that discharges from topsides will not reach the seabed due to the water depth at which the FPU operates (952 m), and the dispersive nature of PW discharges in a high energy offshore marine environment such as the Offshore Operational Area. The maximum depth of the plume is predicted to be approximately 23 m (RPS, 2023). Overall, the impact significance level for water and sediment quality has been identified as Negligible (F).

The release of treated ballast water during FPU installation may result in an increase in the turbidity of the receiving waters close to the point of discharge. Ballast water discharges will include low residual hypochlorite concentration which is expected to rapidly disperse and degrade locally when discharged. The addition of these substances into the marine environment could alter ambient water quality; however, these discharges will dilute rapidly, with concentrations significantly dropping with distance from the discharge point. Impacts from non-routine discharges from ballast water on water quality will have a slight effect on water quality around the FPU due to the nature of discharges, which will occur in an approved mixing zone, with a high level of dilution into the open water marine environment of the PAA. As such, the impact significance level for water quality has been identified as Negligible (F).

Plankton

A change in water quality has the potential to result in localised injury or mortality of planktonic species in the water column due to toxicity. Ichthyoplankton (eggs, larvae) are the most susceptible organisms to chemical exposure, as they have limited mobility and thus likely to be exposed to discharge plumes if present. These organisms however, have a high natural mortality and rapid replacement rate and are therefore likely to recover after the discharge ceases.

Some discharges during FPU commissioning and initial start-up activities will occur close to the seafloor in water depths of 900 to 1000 m. Given phytoplankton and zooplankton are generally limited to near-surface waters (i.e., the photic and meso-photoc zones) no lasting effect on plankton is expected from these sources. In terms of topsides discharges, as described by Falkner et al. (2009), the centre of the Exmouth plateau is characterised by moderate seafloor temperatures and low primary productivity. Therefore, while the discharge is to occur within the Exmouth Plateau KEF, this is at a significant distance (>150 km) from the periphery of the plateau that has been identified as having increased productivity (Brewer et al., 2007; Falkner et al., 2009). Consequently, it is not anticipated that this discharge will result in impacts to the ecological integrity of the KEF. As such, the impact significance level for plankton has been identified as Negligible (F).

Epifauna and infauna

As a result of a change in sediment or water quality, localised impacts to benthic habitat receptors may occur. This may include sub-lethal effects or mortality to benthic epifauna and infauna resulting from the increased (water) or accumulation of (sediment) potential contaminants and toxins. Epifauna and infauna sensitivity to discharged fluids is expected to be similar to pelagic invertebrate species such as plankton. Benthic infauna and epifauna communities in the Offshore Operational Area are primarily soft sediment communities featuring burrowing organisms. No primary producer communities (hard corals, seagrass, macroalgae) are present due to the lack of light.

There is potential for a localised area of epifauna to be exposed to lethal and sub-lethal concentrations in the immediate vicinity of release locations. However, due to rapid dispersion of the discharged fluids, uptake and bioaccumulation of contaminants is not expected to occur in sediments or benthic organisms beyond the point of release. The extent of seabed exposure at levels where impacts could occur will be very small, and potential impacts are expected to be localised, temporary and negligible. Impacts from discharged fluids will have no lasting effect on epifauna and infauna. There are no variations in seasonal sensitivity in relation to epifauna and infauna that would influence the effect of the discharges. As such, the impact significance level for Epifauna and Infauna has been identified as Negligible (F).

Marine Fauna

The Offshore Operational Area does not overlap any BIAs for protected marine fauna and given the temporary nature of the discharges, impacts to protected species are not expected. The deep water and predominantly featureless, flat soft sediment seabed in the Offshore Operational Area is of low complexity and low productivity (see Section 4.5) and reduces the species diversity and richness of pelagic and demersal fish assemblages. Potential impacts to pelagic or demersal fish species from discharged fluids are expected to be confined to the vicinity of discharge point. Fish are likely to be transient within the receiving environment adjacent to the discharge location, and as such are unlikely to be

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Detailed Impact Assessment				
<p>exposed to sufficient concentrations or durations of the discharge constituents to elicit a response. Furthermore, fish and other marine fauna have the capacity to adapt their behaviour in response to changes in environmental conditions and can be expected to move away from the discharge if exposed. Given the low likelihood of pelagic species being exposed to the discharge; and the ability of fish to move away from the discharge plume, the potential for toxic impacts to occur from the temporary and small volumes of discharged fluids are considered to be localised, short-term and no lasting effect at the population or bioregional scale. Overall, the impact significance level for Marine Fauna has been identified as Slight (E).</p> <p>KEFs</p> <p>The Offshore Operational Area is located within the Exmouth Plateau KEF. The Exmouth Plateau is defined as a KEF as it is a unique seafloor feature with ecological properties of regional significance, which apply to both the benthic and pelagic habitats within the feature. Values of the Exmouth Plateau with the potential to be affected by discharged fluids is limited to localised impacts to benthic environments containing low habitat heterogeneity. There is no solids component in the discharges, and therefore no smothering or alteration of the seabed is expected to occur. A temporary change in sediment quality may occur as a result of discharges made close to the seabed.</p> <p>The seafloor composition within the area of discharge is expected to primarily be mud and clay material. Impacts from the temporary and small volumes of discharged fluids will have no lasting effect on the KEF. As such, the impact significance level for KEFs has been identified as Slight (E).</p>				
Summary of Assessment Outcomes				
Receptor	Impact	Receptor Sensitivity Level	Magnitude	Impact Significance Level
Water quality	Change in water quality	Low value (open water)	No lasting effect	Negligible (F)
Sediment quality	Change in sediment quality	Low value	No lasting effect	Negligible (F)
Plankton	Injury/mortality to fauna	Low value (open water)	No lasting effect	Negligible (F)
Epifauna and infauna	Injury/mortality to fauna	Low value (open water)	No lasting effect	Negligible (F)
Fish, sharks and rays	Injury or behavioural changes to marine fauna	High value species	No lasting effect	Slight (E)
Marine mammals		High value species	No lasting effect	Slight (E)
Marine Reptiles		High value species	No lasting effect	Slight (E)
KEFs	Change in habitat	High value habitat	No lasting effect	Slight (E)
<p>Overall Impact Significance Level: The overall impact significance level for routine and non-routine discharges during FPU start-up and commissioning activities is E based on slight effect to high value receptors (marine fauna and KEFs). The impact significance level for water quality is consistent with the level rated in the Scarborough OPP. Potential impacts to marine fauna have been additionally assessed in this EP. There is no change in magnitude of impact (no lasting effect).</p>				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.	F: Yes. CS: Minimal cost. Standard practice.	Environmental assessment of chemicals in discharges will reduce the consequence of impacts resulting from discharges to the marine	Benefits outweigh cost/sacrifice.	Yes C 8.4
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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		environment by ensuring chemicals have been assessed for environmental acceptability. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.		
The online analyser is calibrated with a manual sample in accordance with Offshore Laboratory Determination of Oil in Water Standard Operating Procedure.	F: Yes. CS: Monitoring and implementation costs. Standard practice	Calibration of equipment to maintain quality control.	Calibrations undertaken at appropriate frequency to maintain quality control and in line with procedures.	Yes C 10.5
Monitoring of OIW concentrations at outlet of PWTP in accordance with PARCOM 1997/16 Annex 3 methodology. <ul style="list-style-type: none"> Limiting average OIW to less than 30 mg/L, 24 hr rolling average during FPU initial start-up 	F: Yes CS: Minimal cost, standard practice. The 30 mg/L limit (over a rolling 24-hour period) proposed is a legacy of the former Environment Regulations 29 and 29A repealed in 2014. It is also aligned with the equipment vendor performance guarantee. Reduction of this limit is not considered feasible or practicable during facility initial-start up. The current limit is effective in managing potential impact of PW discharge.	Limiting OIW concentrations within PW reduces impacts to the environment. Dedicated produced water treatment ALARP demonstration workshops and reports mean that OIW concentrations are ALARP.	Benefits outweigh cost/sacrifice	Yes C 12.1
Monitor PW discharges for OIW content and implement appropriate management actions if required.	F: Yes. CS: Monitoring costs. Standard practice.	Increased manual OIW monitoring frequency will ensure operational issues are detected rapidly. The OMDAMP monitoring is designed to detect if 99% species protection is achieved at the approved mixing zone boundary and condensed water discharge zone boundary. Through the implementation of the OMDAMP, potential risks to the environment are reduced.	Benefits outweigh cost/sacrifice	Yes C 12.2

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Procedural controls in place to monitor mercury concentration and prevent discharge of PW with high mercury concentrations.	F: Yes. CS: Monitoring and implementation costs. Standard practice	Manual sampling during commissioning and intervention visits provides process control and safeguarding to monitor, control and prevent discharge of PW with high mercury concentration to the marine environment.	Minor additional cost to resource manual sampling is proportionate to the environmental benefit during start-up and operation of the Scarborough wells.	Yes C 10.6
Online monitoring and/or procedural controls in place to monitor and control PW discharge volume and OIW concentrations and prevent discharge of PW with high OIW concentrations through OIW analyser, or off spec/outage procedures.	F: Yes. CS: Minimal cost. Standard practice.	The OIW analysers and flow meter provides optimal process control and safeguarding to monitor, control and prevent discharge of PW with high OIW concentration to the environment.	Online monitoring control is WMS requirement – must be adopted. Minor additional cost to resource manual sampling is proportionate to the environmental benefit during start-up of the Scarborough wells.	Yes C 10.3
Professional Judgement – Eliminate				
No subsea discharges to be released to the marine environment	F: Not feasible. Commissioning discharges are required to ensure verification of structural integrity is achieved. CS: Not considered, control not feasible.	Not considered – control not feasible.	Not considered – control not feasible	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement: On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.3), Woodside considers the adopted controls appropriate to manage the impacts of planned routine and non-routine discharges during FPU start-up and commissioning activities. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

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Demonstration of Acceptability

Acceptability Criteria and Assessment

The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):

- Overall impact significance level for water quality is consistent with the level rated in the Scarborough OPP. As discussed above, potential impacts to marine fauna have been additionally assessed in this EP. There is no change in magnitude of impact (no lasting effect); however, the impact significance level is slightly higher due to the higher receptor sensitivity level. This is not considered a significant change to the overall environmental impact and risk assessed in the Scarborough OPP.
- EPOs and controls in the Scarborough OPP that are relevant to routine discharges have been adopted.
- There are no changes to internal/external context specific to this risk from the Scarborough OPP, including issues raised during consultation.

Acceptability Statement:

The impact assessment has determined that, given the adopted controls, routine and non-routine discharges during FPU start-up and commissioning activities are unlikely to result in an impact significance level greater than Slight. No BIAs for EPBC Act listed Threatened or Migratory species overlap the Offshore Operational Area (refer to Section 4.6). The adopted controls are considered consistent with industry legislation, codes and standards, and professional judgement.

The potential impacts are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (**Section 2.4.2**). Therefore, Woodside considers the adopted controls appropriate to, manage the impacts of these discharges to a level that is broadly acceptable; and demonstrate the EPOs are met.

Environmental Performance Outcomes, Standards and Measurement Criteria

EPO	Adopted Control(s)	EPS	MC
EPO 19 Impacts from routine and non-routine discharges from FPU and Subsea Commissioning and Initial Start-Up will be limited to planned activities and impacts described as part of the Petroleum Activities Program.	C 8.4 Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.	PS 8.4.1 Refer to Section 6.7.9	MC 8.4.1 Refer to Section 6.7.9
	C 10.5 The OIW online analyser is calibrated with a manual sample in accordance with <i>Offshore Laboratory Determination of Oil in Water Standard Operating Procedure</i> .	PS 10.5.1 Refer to Section 6.7.11 .	MC 10.5.1 Refer to Section 6.7.11 .
	C 12.1 Monitoring of OIW concentrations at outlet of PWTP in accordance with PARCOM 1997/16 Annex 3 methodology. <ul style="list-style-type: none"> • Limiting average OIW to less than 30 mg/L, 24 hr rolling average during FPU initial start-up 	PS 12.1.1 During FPU initial start-up (refer to Figure 3-4), limit PW OIW to less than 30 mg/L, 24 hr rolling average.	MC 12.1.1 Records demonstrate during initial start-up OIW rolling average limit is not exceeded.
	C 12.2 Monitor PW discharges for OIW content with six-hourly manual sampling, until the system achieves steady state operations.	PS 12.2.1 PW discharges monitored for OIW content with six-hourly manual sampling, until	MC 12.2.1 Records demonstrate routine PW discharges are monitored as required.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
		the system achieves steady state operations.	
	<p>C 10.3</p> <p>Online monitoring and/or procedural controls in place to monitor and control PW discharge volume, OIW concentration, and prevent discharge of PW with high OIW concentration through OIW analyser, or off spec/outage procedures.</p>	<p>PS 10.3.1 (a)</p> <p>Refer to Section 6.7.11.</p>	<p>MC 10.3.1(a)</p> <p>Refer to Section 6.7.11.</p>
	<p>C 10.6</p> <p>Procedural controls in place to monitor mercury concentration and implement adaptive management to prevent discharge of PW with high mercury concentrations:</p> <ul style="list-style-type: none"> • switching mercury adsorption beds as required • off-spec water directed inboard investigation of results 	<p>PS 10.6.2</p> <p>Refer to Section 6.7.11.</p>	<p>MC 10.6.1</p> <p>Refer to Section 6.7.11.</p>

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6.8 Unplanned Activities (Accidents, Incidents, Emergency Situations)

6.8.1 Quantitative Spill Risk Assessment Methodology and Floating Production Unit Significant Environment Event Overview

6.8.1.1 Quantitative Hydrocarbon Spill Modelling

Quantitative hydrocarbon spill modelling was performed by RPS, on behalf of Woodside, using a three-dimensional hydrocarbon spill trajectory and weathering model, SIMAP (Spill Impact Mapping and Analysis Program). The model is designed to simulate the transport, spreading and weathering of specific hydrocarbon types under different environmental conditions (both meteorological and oceanographic). Near-field subsurface discharge modelling was performed using OILMAP, which predicts the droplet sizes that are generated by the turbulence of the discharge as well as the centreline velocity, buoyancy, width and trapping depth (if any) of the rising gas and oil plumes. The OILMAP output parameters were used as input into SIMAP.

The algorithms in the SIMAP model are based on the best available scientific knowledge and are updated when necessary in response to significant advances in knowledge. Recent improvements have been implemented to the entrainment algorithm, which have been adjusted to implement the findings of published data based on field research performed during the Macondo spill event in the Gulf of Mexico (Spaulding et al., 2017; Li et al., 2017; French McCay et al., 2018).

Stochastic modelling was conducted for this study, which compiled data from 200 hypothetical spills under different environmental conditions to determine the widest extent of possible oil dispersion. The environmental conditions for each of the hypothetical spills were selected randomly from an historic time-series of wind and current data representative of the study area. Results of the replicate simulations were then statistically analysed and mapped to define contours of percentage probability of contact at identified thresholds around the hydrocarbon release point. The simulations that show something unusual or unexpected make an important contribution to the overall outcomes and fate of the hydrocarbon.

The model simulates surface releases and uses the unique physical and chemical properties of a representative hydrocarbon type to calculate rates of evaporation and viscosity change, including the tendency to form oil-in-water emulsions. Moreover, the unique transport and dispersion of surface slicks and in-water components (entrained and dissolved) are modelled separately. Thus, the model can be used to understand the wider potential consequences of a spill, including direct contact of hydrocarbons due to surface slicks (floating hydrocarbon) and exposure of organisms to entrained and dissolved aromatic hydrocarbons in the water column. The model also calculates the accumulation of hydrocarbon mass that arrives on each section of shoreline over time, taking into account any mass that is lost to evaporation and/or subsequent removal by current and wind forces.

All hydrocarbons spill modelling assessments performed by RPS undergo initial sensitivity modelling to determine appropriate time to add to the simulation after the cessation of the spill. The amount of time following the spill is based on the time required for the modelled concentrations to practically drop below threshold concentrations anywhere in the model domain in the test cases.

Worst-case Scenario

In assessing the potential impacts of an unplanned hydrocarbon release, representative worst-case scenarios (in terms of volume and location) were assessed. A summary of the credible hydrocarbon spill scenarios that could occur during the Petroleum Activities Program are provided in Table 6-42.

Table 6-42: Credible hydrocarbon spill scenarios

Scenario	Hydrocarbon type	Maximum credible volume	Location
Loss of FPU structural integrity/stability	MDO	467 m ³	FPU, Offshore Operational Area
Vessel collision resulting in rupture of a tank	MDO	400 m ³	Offshore Operational Area
Vessel collision resulting in rupture of a tank	MDO	250 m ³	Trunkline Operational Area
Loss of well integrity	Dry gas	No or negligible liquid hydrocarbon	Well locations, Offshore Operational Area
Pipeline and riser loss of containment	Dry gas	No or negligible liquid hydrocarbon	Offshore Operational Area Trunkline Operational Area
Topsides loss of containment	MDO	220 m ³	FPU, Offshore Operational Area
Loss of containment during bunkering	MDO	50 m ³	Offshore Operational Area Trunkline Operational Area
ASV loss of structural integrity	MDO	Slow leak*	Offshore Operational Area

*Leaking of MDO would occur at a very slow rate and be rapidly diluted in the nearfield water column, resulting in impacts well within those expected from larger instantaneous releases.

For the Petroleum Activities Program, the worst-case spill scenarios were identified to be:

- an instantaneous surface release of 470 m³ of marine diesel, representing loss of the full inventory stored on the FPU as a result of loss of structural integrity within the Offshore Operational Area
- an instantaneous surface release of 250 m³, representing loss of the largest vessel fuel tank integrity (support vessel) following a collision within the Trunkline Operational Area.

The assessment of impacts for the worst-case scenarios will also address the potential impacts of other credible releases with lesser volumes.

To inform the impact assessment, quantitative hydrocarbon spill modelling was undertaken for the worst-case hydrocarbon release scenarios (RPS, 2024).

It is not practicable for spill modelling to be undertaken at every potential release location within the PAA. Release locations were selected by considering locations that would:

- have the greatest potential environmental consequence to the receiving environment (closest to sensitive receptors), and/or
- be considered at greater risk of a spill event occurring.

Accordingly, a release of marine diesel was modelled at three representative locations; one in the Offshore Operational Area (Location 1) and two in the Trunkline Operational Area (Locations 2 and 3) at sensitive locations (Table 6-43). The EMBA has been defined using a combination of modelling from all three locations, as described below.

Table 6-43: Spill locations for marine diesel instantaneous release

Location	Coordinates	Water Depth	Credible Spill Volume	Modelled Spill Volume
Location 1: FPU Location	19° 53' 54.72" S, 113° 14' 19.56" E	953 m	467 m ³	470 m ³
Location 2: Outside Mermaid Sound (State and Commonwealth waters boundary)	20° 21' 3.28" S, 116° 42' 5.58" E	31 m	250 m ³	250 m ³
Location 3: Within the Montebello Australian Marine Park	20° 03' 1.44" S, 115° 31' 35.04" E	74 m	250 m ³	250 m ³

6.8.1.2 Environment that May Be Affected and Hydrocarbon Contact Thresholds

The outputs of the quantitative hydrocarbon spill modelling are used to assess the environmental risk, if a credible hydrocarbon spill scenario occurred, by delineating which areas of the marine environment could be exposed to hydrocarbon levels exceeding hydrocarbon threshold concentrations (outlined in Table 6-44). The summary of all the locations where hydrocarbon thresholds could be exceeded by any of the simulations modelled is defined as the 'environment that may be affected' (EMBA).

As the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean mechanism of transportation, the EMBA combines the potential spatial extent of the different fates. Note, no shoreline accumulation of hydrocarbons above threshold concentrations resulted from the modelled worst-case credible spill.

The EMBA covers a larger area than the area that is likely to be affected during any single spill event, as the model was run for a variety of weather and metocean conditions. The EMBA therefore represents the total extent of all the locations where hydrocarbon thresholds could be exceeded from all modelling runs for each of the three modelled locations. Given the EMBA comprises the results of many individual simulations, the total area covered at the thresholds has been smoothed to create a continuous boundary for the purpose of describing the environment within it (Figure 4-2).

Surface and accumulated shoreline hydrocarbon concentrations are expressed as grams per square metre (g/m²), with entrained and dissolved aromatic hydrocarbon concentrations expressed as parts per billion (ppb). A conservative approach adopting accepted contact thresholds that are documented to impact the marine environment are used to define the EMBA. These hydrocarbon thresholds are described in the following subsections.

Woodside recognises that hydrocarbons may be present beyond the ecological impact EMBA at low concentrations that may be visible but are not expected to cause ecological impacts. The threshold for visible surface oil (1 g/m²) has therefore been used to define an additional boundary within which socio-cultural impacts to the visual amenity of the marine environment may occur. This area is referred to as the socio-cultural EMBA. Any ecological impacts from dissolved and entrained hydrocarbons above prescribed thresholds, as in (Table 6-44), may also result in socio-cultural impacts. Potential impacts to socio-cultural values assessed within these EMBA's include:

- protected areas
- national and Commonwealth Heritage Listed places
- tourism and recreation
- fisheries.

Table 6-44: Summary of environmental impact thresholds applied to the quantitative hydrocarbon spill risk modelling results

Hydrocarbon Type	EMBA				Socio-cultural EMBA
	Surface hydrocarbon (g/m ²)	Dissolved hydrocarbon (ppb)	Entrained hydrocarbon (ppb)	Accumulated hydrocarbon (g/m ²)	Surface hydrocarbon (g/m ²)
Marine Diesel	10	50	100	100	1

6.8.1.3 Surface Hydrocarbon Threshold Concentrations

The spill modelling outputs defined the EMBA for surface hydrocarbons resulting from a spill (contact on surface waters) using a threshold of ≥ 10 g/m² for marine diesel. This threshold is used to define an area within which ecological impacts to the marine environment may occur from surface hydrocarbons. It represents the minimum oil thickness (0.01 mm) at which ecological impacts (e.g. to birds and marine mammals) are expected to occur.

Thresholds for registering biological impacts resulting from contact of surface slicks have been estimated by different researchers at about 10–25 g/m² (French et al., 1999; Koops et al., 2004; National Oceanic and Atmospheric Administration, 1996). Potential impacts of surface slick concentrations in this range for floating hydrocarbons may include harm to seabirds through ingestion from preening of contaminated feathers, or the loss of the thermal protection of their feathers. The 10 g/m² threshold is the reported level of oiling to instigate impacts to seabirds and is also applied to other wildlife, though it is recognised that ‘unfurred’ animals, where hydrocarbon adherence is less, may be less vulnerable. ‘Oiling’ at this threshold is taken to be of a magnitude that can cause a response from the most vulnerable wildlife such as seabirds. Due to weathering processes, surface hydrocarbons will have a lower toxicity due to change in their composition over time. Potential impacts to shoreline sensitive receptors may be markedly reduced in instances where there is extended duration until shoreline contact.

A surface threshold of 10 g/m² represents a ‘dull metallic colour’ (Bonn Agreement, 2015). A lower concentration of 1 g/m² is used to define an area within which social-cultural impacts to the visual amenity of the marine environment may occur. The surface threshold of ≥ 1 g/m² is based on the relationship between film thickness and appearance (Bonn Agreement oil appearance code, 2015), and represents a ‘rainbow sheen’ appearance. This threshold is considered below levels which would cause ecological impacts, and instead represents potential for visual amenity impacts. This threshold area is referred to as the ‘socio-cultural EMBA’.

Table 6-45: The Bonn Agreement oil appearance code

Appearance (following Bonn visibility descriptors)	Mass per area (g/m ²)	Thickness (µm)	Volume per area (L/km ²)
Discontinuous true oil colours	50 to 200	50 to 200	50,000 to 200,000
Dull metallic colours	5 to 50	5 to 50	5000 to 50,000
Rainbow sheen	0.30 to 5.00	0.30 to 5.00	300 to 5000
Silver sheen	0.04 to 0.30	0.04 to 0.30	40 to 300

6.8.1.4 Accumulated Hydrocarbon Threshold Concentrations

Owens et al (1994) define accumulated hydrocarbon < 100 g/m² to have an appearance of a stain on shorelines. French-McCay (2009) defines accumulated hydrocarbons ≥ 100 g/m² to be the threshold that could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat. A threshold of ≥ 100 g/m² has been adopted as the threshold for shoreline

accumulation and has been included in the EMBA. Further, any ecological impacts at the shoreline accumulation threshold may also result in socio-cultural impacts.

6.8.1.5 Dissolved Aromatic Hydrocarbon Threshold Concentrations

Dissolved hydrocarbons present a narcotic effect resulting from uptake into the tissues of marine organisms. This effect is additive, increasing with exposure concentration or with time of exposure (French-McCay, 2002; National Resource Council, 2005). The dissolved aromatic threshold of 50 ppb has been selected as a medium level threshold to approximate the potential toxic effects, particularly sublethal effects to sensitive species, as consistent with the NOPSEMA Oil Spill Modelling Guidance Bulletin (NOPSEMA, 2019).

6.8.1.6 Entrained Hydrocarbon Threshold Concentrations

This threshold is used to define an area within which ecological impacts to the marine environment may occur from entrained hydrocarbons. Therefore, it may also be associated with socio-cultural impacts.

Entrained hydrocarbons present a number of possible mechanisms for toxic exposure to marine organisms. The entrained hydrocarbon droplets may contain soluble compounds, hence have the potential for generating elevated concentrations of dissolved aromatic hydrocarbons (e.g. if mixed by breaking waves against a shoreline). Physical and chemical effects of the entrained hydrocarbon droplets have also been demonstrated through direct contact with organisms; for example, through physical coating of gills and body surfaces, and accidental ingestion (National Research Council, 2005).

The entrained threshold has been selected to be consistent with the NOPSEMA Oil Spill Modelling Guidance Bulletin (NOPSEMA, 2019). An entrained threshold of 100 ppb is considered to be appropriate given the oil characteristics for informing potential impacts to receptors.

6.8.1.7 Scientific Monitoring

A planning area for scientific monitoring is also described in Section 5.8 of Appendix H: Oil Spill Preparedness and Response Mitigation Assessment. This planning area has been set with reference to the low exposure entrained value of 10 ppb detailed in NOPSEMA Bulletin #1 Oil Spill Modelling (2019). This low exposure threshold is based on the potential for exceeding water quality triggers.

A scientific monitoring program would be activated following a Level 2 or 3 unplanned hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. This would consider receptors at risk (ecological and socio-economic) for the entire predicted EMBA and in particular, any identified Pre-emptive Baseline Areas (PBAs) for the worst-case credible spill scenario or other identified unplanned hydrocarbon releases associated with the operational activities.

6.8.1.8 Classification and Analysis of Significant Environment (Process Safety) Events

For Woodside's production facilities, a further level of analysis is undertaken to identify, classify and analyse unplanned events deemed significant environmental (process safety) events (such as those with potential Major consequence, termed MEEs). This extra level of rigour is applied to ensure sufficient controls are in place for risks with potential Level B and above consequences. In the health and safety area, Major Accident Events (MAEs) are identified using a similar process, which supports consistency in managing key risks within Woodside in accordance with Process Safety Risk Management Procedures. Process safety events are defined around the production process equipment to apply good design principles, engineering, operating and maintenance practices. It deals with the prevention and control of events that have the potential to release hazardous materials and energy.

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Woodside defines an MEE as an event with potential environment, reputation (pertaining to environment events), social or cultural consequences of level B or higher as per Woodside's Risk Matrix (Figure 2-3). MEEs are evaluated against credible worst-case scenarios that may occur when all controls are absent or have failed. Some high consequence/low probability significant environment (process safety) events which do not meet the MEE consequence threshold may still undergo additional consequence and probability assessment where they could have a high adverse impact on the Woodside's reputation or relationships with relevant persons, which also supports demonstration of ALARP and acceptable risk levels following application of controls. No MEEs have been identified for Scarborough operations, primarily due the inherently lower risk presented due to Scarborough process fluids being predominantly 'dry' hydrocarbon gas (meaning limited inventories of liquid hydrocarbons in production systems). Nevertheless, Scarborough's assessment and representation of ALARP and Environment Plan controls (EPS) selection is applied for the key significant environment (process safety) events of:

- Vessel Collision
- Loss of FPU/ASV Structural Integrity/Stability
- Loss of Well Containment
- Subsea Equipment and Trunkline Loss of Containment
- FPU Topsides Loss of Containment including Bunkering / Refuelling

These are broadly consistent with assessing and representing MEEs for other Woodside production facilities.

Scenario and risk evaluation includes the potential for interaction and escalation events which could cause one or more significant LOC scenarios.

These risk events are subject to more detailed analysis focussing on understanding cause-outcome pathways for each risk and identifies controls in place to prevent the 'top event' or mitigate the consequences (outcomes). Tables are presented to support ALARP demonstration; illustrating the outcomes of safety in design philosophies applied during project development, such as hierarchy of engineering controls applied, and key integrity, maintenance and operational practices in place during operations to manage risk and includes emergency response in case of unplanned events occurring.

Key integrity controls owned and operated by Woodside are identified as critical technical barriers known as Safety and Environment Critical Elements (SCEs) – further discussed in Section 7.2.8. Each group of safety critical controls is listed under technical or management system Performance Standards with consistent naming conventions used across Woodside's process safety management processes (e.g. pipeline integrity SCEs are captured as P09 – Pipeline / Trunkline Systems). Management system specific measures (such as key standards or procedures) are listed which enables verification of and linking to the relevant sections of Woodside's Management System that supports key barriers. Potential common causes that contribute to significant environment events, or that can result in failure or degradation of the controls in place to protect against these events, include some generic mechanisms of SCE failure.

Critical controls and management system specific measures are set out which support the management of these potential common causes.

ALARP is demonstrated through controls and barriers being analysed for selection based on their independence, prioritised in accordance with the Hierarchy of Controls where controls further up the hierarchy take precedence over controls further down, and further analysed to consider the type of effect the control provides. ALARP controls presented for process safety related unplanned hydrocarbon LOC risks are labelled in accordance with Type of Effect classifications presented in Table 6-46.

Woodside has developed a tailored ALARP position for hydrocarbon spill response, including EPOs, EPSs and MC for preparedness and response. The response arrangements are a mitigative control that applies to all MEEs where a liquid hydrocarbon release may credibly occur. The hydrocarbon spill response arrangements are described in Appendix H: Oil Spill Preparedness and Response Mitigation Assessment.

Table 6-46: Barrier hierarchy and type of effect

Type of Effect	Description
Elimination (Technical)	Elimination controls form the 'first line of defence'. They eliminate the underlying hazard and therefore are the most effective category of control measure. If practicable, they should be selected in preference to any other type, as their existence removes the need for any other controls (e.g. a corrosion-resistant metal could replace the original material of construction).
Elimination (Administration)	
Prevention (Technical)	Prevention controls are intended to remove certain causes of incidents or reduce their likelihood. The corresponding hazard remains, but the frequency of incidents involving the hazard is lowered (e.g. introduction of regular maintenance programs can prevent the development of events involving the hazard). Where hazards and causes could not be 'eliminated', controls are required to prevent them from leading to unwanted events and consequences.
Prevention (Administration)	
Detection (Technical)	Detection controls are those that identify a potentially hazardous scenario (e.g. a change in operating parameters), allowing initiation of procedures or systems to prevent the cause occurring. Controls that detect the occurrence of events are often critical to being able to respond with other control measures that reduce the propagation of the events. Detection controls themselves often provide no actual control other than the awareness of the need to respond.
Detection (Administration)	
Reduction/Control (Technical)	Reduction controls are intended to limit the scale and consequence of incidents. They include systems that detect incidents and take some action (e.g. to reduce the rate of leakage of a toxic gas) and also aspects such as inter-unit separation that prevent escalation of fire and explosion incidents. As there is always potential for controls to fail, additional measures are required to limit the scale and severity of any unwanted event or outcome that may arise, by providing the ability to intervene and limit the propagation of the events.
Reduction/Control (Administration)	
Mitigation (Technical)	Mitigation controls take effect in response to an incident. They include controls that lessen the significance or damage caused by an unwanted event. Such controls only take effect after the hazardous event and outcomes occur. Mitigation controls are generally those designed to protect personnel against the consequences of a hazard or to aid in recovering from the effects of the hazard.
Mitigation (Administration)	

6.8.1.9 Safety and Environment Critical Elements and Technical Performance Standards

Woodside identifies and manages SCEs technical and management system performance standards in accordance with Process Safety Management Procedures, Risk Management Procedures and Change Management Procedures (further described in the implementation strategy in Section 7). SCEs are identified for MAEs and MEEs and significant environment events. An SCE is a hardware control, the failure of which could cause or contribute substantially to, or the purpose of which is to prevent or limit the effect of a MAE, MEE or significant environment event. In addition, Woodside defines Safety and Environment Critical Component (SCC) as an item of equipment or structure forming part of a hardware SCE that supports the SCE in achieving the safety function.

Once an SCE is identified as an MEE barrier for the operated facility, technical performance requirements are developed for the facility SCE in accordance with the Global SCE Performance Standards and process described in the SCE Management Procedure and form the SCE Facility Performance Standard. Each SCE Performance Standard represents a statement of the performance required of an SCE (e.g. functionality, availability, reliability, survivability). SCE Performance Standard requirements are used to establish agreed assurance tasks for each SCE, support the management of operations within acceptable safety and/or environment risk levels, and

ensure continuous management of risk to ALARP. An assurance task is an activity carried out by the operator to confirm that the SCE meets, or will meet, its SCE Performance Standard. Examples of assurance tasks include inspection routines, maintenance activities, test routines, instrumentation calibration, and reliability monitoring.

SCE Facility Performance Standards do not always align directly with EPSs. They are used in conjunction with the WMS to identify and treat potential step-outs from expected controls performance or integrity envelopes and ensure SCE performance can be optimised. Woodside's HSE Event Reporting Guideline describes the process for identifying 'Failure to meet Facility Performance Standard', which is when the SCE does not meet the goal as stated in the relevant Performance Standard. (see Section 7.2.8). Situations where SCEs fail to meet Facility Performance Standards represent a potential increase in risk that, if not addressed immediately, have the potential to result in a significant environment event, or worsen the consequences of one. Recording SCE Failure to Meet Performance Standard Events into the Event Reporting Database is important to highlight risk, investigate causes, ensure risks are managed and meet potentially applicable external reporting requirements. For applicable SCEs, 'Failure to meet Facility Performance Standard' represent scenarios that may fail to achieve an EPS presented in this EP. Failures that continue to pose an increased risk above baseline (e.g. functional objective not able to be remediated in a timely manner) are considered for Recordable reporting. More detail on the SCE and Performance Standards process, and the interrelationships to other parts of the SCE Management Procedures, is described in Section 7.2.8. Safety-critical Management System specific measures are also identified. These are management system components (generally WMS processes) that are key barriers to, or measures for, managing significant environment events.

6.8.2 Unplanned Diesel Release: Vessel Collision

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.2.6 – Unplanned Hydrocarbon Release														
Context														
Relevant Activities Infield Vessel Operations – Section 3.11 FPU and Subsea Installation, Commissioning, Operations and IMMR – Sections 3.6, 3.7, 3.8 and 3.9				Existing Environment Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6 Protected Places – Section 4.8 Socio-economic Environment – Section 4.10					Consultation Consultation – Section 5					
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Loss of hydrocarbons to marine environment in the Trunkline Operational Area due to a vessel collision (with Project Vessels or third party vessels)			✓		✓	✓	✓	A	D	1	M	LCS GP PJ RBA	Broadly Acceptable	EPO 20
Loss of hydrocarbons to marine environment in the Offshore Operational Area due to a vessel collision (with Project Vessels or third party vessels, including vessel collision with FPU or ASV)			✓		✓	✓	✓	A	D	1	M	LCS GP PJ RBA		

Description of Source of Impact/Risk
<p>Background</p> <p>A loss of marine vessel separation between a vessel and the facility / ASV or other vessels may result in a loss of hydrocarbon containment from the release of fuel from the vessel. Marine Diesel Oil (MDO) fuel storage presents the highest potential hydrocarbon volumes for this risk event.</p> <p>Vessel collisions can arise from:</p> <ul style="list-style-type: none"> vessel to vessel collision between project/operational vessels visiting vessel collisions associated with project/operational vessels (such as ASV, and support vessels) – ships which are visiting the facility can accidentally collide with the FPU during approach or manoeuvring

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Description of Source of Impact/Risk

- Vessel operations during adverse weather
- errant passing vessel collision – ships which are not visiting the platform (i.e. passing vessels) moving off-course and colliding with the facility

The different collision hazards involve significantly different sized vessels and collision speeds, hence, differing impact energies and consequences, and have been assessed.

Fuel storage onboard the FPU and ASV are not deemed credible to be lost by potential vessel impacts due to the facility design and layout of fuel storage. Fuel storage tanks on ASV *Floatel Triumph* (for example) are positioned in protected positions, on the inboard side of pontoons behind ballast water tanks and below the water line. FPU fuel storage is elevated above the waterline, in crane pedestal tanks.

Visiting Vessels

Visiting vessels are defined as those which are used to service the facility. Operating procedures will dictate how vessels are operated, loaded and unloaded, but it will generally occur so that the prevailing winds move the vessel away from the facility. The primary causes of visiting vessel collisions are failure to follow safe procedures and communication errors between the marine vessels and platform operations. These errors could be worsened by the following:

- vessel station keeping failures, or
- vessel operations in adverse weather conditions.

Errant Passing Vessels

Errant passing vessels are defined as third-party vessels that enter the riser platform’s 500 m PSZ, but do not call at the FPU facility or other installations (i.e. not facility or Support Vessels). The collision can be powered or drifting. Either has the potential to cause significant damage to project or operations marine vessels.

The causes of errant passing vessel collisions include:

- failure of propulsion or steering systems
- adverse weather conditions resulting in poor visibility
- rough seas
- human error.

Woodside implements a range of preventative control measures to mitigate the risk of errant vessel collision reasonably within its control. Powered collisions from large passing vessels or tankers could have sufficient impact energy to breach one or more skins of the third party vessel to the extent that there is a loss of containment of cargo or fuel oil with the potential for significant loss of inventory and consequent environmental impact. This is not within the control of Woodside, and is regulated under Australian marine and shipping legislation so is not assessed further.

Industry Experience

Registered vessels or foreign flag vessels in Australian waters are required to report events to the Australian Transport Safety Bureau (ATSB), AMSA or Australian Search and Rescue (AusSAR). From a review of the ATSB marine safety and investigation reports, one vessel collision occurred in 2011/12 that resulted in a spill of 25–30 L of oil into the marine environment as a result of a collision between a tug and support vessel off Barrow Island. Two other vessel collisions occurred in 2010, one in the port of Dampier, where a Support Vessel collided with a barge being towed. Minor damage was reported and no significant injury to personnel or pollution occurred. The second 2010 vessel collision involved a vessel under pilot control in port connecting with a vessel alongside a wharf, causing it to sink. No reported pollution resulting from the sunken vessel. These incidents demonstrate the likelihood of only minor volumes of hydrocarbons being released during the highly unlikely event of a vessel collision.

From 2010 to 2011, the ATSB’s annual publication defines the individual safety action factors identified in marine accidents and incidents: 42% related to navigation action (2011). Of those, 15% related to poor communication and 42% related to poor monitoring, checking and documentation (ATSB, 2011). The majority of these also related to grounding instances.

Credible Spill Scenario

For marine vessels, maximum credible spill volume is taken as the volume of the largest single fuel tank in line with AMSA guidelines (AMSA 2015).

The vessels with the largest single fuel tank capacity that will be operating in the Offshore Operational Area are a tow tug and AHT which have capacity typically between 350 to 400 m³. The largest Vessel that will be operating in the Trunkline Operational Area is a support vessel, with a maximum single fuel tank capacity of 250 m³. The single largest tank onboard the ASV *Floatel Triumph* is 359 m³.

For the purposes of this assessment, a worst-case credible risk scenarios was identified for each Operational Area:

- Offshore Operational Area: a collision of a Project Vessel with a third-party vessel or between Project Vessels. The largest tank of a Project vessel is unlikely to exceed 400 m³ within this area.

Description of Source of Impact/Risk

- Trunkline Operational Area: a collision of a Project Vessel along the Trunkline route with a third-party vessel or between Project Vessels. The largest tank of a project/operational vessel is unlikely to exceed 250 m³ within this area.

A worst-case loss of up to 400 m³ of MDO is considered an appropriate conservative worst case for rupture of a single fuel tank in the Offshore Operational Area. This is representative of the largest fuel tank on the AHTs, LCV and ASV that will be used for FPU Mooring and Hook-up, IMMR and commissioning activities.

Loss of containment of up to 250 m³ of MDO from collision with a vessel engaged in IMMR activities in the Trunkline Operational Area closer to sensitive receptors in the Montebello Marine Park and Dampier Archipelago is also considered credible. Given the offshore location of the PAA, vessel grounding is not considered a credible risk.

Likelihood

For a vessel collision to result in the worst-case scenario of a hydrocarbon spill potentially impacting an environmental receptor, several factors must align as follows:

- The identified causes of vessel interaction must result in a collision.
- The collision must have enough force to penetrate the vessel hull.
- The collision must be in the location of the fuel tank.
- The fuel tank must be full, or at least have a volume which is higher than the point of penetration.

The probability of the chain of events described above aligning, to result in a breach of fuel tanks resulting in a spill that could potentially affect the marine environment is considered credible in some circumstances, however deemed Highly Unlikely.

The environmental risk analysis and evaluation identified and assessed a range of potential scenarios that could result in a loss of vessel structural integrity, resulting in damage to fuel storage tank(s) and a loss of marine diesel to the marine environment. The likelihood of a collision resulting in a hydrocarbon spill from a storage tank was assessed as being highly unlikely, given standard vessel operations and equipment in place to prevent collision at sea, the construction and placement of storage tanks and the number of times such an incident has occurred in the oil and gas industry and within Woodside.

Quantitative Hydrocarbon Risk Assessment

Modelling of a 250 m³ surface release of marine diesel was undertaken for two locations within the Trunkline Operational Area (RPS, 2024) (Table 6-43). A conservative representation of worst-case (400 m³) spill associated with loss of marine vessel separation is represented by a 470 m³ surface release scenario modelled within the Offshore Operational Area. This 470m³ scenario also represents release of marine diesel storage on FPU topsides, as a result of loss of structural integrity of the FPU (ref. Section 6.8.3).

The modelling assessed the extent of a marine diesel spill for all seasons, using historic samples of wind and current data for the region (2006-2015, inclusive). A total of 200 simulations were modelled over an annual period, with each simulation tracked for 42-days. The coordinates of the modelled spill locations are detailed in (Table 6-43).

Hydrocarbon Characteristics

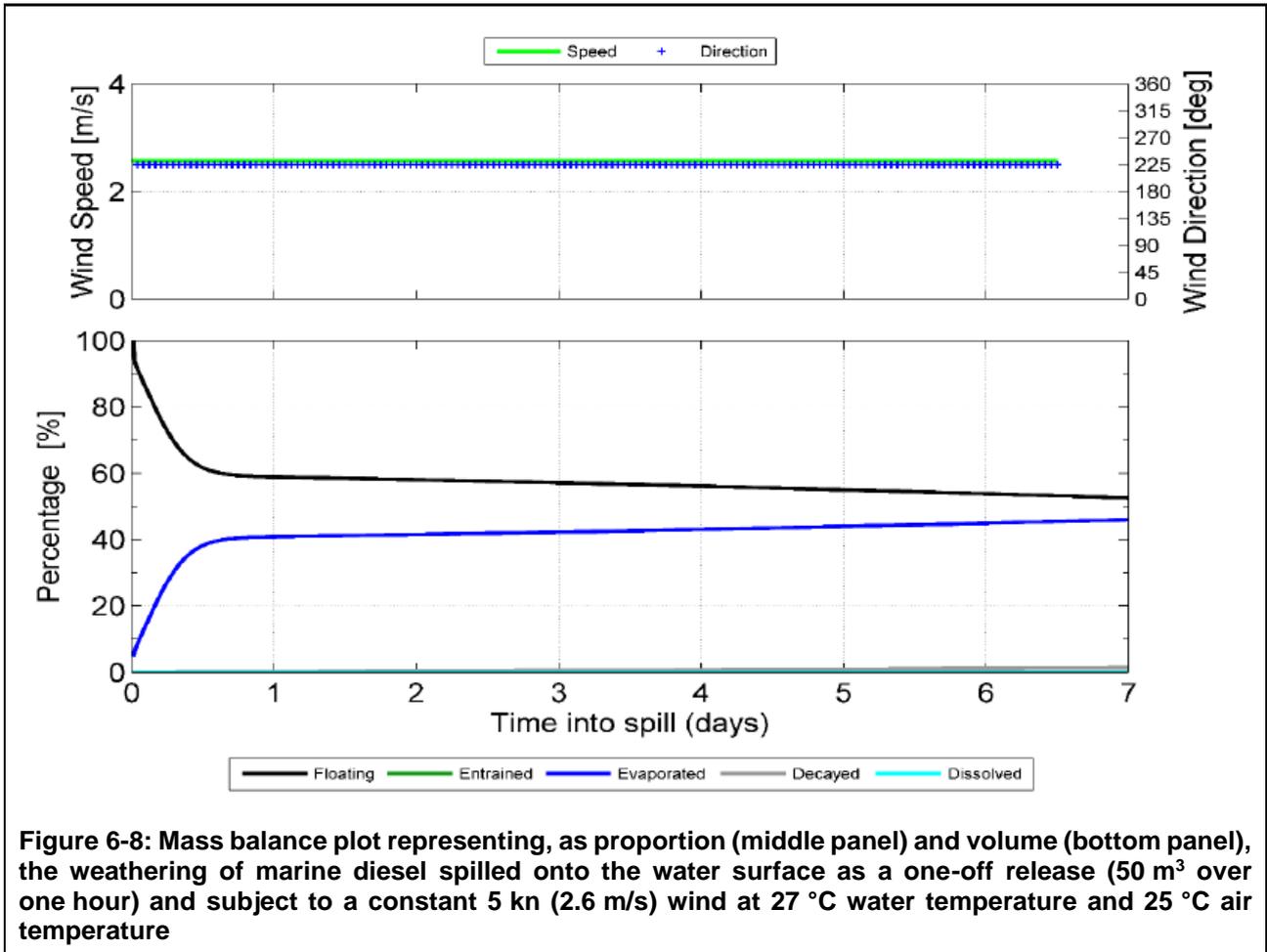
MDO is a non-persistent fuel oil and contains a small proportion of heavy components (or low volatile components) that tend to physically entrain into the upper water column in the presence of moderate winds (i.e. >12 knots) and breaking waves but may re-float to the surface if these conditions abate. In the event of a substantial spill, the heavier components can remain entrained or remain on the sea surface for an extended period. The characteristics of the marine diesel are given in Table 6-47.

Marine diesel is a mixture of both volatile and persistent hydrocarbons. Predicted weathering of marine diesel, based on typical conditions in the region, indicates that about 24% of the oil mass should evaporate within the first 24 hours. (Figure 6-8) (RPS, 2024). After this time the majority of the remaining hydrocarbon is entrained into the upper water column. Given the environmental conditions experienced in the PAA, marine diesel is expected to undergo rapid spreading and this, together with evaporative loss, is likely to result in a rapid dissipation of the spill. Marine diesel distillates tend not to form emulsions at the temperatures found in the region.

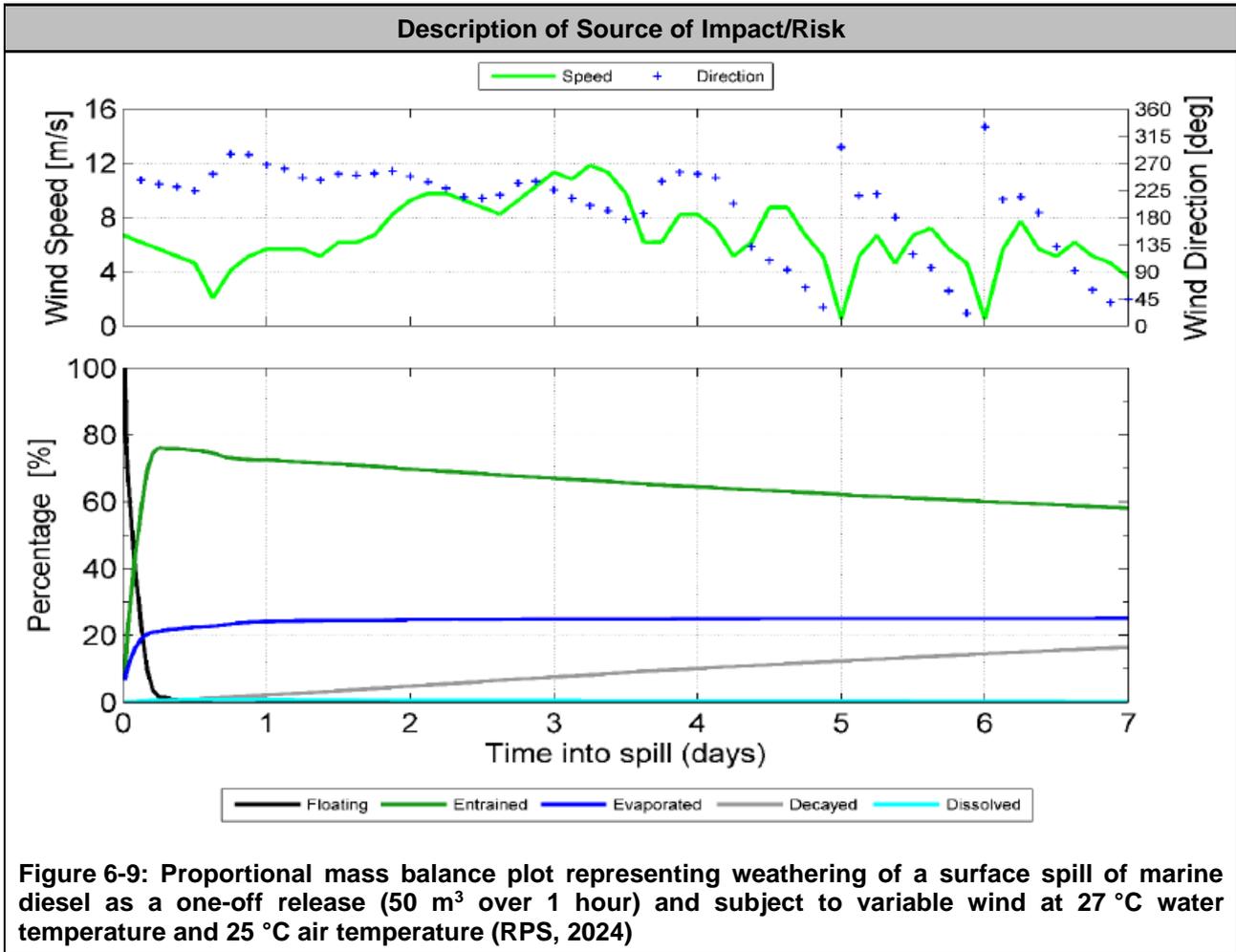
Table 6-47: Characteristics of the marine diesel

Hydrocarbon type	Initial density (g/cm ³) at 25 °C	Viscosity (cP @ 25 °C)	Component BP (°C)	Volatiles %<180	Semi volatiles % 180–265	Low volatility (%) 265-380	Residual (%) >380
				Non-Persistent			Persistent
Marine diesel	0.829	4.0	% of total	6	34.6	54.4	5
			% of aromatics	1.8	1.0	0.2	-

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Detailed Impact Assessment

Assessment of Potential Impacts

Environment that May Be Affected

The overall EMBA for the Petroleum Activities Program is based on stochastic modelling, which compiles data from 200 hypothetical worst-case spills under a variety of weather and metocean conditions (as described in **Section 6.8.1**). The EMBA therefore covers a larger area than the area that would be affected during any one single spill event, and therefore represents the total extent of all the locations where hydrocarbon thresholds could be exceeded from all modelling runs. The trajectory of a single spill would have a considerably smaller footprint.

As described in **Section 6.8.1**, three hydrocarbon spill locations were modelled in order to represent the range of locations of where vessel collision could occur within the PAA. The EMBA has been defined using a combination of all three locations, the largest extent of the Hydrocarbon EMBA is based on the entrained threshold from the modelled locations and therefore includes the results from 600 modelling runs. In the event of a spill the EMBA would be much smaller and is intermittent e.g. a plume travels away from the release location based on prevailing currents and winds directions. Therefore one area is not exposed to hydrocarbons above thresholds for the entire simulation.

Spill modelling was undertaken based on an instantaneous surface release at the following locations:

- Location 1: Trunkline Operational Area, outside Mermaid Sound (250 m³)
- Location 2: Trunkline Operational Area, within Montebello AMP (250 m³)
- Location 3: Offshore Operational Area, FPU location (470 m³) (assessed in Section 6.8.3).

As the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean transport mechanism, a different EMBA is discussed for each fate.

Surface Hydrocarbons: The modelling indicates that for a spill at Location 1 (Mermaid Sound) there is a low probability (2%) of the Dampier Archipelago encountering surface hydrocarbons of 10 g/m². A number of other receptors are predicted to have a low probability of encountering surface hydrocarbons at the 10 g/m² threshold,

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Detailed Impact Assessment

including Dampier Archipelago (2% probability) Cape Bruguieres (3.5% probability and Legendre Island (1% probability). A socio-cultural EMBA for surface hydrocarbons includes the threshold for visible surface hydrocarbons of 1 g/m² and there is a low probability of encountering surface hydrocarbons of 1 g/m² at the following locations additional locations: Dampier Marine Park (2.5%), Hammersley Shoal (3.5%), Madeleine Shoals (2.5%), Rosemary Island (1%) and Cohen Island (2%).

For a spill at Location 2 (Montebello AMP), the modelling indicates there is a 100% probability of Montebello AMP encountering hydrocarbons of 10 g/m² and 1 g/m². Rankin Bank is also predicted to have a low probability of contact at 10 g/m² and 1 g/m² (1%).

A summary of all receptors predicted to be contacted by surface hydrocarbons is provided in Table 6-48.

Entrained Hydrocarbons: For a vessel collision spill at Location 1, the receptors predicted to be contacted by entrained oil concentrations at the 100 ppb threshold are: Dampier AMP (39.5% probability), Dampier Archipelago (31.5% probability), Cohen Island (12% probability), Keast Island (9.5% probability), Legendre Island (22% probability), Rosemary Island (8% probability), Hammersley Shoal (12.5% probability), Madeleine Shoals (37.5% probability) and a number of other locations with a probability of 5% or less (Table 6-48).

For a spill at Location 2 the Montebello AMP is predicted to be contacted by entrained oil concentrations at the 100 ppb threshold (49% probability) and a number of other locations are predicted to be contacted with a probability of 1% or less (Table 6-48).

Dissolved Hydrocarbons: For a vessel collision spill at Location 1, the receptors predicted to be contacted by dissolved oil concentrations at the 50 ppb threshold are: Dampier AMP (7% probability), Dampier Archipelago (3% probability), Legendre Island (2.5% probability), Madeleine Shoals (6% probability) and a number of other locations with a probability of 1% or less (Table 6-48).

For a spill at Location 2, the receptors predicted to be contacted by dissolved oil concentrations at the 50 ppb threshold are: Montebello AMP (16% probability) and a number of other locations with a probability of 1% or less (Table 6-48).

Accumulated Hydrocarbons: Accumulated hydrocarbons above threshold concentrations (≥ 100 g/m²) were predicted by the modelling to occur at several locations with a low probability: Cape Bruguieres (2%), Dampier Archipelago (2%), Cohen Island (2%), Gidley Island (0.5%), Keast Island (2%), Rosemary Island (1%) and Legendre Island (2%).

There is no predicted contact with shoreline locations above threshold concentrations from a spill at Location 2.

Impact Assessment

Water Quality

An unplanned release of marine diesel, would result in a change in water quality, affecting the ambient water quality within the EMBA as follows:

The highly-mixed, open water location and characteristics of hydrocarbons released will result in rapid evaporation and dispersion. However, MDO contains a small proportion of heavy components (or low-volatile components) that tend to physically entrain into the upper water column in the presence of moderate winds (i.e. >12 knots) and breaking waves but may resurface if these conditions abate. If a substantial spill occurred, the heavier components could remain entrained or remain on the sea surface for an extended period and travel significant distances from the source, albeit at low concentrations.

As described above, predicted weathering of marine diesel, based on typical conditions in the region, indicates that about 24% of the oil mass should evaporate within the first 24 hours (Figure 6-9) (RPS, 2024). After this time the majority of the remaining hydrocarbon is entrained into the upper water column.

Water quality would be reduced and is predicted to be at or above biological effect concentrations for the surrounding marine waters over the Montebello Marine Park. The submerged Tryal Rocks (30-40 m depth) within the Montebello Marine Park has the potential to be exposed to entrained hydrocarbons at or greater than 100 ppb. The waters surrounding this submerged habitat would show a reduction in quality due to hydrocarbon contamination above background and/or national/international quality standards.

Exposure to significant habitats will be at low levels such that no significant habitats or ecosystem function or integrity will be impacted (as discussed in the receptor sections). Given the short time periods of exposure and the nature of MDO to evaporate and spread quickly, the magnitude of a potential impact to water quality associated with a release of hydrocarbons is assessed as Slight (E).

Plankton

Injury/mortality to planktonic species may occur due to a change in water quality following an unplanned hydrocarbon release.

Primary production by plankton (supported by sporadic upwelling events in the offshore waters of the NWS) is an important component of the primary marine food web. Planktonic communities are generally mixed, including phytoplankton (cyanobacteria and other microalgae) and secondary consuming zooplankton, such as crustaceans (e.g. copepods), and the eggs and larvae of fish and invertebrates (meroplankton).

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Detailed Impact Assessment

Exposure to hydrocarbons in the water column (entrained or dissolved) can change species composition, with declines or increases in one or more species or taxonomic groups (Batten et al., 1998). Phytoplankton may also experience decreased rates of photosynthesis (Tomajka, 1985). For zooplankton, such as fish, coral and invertebrate eggs and larvae, direct effects of contamination may include toxicity, suffocation, changes in behaviour, or environmental changes that make them more susceptible to predation. Impacts on plankton communities are likely to occur in areas where entrained or dissolved aromatic hydrocarbon threshold concentrations are exceeded, but communities are expected to recover relatively quickly (within weeks or months). This is due to high population turnover, with copious production within short generation times that also buffers the potential for long-term (i.e. years) population declines (International Tanker Owners Pollution Federation, 2011a).

When first released, MDO has a higher toxicity due to the presence of the volatile components. Plankton making contact close to the spill source at the time of the spill may be impacted, however, due to low planktonic productivity within the NWMR it is unlikely that large populations of plankton will be affected at the sea surface above thresholds as this is only predicted for the first few days after the spill.

Given hydrocarbon characteristics, expected rapid weathering and then degradation of the entrained component to below impact thresholds, and relatively quick recovery times of plankton, a vessel spill is not expected to have a substantial adverse effect on plankton life cycle and spatial distribution.

There are no Management Plans, Recovery Plans or Conservation Advice related to plankton.

Based on the detailed risk evaluation, the magnitude of potential impact to plankton from unplanned release of MDO is assessed as Negligible (F).

Fish, Sharks and Rays

Injury/mortality to fish species may occur due to a change in water quality following an unplanned hydrocarbon release. Any surface and subsurface hydrocarbon release could impact fish, as they are widely dispersed throughout the water column.

Impacts to sharks and rays may occur through direct contact with hydrocarbons and contaminate the tissues and internal organs, either through direct contact or via the food chain (consumption of prey). As gill breathing organisms, sharks and rays may be vulnerable to toxic effects of dissolved hydrocarbons (entering the body via the gills) and entrained hydrocarbons (coating of the gills inhibiting gas exchange). In the offshore environment, it is probable that pelagic shark species are able to detect and avoid hydrocarbons by swimming into deeper water or away from the affected areas.

Fish mortalities are rarely observed to occur as a result of hydrocarbon spills (International Tanker Owners Pollution Federation, 2011b). This has generally been attributed to the possibility that pelagic fish are able to detect and avoid surface waters underneath hydrocarbon spills by swimming into deeper water or away from the affected areas. Fish that have been exposed to dissolved aromatic hydrocarbons are capable of eliminating the toxicants once placed in clean water; hence, individuals exposed to a spill are likely to recover (King et al., 1996). Where fish mortalities have been recorded, the spills (resulting from the groundings of the tankers Amoco Cadiz (E)n 1978 and the Florida in 1969) have occurred in sheltered bays.

Laboratory studies have shown that adult fish can detect hydrocarbons in water at very low concentrations, and large numbers of dead fish have rarely been reported after hydrocarbon spills (Hjermann et al., 2007). This suggests that juvenile and adult fish can avoid water contaminated with high concentrations of hydrocarbons.

The effects of exposure to oil on the metabolism of fish appear to vary according to the organs involved, exposure concentrations and route of exposure (waterborne or food intake). Oil reduces the aerobic capacity of fish exposed to aromatics in the water, and to a lesser extent affects fish consuming contaminated food (Cohen et al., 2005). The liver, a major detoxification organ, appears to be where anaerobic activity is most impacted, probably increasing anaerobic activity to help eliminate ingested oil from the fish (Cohen et al., 2005).

Fish are perhaps most susceptible to the effects of spilled oil in their early life stages, particularly during egg and planktonic larval stages, which can become entrained in spilled oil. Contact with oil droplets can mechanically damage feeding and breathing apparatus of embryos and larvae (Fodrie and Heck, 2011). The toxic hydrocarbons in water can result in genetic damage, physical deformities and altered developmental timing for larvae and eggs exposed to even low concentrations over prolonged timeframes (days to weeks) (Fodrie and Heck, 2011). Subtler, chronic effects on the life history of fish because of exposure in early life stages to hydrocarbons include disruption to complex behaviour such as predator avoidance, reproductive and social behaviour (Hjermann et al., 2007). Prolonged exposure of eggs and larvae to weathered concentrations of hydrocarbons in water has also been shown to cause immunosuppression and allows expression of viral diseases (Hjermann et al., 2007).

Adult fish exposed to low hydrocarbon concentrations are likely to metabolise the hydrocarbons and excrete the derivatives, with studies showing that fish can metabolise petroleum hydrocarbons and that accumulated hydrocarbons are released from tissues when the fish is returned to hydrocarbon-free sea water. Several fish communities in these areas are demersal (i.e. living closer to the seabed) where concentrations of entrained hydrocarbons will be lower; any impacts are expected to be highly localised.

When first released, MDO has a higher toxicity due to the presence of the volatile components. Individual fish making contact close to the spill source at the time of the spill may be impacted. Fish presence is generally concentrated in

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Detailed Impact Assessment

waters closer to shore. Although fish presence may occur throughout the entire PAA and defined EMBA, it is unlikely that a large number of fish will be affected at the sea surface above thresholds. Mobile transient fauna are not expected to remain within entrained hydrocarbon plumes for an extended time. Therefore, no acute impacts or risks associated with entrained exposures from an unplanned MDO release are expected. Any impacts from this exposure are expected to result in localised short-term effects to limited small numbers of juvenile fish and prey species (larvae and planktonic organisms), which are not expected to affect population viability and recruitment of fish. Consequently, diverse fish assemblages are not expected to be significantly impacted.

A BIA for whale shark foraging overlaps the Trunkline Operational Area between KP 72 and KP 199, as well as the EMBA. Whale sharks may transit offshore open waters when migrating to and from Ningaloo Reef, where they aggregate for feeding from March to July. Whale sharks are versatile feeders, filtering large amounts of water over their gills, catching planktonic and nektonic organisms (Jarman and Wilson, 2004). It is therefore possible that surface and/or entrained hydrocarbon and/or dissolved aromatic hydrocarbon could come in contact with, or be ingested by whale sharks migrating or aggregating in the area at the time of release.

Although potential impacts could include mortality or sub-lethal injury/illness of pelagic fish, this would be expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds and degradation of entrained fractions, and the mobile transient nature of fish, unplanned releases of MDO are not expected to have a substantial adverse effect on the population or spatial distribution of fish; or substantially modify, destroy or isolate an area of important habitat for migratory species. Additionally, unplanned releases will not seriously disrupt the lifecycle of an ecologically significant proportion of any migratory fish species.

There are specific conservation advices for some fish species which identify habitat degradation/modification as a key threat. While for some species there are specific requirements (e.g. sawfish), no specific requirements have been identified for relevant species (i.e. species identified as having potential to occur in the EMBA).

The magnitude of a potential impact to fish associated with a release of hydrocarbons is minor (D). Although potential impacts could include mortality or sub-lethal injury/illness of pelagic fish, this would be expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds and degradation of entrained fractions, and the mobile transient nature of fish, unplanned release is not expected to have a substantial adverse effect on the population, or spatial distribution of fish/sharks/rays.

Marine Mammals

A change in marine fauna behaviour or injury/mortality to marine mammals may occur due to a change in water quality after an unplanned hydrocarbon release.

Air-breathing fauna such as marine mammals are most at risk from surface exposures due to the high volatile components. Marine mammals that have direct physical contact with surface, entrained or dissolved aromatic hydrocarbons may suffer surface fouling, ingest hydrocarbons and inhale toxic vapours. This may result in the irritation of sensitive membranes such as the eyes, mouth, digestive and respiratory tracts and organs, impairment of the immune system or neurological damage (Helm et al., 2015). If prey (fish and plankton) are contaminated, this can result in the absorption of toxic components of the hydrocarbons (PAHs).

In a review of cetacean observations in relation to a number of large-scale hydrocarbon spills, Geraci (1988) found little evidence of mortality associated with hydrocarbon spills. However, behavioural disturbance (i.e. avoiding spilled hydrocarbons) was observed in some instances for several species of cetaceans. This suggests that cetaceans are able to detect and avoid surface slicks. While this reduces the potential for physiological impacts from contact with hydrocarbons, active avoidance of an area may disrupt behaviours such as migration, or displace individuals from important habitat, such as foraging, resting or breeding.

When first released, MDO has a higher toxicity due to the presence of the volatile components. Individual cetaceans making contact close to the spill source at the time of the spill may be impacted.

A range of marine mammal species were identified as potentially occurring within the Operational Area and EMBA (**Section 4.6.3**). BIAs of marine mammals listed as MNES overlap the Trunkline Project Area, including humpback whales (migration and resting BIAs) and pygmy blue whales (northbound and southbound migrations). BIAs of MNES listed marine mammals also overlap the EMBA (**Section 4.6.3**), including humpback whales (migration and resting BIAs), dugongs (foraging and breeding, nursing, calving BIAs) and pygmy blue whales (northbound and southbound migrations, distribution and foraging BIAs).

There is a low probability (0.5%) of a small overlap of the southern right whale migration and reproduction BIAs in proximity to the North West Cape with entrained oil exceeding thresholds, however no floating oil is present in this area and no hydrocarbons are predicted to enter the Exmouth Gulf, which is used as a resting area by humpback whales during the southern migration and a reproduction area by the Southern Right Whale

Humpback and/or pygmy blue whale populations may be impacted if the hydrocarbon release occurs during the seasonal migration periods. Such disruption could include behavioural impacts (e.g. avoidance of impacted areas), sub-lethal biological effects (e.g. skin irritation, irritation from ingestion or inhalation, reproductive failure) and, in rare circumstances, death.

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Detailed Impact Assessment

Dugongs may be indirectly impacted via habitat loss due to reduction in seagrass due to contact with entrained hydrocarbons. Direct impacts to dugongs could occur through foraging or ingesting seagrass coated with hydrocarbon. Although potential impacts could include mortality or sub-lethal injury/illness of marine mammals, this would be expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering of surface oil to below impact thresholds, and the mobile transient nature of marine mammals and potential avoidance behaviour, unplanned releases of MDO are not expected to have a substantial adverse effect on the population or spatial distribution of marine mammals; or substantially modify, destroy or isolate an area of important habitat for migratory species. Additionally, unplanned releases will not seriously disrupt the lifecycle of an ecologically significant proportion of any migratory species.

There are specific conservation advices for some species which identify key threats. While hydrocarbon spills are not explicitly identified as a threat, the sei whale conservation advice does include the management of physical disturbance and development activities. No explicit management actions are identified relevant to hydrocarbon spills.

The magnitude of a potential impact to marine mammals associated with a release of hydrocarbons is Minor(D). Although potential impacts could include mortality or sub-lethal injury/illness of marine mammals, this is expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering of surface oil to below impact thresholds, and the mobile transient nature of marine mammals and potential avoidance behaviour, unplanned releases of marine diesel are not expected to have a substantial adverse effect on the population, or spatial distribution of marine mammals; or substantially modify, destroy or isolate an area of important habitat for migratory species.

Marine Reptiles

A change in marine fauna behaviour or injury/mortality to marine reptiles may occur due to a change in water or sediment quality following an unplanned hydrocarbon release.

Marine reptiles can be impacted by surface exposure when they surface to breathe, and by shoreline accumulation of hydrocarbons when breeding and nesting.

Hydrocarbons in surface waters may impact turtles when they surface to breathe and inhale toxic vapours. Their breathing pattern, involving large 'tidal' volumes and rapid inhalation before diving, results in direct exposure to petroleum vapours which are the most toxic component of the hydrocarbon spill (Milton and Lutz, 2003). This can lead to lung damage and congestion, interstitial emphysema, inhalant pneumonia and neurological impairment (National Oceanic and Atmospheric Administration, 2010). Contact with entrained hydrocarbons can result in hydrocarbon adherence to body surfaces, irritating mucous membranes in the nose, throat and eyes, leading to inflammation and infection (Gagnon and Rawson, 2010).

Adult sea turtles exhibit no avoidance behaviour when they encounter hydrocarbon spills (National Oceanic and Atmospheric Administration, 2010). Oiling can also irritate and injure skin, which is most evident on pliable areas such as the neck and flippers (Lutcavage et al., 1995). A stress response associated with this exposure pathway includes an increase in the production of white blood cells, and even a short exposure to hydrocarbons may affect the functioning of their salt gland (Lutcavage et al., 1995).

When first released, MDO has a higher toxicity due to the presence of the volatile components. Individual turtles making contact close to the spill source at the time of the spill may be impacted. Flatback, green, loggerhead and hawksbill turtle interesting BIA's overlap the Trunkline Project Area and EMBA (**Section 4.6.2**). Flatback, green and hawksbill turtles also have interesting habitat critical overlapping with the Trunkline Project Area, particularly, for the Dampier Archipelago. Accumulated hydrocarbons on shorelines could impact marine fauna that utilise beaches including marine turtles, dependent upon the timing of a release. However volumes of accumulated hydrocarbons are low.

Impacts to turtles from unplanned hydrocarbon releases are to be managed in accordance with the Recovery Plan for marine turtles in Australia (Commonwealth of Australia, 2017). The Recovery Plan identifies ensuring spill risk strategies and response programs include management for turtles and their habitats. In addition, there is in place approved Conservation Advice for the short-nosed sea snake (DSEWPac, 2011), which includes ensuring there is no anthropogenic disturbance in areas where the species occurs, excluding necessary actions to manage the conservation of the species.

Impacts to sea snakes from direct contact with hydrocarbons are likely to result in similar physical effects to those recorded for marine turtles.

The magnitude of potential impacts to marine reptiles from unplanned hydrocarbon releases is assessed as Slight (E)(from change in fauna behaviour) and Minor (D)(from injury/mortality to fauna). Although potential impacts could include mortality or sub-lethal injury/illness of marine reptiles, this is expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, and the mobile transient nature of individuals, unplanned hydrocarbon releases are not expected to substantially modify, destroy or isolate an area of important habitat for migratory species.

Seabirds and Migratory Shorebirds

A change in marine fauna behaviour or injury/mortality to seabirds and migratory shorebirds may occur due to a change in water or sediment quality following an unplanned hydrocarbon release.

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Detailed Impact Assessment

Seabirds and migratory birds are particularly vulnerable to contact with floating hydrocarbons, which may mat feathers. This may lead to hypothermia from loss of insulation and ingestion of hydrocarbons when preening to remove hydrocarbons. Both impacts may result in mortality (Hassan and Javed, 2011). Pathways of biological exposure that can result in impact may occur through ingesting contaminated fish (nearshore waters) or invertebrates (intertidal foraging grounds such as beaches, mudflats and reefs). Ingestion can also lead to internal injury to sensitive membranes and organs (International Petroleum Industry Environmental Conservation Association, 2004). Whether the toxicity of ingested hydrocarbons is lethal or sub-lethal will depend on the weathering stage and its inherent toxicity. Exposure to hydrocarbons may have longer term effects, with impacts to population numbers due to decline in reproductive performance and malformed eggs and chicks, affecting survivorship and losing adult birds.

When first released, MDO has a higher toxicity due to the presence of the volatile components. Individual birds making contact close to the spill source at the time of the spill may be impacted. Bird presence within the NWMR is more concentrated in waters closer to shore with the potential for individual migratory birds within the PAA.

There are specific conservation advices for some species which identify habitat degradation as the key threat, but generally no explicit management actions are identified relating to hydrocarbon spills.

The magnitude of a potential impact to seabirds and migratory shorebirds associated with a release of hydrocarbons is Slight (E)(from change in fauna behaviour) and Minor (D) (from injury/mortality to fauna). Although potential impacts could include mortality or sub-lethal injury/illness of birds, this is expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, and the mobile transient nature of individuals, unplanned hydrocarbon releases are not expected to substantially modify, destroy or isolate an area of important habitat for migratory species.

Coral

Significant areas of coral are known to occur fringing the Dampier Archipelago (such the outer islands of Legendre etc), Montebello Islands, Rankin Bank, Barrow Island, Lowendal Islands, the Ningaloo Coast, all within the EMBA with low probability of contact with hydrocarbons.

Exposure to entrained hydrocarbons (≥ 100 ppb) has the potential to result in lethal or sub-lethal toxic effects to corals and other sensitive sessile benthos within the upper water column, including upper reef slopes (subtidal corals) and reef flat (intertidal corals). Sub-lethal effects to corals may include polyp retraction, changes in feeding, bleaching (loss of zooxanthellae), increased mucous production resulting in reduced growth rates and impaired reproduction (Negri and Heyward, 2000).

Should a hydrocarbon release occur at the time of coral spawning (at potentially affected coral locations), there is the potential for a significant reduction in successful fertilisation and coral larval survival, due to the sensitivity of coral in early life stages to hydrocarbons (Negri and Heyward, 2000).

Due to the short duration of a vessel spill (i.e. instantaneous release, and short exposure time), the confined spatial extent and the tendency of MDO to remain on the sea surface, significant exposure over a large scale is limited. An unplanned vessel spill is not expected to modify, destroy, fragment, isolate or disturb an important or substantial area of habitat, such that an adverse impact on marine ecosystem functioning or integrity results. Based on the assessment, the magnitude of a potential impact to coral associated with a release of hydrocarbons is Moderate (E) (i.e. medium-term impacts to ecosystem/habitat service on a far-field scale).

Seagrass and Macroalgae

Seagrass and macroalgae communities are found in shallow waters surrounding islands of the Dampier Archipelago and other shorelines predicted to be contacted by hydrocarbons. Modelling predicts that both Dampier and Montebello marine parks are predicted to be intersected with entrained hydrocarbons over the exposure thresholds (RPS, 2024). In particular, the Montebello Marine Park has a 100% probability, with high concentrations of entrained hydrocarbons. This is to be expected, as the release location modelled is within the marine park boundaries.

Exposure to entrained hydrocarbons may result in mortality of seagrass and macroalgae, depending on actual entrained aromatic hydrocarbon concentrations received and duration of exposure. Physical contact with entrained hydrocarbon droplets could cause sub lethal stress, causing reduced growth rates and reduced tolerance to other stress factors.

Seagrass and macroalgal beds in the intertidal and subtidal zone may be susceptible to impacts from entrained hydrocarbons. Toxicity effects can also occur due to absorption of soluble fractions of hydrocarbons into tissues.

While areas where seagrass and macroalgae can occur may be exposed, given the hydrocarbon characteristics, expected rapid weathering to below impact thresholds, any exposure would be to a limited area and short-term, and as such an unplanned hydrocarbon release is not expected to result in a level of exposure to seagrass and macroalgae that would cause an adverse impact on marine ecosystem functioning or integrity results. Based on the assessment, the magnitude of a potential impact to seagrass and macroalgae associated with a release of hydrocarbons is Slight (E).

Mangroves

Modelling predicts that there is 2% probability of shorelines being contacted over the exposure threshold for any release location at WA Coastline and Dampier Archipelago, with the maximum local volume predicted to accumulate of 55 m³. Both shorelines include some areas of mangroves (RPS, 2024).

Mangroves are considered to have a high sensitivity to hydrocarbon exposure. Mangroves can be impacted by heavy or viscous oil, or emulsification, that covers the trees breathing pores thereby asphyxiating the subsurface roots, which depend on the pores for oxygen (IPIECA, 1993). Hydrocarbons deposited on the aerial roots can block the pores used to breathe, or interfere with the trees salt balance, resulting in sub-lethal and potentially lethal effects. Acute impacts to mangroves can be observed within weeks of exposure, whereas chronic impacts may take months to years to detect.

Given hydrocarbon characteristics and rapid weathering, an unplanned release is not expected to have a substantial adverse impact on marine ecosystem functioning or integrity. Based on the assessment, the magnitude of a potential impact to mangroves associated with a release of hydrocarbons is Slight (E).

Shoreline Habitats

Hydrocarbons that contact sandy shores may be incorporated into fine sediments through mixing in the surface layers from wave energy, penetration down worm burrows and root pores. Hydrocarbon in the intertidal zone can adhere to sand particles however high tide may remove some or most of the hydrocarbon from the sediments. Accumulated hydrocarbons ≥ 100 g/m² could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat (French-McCay, 2009). Coastal habitats that occur on the coastline within the EMBA include saltmarshes and mangroves around the Dampier Archipelago.

Given hydrocarbon characteristics and rapid weathering, an unplanned release is not expected to have a substantial adverse impact on marine ecosystem functioning or integrity at exposed shorelines. Based on the assessment, the magnitude of a potential impact to shoreline habitats associated with a release of hydrocarbons is assessed as Negligible (F).

Saltmarshes

Areas of saltmarshes are known to occur within the Dampier Archipelago and WA Coastline, with both areas potentially receiving shoreline accumulation above 100 g/m². Hydrocarbons can enter saltmarsh systems during the tidal cycles, if the estuary/inlet is open to the ocean. Similar to mangroves, this can lead to a patchy distribution of the oil and its effects, due to different areas within the inlets at different tidal heights. Hydrocarbons can adhere to the marshes, coating the stems from tidal height to sediment surface.

Given hydrocarbon characteristics and rapid weathering an unplanned release is not expected to have a substantial adverse impact on marine ecosystem functioning or integrity at exposed shorelines. Based on the assessment, the magnitude of a potential impact to saltmarsh associated with a release of hydrocarbons is assessed as Slight(E).

Key Ecological Features

A change in habitat may occur due to a change in water or sediment quality that could impact KEFs.

The location of the KEFS within the EMBA are presented in Section 4.7. As marine diesel typically remains in the top 10 m of the water column and rapidly weathers, in-water hydrocarbons are only likely to intersect with seafloor and demersal values in shallower waters. The water depths and potential impacts to the six relevant KEFs are summarised as follows:

Exmouth Plateau KEF (intersects the Operational Area and EMBA): Values and sensitivities are related to seafloor features. Receptors on the seafloor are not expected to be impacted by a surface release of hydrocarbons, given the water depths (~930 m). However, these seafloor features may promote enhanced upwelling; potential impacts to plankton and fishes are discussed above.

Ancient coastline KEF (intersects the Operational Area and EMBA): The KEF includes areas of hard substrate and higher diversity and species richness relative to surrounding areas of predominantly soft sediment. Given the minimum water depth in this KEF is 115 m, seafloor receptors are unlikely to be impacted by a surface hydrocarbon release. However, the submerged coastline may facilitate mixing of the water column enhancing productivity. Combined with greater diversity of sessile benthic organisms, this may increase abundance of pelagic species such as fishes and cetaceans, impacts to which are discussed above.

Continental Slope Demersal Fish Communities KEF (intersects the Operational Area and EMBA): The KEF represents high levels of endemism of demersal fish species. Considering the minimum water depths of this KEF are 220–500 m and 750–1,000 m, impacts to demersal fishes are unlikely to occur. However, the values of the KEF may support higher order consumers, such as pelagic fish and shark species, impacts to which are discussed above.

Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF (intersects the EMBA): Aggregations of whale sharks, manta rays, humpback whales, sea snakes, sharks, predatory fishes and seabirds are known to occur in the KEF due to its enhanced productivity, impacts to which are discussed above.

Commonwealth Waters Adjacent to Ningaloo KEF (intersects the EMBA): The spatial boundary of this KEF, as defined in the National Conservation Values Atlas, is the waters contained in the existing Ningaloo AMP and is described below.

Glomar Shoal KEF (intersects the EMBA on the Rowley shelf at depths of 33 m to 77 m): The values of the KEF are high productivity and aggregations of marine life, impacts to which are discussed above.

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Detailed Impact Assessment

Based on the assessment, the magnitude of a potential impact to KEFs associated with a release of hydrocarbons is Slight.

AMPs

The quantitative spill risk assessment results indicate that the open water environment protected within the Dampier and Montebello AMPs may be affected by the released hydrocarbons.

A vessel spill in the PAA is unlikely to result in significant impacts to AMPs based on the nature of the spilled hydrocarbons. Natural values for the AMPs include:

- marine turtle BIAs for Dampier and Montebello Marine Parks
- humpback whale migration BIAs for Montebello and Dampier Marine Park
- pygmy blue whale possible foraging area and migration BIA for Montebello Marine Park
- diverse fish communities for the Dampier, and Montebello Marine Parks
- whale shark foraging habitat BIAs for Montebello Marine Park
- seabird breeding habitat BIAs for Montebello and Dampier Marine Parks
- seabird foraging habitat BIAs for Dampier and Montebello, Marine Parks.

While this results in exposure to hydrocarbons for some of the natural values of the marine parks, the impacts will be temporary as the MDO evaporates and degrades and moves with ocean currents. The evaluation of impacts to specific receptors are detailed in the individual receptor assessments above and below. Based on the assessment, the magnitude of a potential impact to AMPs associated with a release of hydrocarbons is Minor (D).

Commonwealth and State Managed Fisheries

A change in marine fauna behaviour or injury or mortality to marine fauna – in particular to commercially targeted species, or their prey species (e.g. plankton) – can impact fisheries.

Fish exposure to hydrocarbon can result in ‘tainting’ of their tissues. Even very low levels of hydrocarbons can impart a taint or ‘off’ flavour or smell in seafood. Tainting is reversible through the process of depuration which removes hydrocarbons from tissues by metabolic processes, although it depends on the magnitude of the contamination. Fish have a high capacity to metabolise these hydrocarbons while crustaceans (such as prawns) have a reduced ability (Yender et al., 2002). Seafood safety is a major concern associated with spill incidents. Therefore, actual or potential contamination of seafood can affect commercial and recreational fishing and can impact seafood markets long after any actual risk to seafood from a spill has subsided (Yender et al., 2002).

A major spill could result in the establishment of an exclusion zone around the spill affected area. There would be a temporary prohibition on fishing activities for a period and subsequent potential for economic impacts to affected commercial fishing operators. Additionally, hydrocarbon can foul fishing equipment such as traps and trawl nets, requiring cleaning or replacement.

MDO presence in the water would be restricted to the surface and upper water column only. Dissolved aromatics (i.e. the form that is bioavailable) are in such small concentrations in MDO that their effect in the marine environment is negligible (F); i.e. tainting from an MDO exposure is not considered likely to occur. Any exclusion zone established would be limited to the immediate vicinity of the release point, and due to the rapid weathering of MDO would only be in place days after release, therefore physical displacement to vessels is unlikely to be a significant impact.

A number of Commonwealth and State fishery management areas are located within the PAA and EMBA. FishCube data was requested to analyse the potential for interaction of fisheries with the PAA, which was used to determine consultation with State Fisheries who may be impacted by proposed petroleum activities (Department of Primary Industries and Regional Development [DPIRD], 2021). Table 4-27 provides an assessment of the potential interaction provides further detail on the fisheries that have been identified through desk-based assessment and consultation (**Section 5**).

In the highly unlikely event of a release of marine diesel to the environment as a result of vessel collision there may be the presence of hydrocarbons in areas used by the fisheries that overlap the EMBA (Table 4-27).

Although potential impacts from a worst case spill could include mortality or sub-lethal injury/illness of pelagic fish (described in the specific receptor evaluation), this would be expected to comprise a small proportion of the resident and transitory population. Given the hydrocarbon characteristics, expected rapid weathering to below impact thresholds and low fishing effort, an unplanned hydrocarbon spill from the Petroleum Activities Program is not expected to have an adverse effect on the sustainability of commercial fishing; or to interfere with other marine users.

Based on the detailed risk evaluation, the magnitude of potential impacts to Commonwealth and State managed fisheries from an unplanned hydrocarbon release is assessed as Slight (E).

Tourism and Recreation

Change in marine fauna behaviour, injury or mortality to marine fauna, change in aesthetic value and change to the functions, interests or activities of other users would impact tourism and recreation following an unplanned hydrocarbon release. Charter fishing, diving, snorkelling, marine fauna (whale, marine turtle and dolphin) watching and cruises are the main commercial tourism activities in and adjacent to the NWMR. With the exception of offshore charter fishing,

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Detailed Impact Assessment

most marine tourism activities occur in State waters (DEWHA, 2008). Any impacts to receptors that provide nature-based tourism features (e.g. whales) may cause a subsequent negative impact to recreation and tourism activities. There is also potential for impacts to the wider service industry (hotels, restaurants and their supply chain) and local communities in terms of economic loss as a result of spill impacts to tourism.

Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, small volumes predicted ashore an unplanned release is not expected to interfere with other marine users to a greater extent than necessary. Based on the assessment, the magnitude of a potential impact to tourism and recreation associated with a release of hydrocarbons is Slight (E).

Shipping

In the event of a spill, an exclusion zone may be established around the spill affected area. This could result in exclusion of other users such as shipping vessels or vessels used by the mining and petroleum industries. Any exclusion zone established would be limited to the immediate vicinity of the release point, and due to the rapid weathering of MDO would only be in place for days after release, therefore physical displacement to vessels is unlikely to be a significant impact.

Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, short duration of displacement, and the offshore location of the PAA, unplanned releases of MDO are not expected to interfere with shipping to a greater extent than necessary.

Based on the assessment, the magnitude of a potential impact to shipping associated with an unplanned release of hydrocarbons is Slight (E).

Industry

A change in water quality and change to the functions, interests or activities of other users may impact industry following an unplanned hydrocarbon release. In the event of a major hydrocarbon spill, an exclusion zone may be established around the spill affected area. This could result in exclusion of other users such as vessels used by the mining and petroleum industries.

Defence

A change to the functions, interests or activities of other users may impact Defence following an unplanned hydrocarbon release. In the event of a major hydrocarbon spill, an exclusion zone may be established around the spill affected area. This could impact Defence by restricting areas where training or exercises can be conducted, for a designated period of time.

Any exclusion zone established would be limited to the immediate vicinity of the release point, and due to the rapid weathering of marine diesel would only be in place for days after release, therefore physical displacement to vessels is highly unlikely to be an impact of Negligible (F).

Table 6-48: Key receptor locations and sensitivities potentially contacted above impact thresholds by the vessel collision scenario with summary hydrocarbon spill contact for a 250 m³ instantaneous marine diesel spill at two release locations in the Trunkline Project

Environmental setting	Location/name	Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure)																							Probability of hydrocarbon contact (diesel) (%)										
		Physical		Biological																		Socio-economic and Cultural					note: the probability is based on stochastic modelling of 200 hypothetical worst-case spills per scenario under a variety of weather and metocean conditions								
		Water Quality	Sediment Quality	Marine Primary Producers					Other Communities/Habitats					Protected Species								Other Species					Socio-cultural EMBA		Ecological EMBA						
		Open water – (pristine)	Marine Sediment – (pristine)	Coral reef	Seagrass beds/Macroalgae	Mangroves	Spawning/nursery areas	Open water – Productivity/upwelling	Non biogenic coral reefs	Offshore filter feeders and/or Deepwater benthic communities	Nearshore filter feeders	Sandy shores	Estuaries/tributaries/creeks/lagoons (including mudflats)	Rocky shores	Cetaceans – migratory whales	Cetaceans – dolphins and porpoises	Dugongs	Pinnipeds (sea lions and fur seals)	Marine turtles (including foraging and interesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Sea birds and/or migratory shorebirds	Pelagic fish populations	Resident/Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas/Heritage – European and Indigenous/Shipwrecks	Offshore Oil and Gas Infrastructure (topside and subsea)	Surface hydrocarbon (1-10 g/m ²)	Accumulated hydrocarbons (10-100 g/m ²)	Surface hydrocarbon (≥10 g/m ²)	Entrained hydrocarbon (≥100 ppb)	Dissolved aromatic hydrocarbon (≥50 ppb)
Offshore	Dampier AMP	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	2.5			39.5	7		
	Montebello AMP	✓	✓	✓			✓	✓					✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100		100	49	16		
	Ningaloo AMP	✓	✓	✓			✓		✓				✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				0.5			
Submerged shoals	Courtenay Shoal	✓	✓	✓			✓						✓					✓	✓	✓		✓	✓	✓	✓	✓	✓	0.5			3.5				
	Cod Bank	✓	✓	✓			✓						✓					✓	✓	✓		✓	✓	✓	✓	✓	✓				1.5				
	Hammersley Shoal	✓	✓	✓			✓	✓		✓					✓				✓		✓		✓	✓	✓	✓	✓	✓	3.5		1	12.5	0.5		
	Rankin Bank																											1		1	2.5	1			
	Tryal Rocks																															1	0.5		
Islands	Montebello Islands (including State Marine Park)	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				0.5			
	Gidley Island	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.5	1.5		1		0.5	
	Keast Island	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1.5	4.5	0.5	9.5	0.5	2	
	Rosemary Island	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1	1	0.5	8	0.5	1	
	Legendre Island	✓	✓		✓		✓		✓				✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	2.5	7.5	1	22	2.5	2	
	Kendrew Island	✓	✓		✓		✓		✓				✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓				5	0.5		
	Goodwyn Island	✓	✓		✓		✓		✓				✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓				0.5			
Cohen Island	✓	✓		✓		✓		✓				✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	2	5		12	0.5	2		

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Summary of Assessment Outcomes					
Receptor	Impact	Receptor Sensitivity	Risk: Consequence	Likelihood	Risk Rating
Water quality	Change in water quality	Low value (open water)	Slight (E)	Highly unlikely	Low
Plankton	Injury/mortality to fauna	Low value (open water)	Negligible (F)	Highly unlikely	Low
Fish, sharks and rays	Change in fauna behaviour	High value species	Minor (D)	Highly unlikely	Moderate
	Injury/mortality to fauna	High value species	Minor (D)	Highly unlikely	Moderate
Marine mammals	Change in fauna behaviour	High value species	Minor (D)	Highly unlikely	Moderate
	Injury/mortality to fauna	High value species	Minor (D)	Highly unlikely	Moderate
Marine reptiles	Change in fauna behaviour	High value species	Slight (E)	Highly unlikely	Low
	Injury/mortality to fauna	High value species	Minor (D)	Highly unlikely	Moderate
Seabirds and migratory shorebirds	Change in fauna behaviour	High value species	Slight (E)	Highly unlikely	Low
	Injury/mortality to fauna	High value species	Minor (D)	Highly unlikely	Moderate
Coral	Change in habitat	High value habitat	Moderate (E)	Highly unlikely	Moderate
Seagrass	Change in habitat	High value habitat	Slight (E)	Highly unlikely	Low
Macroalgae	Change in habitat	Low value habitat	Negligible (F)	Highly unlikely	Low
Mangroves	Change in habitat	High value habitat	Slight (E)	Highly unlikely	Low
Shoreline habitats	Change in habitat	Low value habitat	Negligible (F)	Highly unlikely	Low
Saltmarshes	Change in habitat	Low value habitat	Slight (E)	Highly unlikely	Low
AMPs	Change in habitat	High value habitat	Minor (D)	Highly unlikely	Moderate
KEFs	Change in habitat	High value habitat	Slight (E)	Highly unlikely	Low
Commonwealth and State managed fisheries	Changes to the functions, interests or activities of other users	High value marine user	Slight (E)	Highly unlikely	Low
Tourism and recreation	Changes to the functions, interests or activities of other users	Medium value users	Slight (E)	Highly unlikely	Low
Shipping	Changes to the functions, interests or activities of other users	Medium value users	Slight (E)	Highly unlikely	Low
Industry	Changes to the functions, interests or activities of other users	Medium value	Slight (E)	Highly unlikely	Low
Defence	Changes to the functions, interests or activities of other users	Medium value	Negligible (F)	Highly unlikely	Low
<p>Overall Risk Rating: The overall risk rating for an unplanned hydrocarbon release resulting from a vessel collision is Moderate based on a Moderate consequence to high value receptors (coral), and a highly unlikely likelihood. The risk consequence/risk rating for individual receptors are consistent with the levels rated in the OPP.</p>					

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
<p>Marine Order 30 (Prevention of Collisions) 2016, including:</p> <ul style="list-style-type: none"> Adherence to steering and sailing rules including maintaining look-outs (e.g. visual, hearing, radar etc.), proceeding at safe speeds, assessing risk of collision and taking action to avoid collision (monitoring radar) Adherence to navigation light display requirements, including visibility, light position/shape appropriate to activity Adherence to navigation noise signals as required. 	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>Legislative requirements to be followed reduce the likelihood of interference with other marine users resulting in a collision.</p>	<p>Controls based on legislative requirements – must be adopted.</p>	<p>Yes C 13.1</p>
<p>Marine Order 21 (Safety and emergency arrangements) 2016, including:</p> <ul style="list-style-type: none"> Vessels Adherence to minimum safe manning levels maintenance of navigation equipment in efficient working order (compass/radar). Navigational systems and equipment required are those specified in Regulation 19 of Chapter V of SOLAS AIS that provides other users with information about the vessel's identity, type, position, course, speed, navigational 	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>Legislative requirements to be followed reduce the likelihood of interference with other marine users resulting in a collision.</p>	<p>Controls based on legislative requirements – must be adopted.</p>	<p>Yes C 13.2</p>

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<p>status and other safety-related data.</p>				
<p>Marine Order 27 (safety of navigation and radio equipment) 2016:</p> <ul style="list-style-type: none"> • navigational systems and equipment mentioned in Regulations 7 to 11 of Chapter IV of SOLAS are installed on board vessels • maintenance of navigation equipment in efficient working order (compass/radar) • navigational system and equipment required are those specified in Regulation 19 and 20 of SOLAS for the vessel are type approved and installed on board vessels • navigational activities and incidents of importance to safety of navigation on the vessel are recorded. • Automatic Identification System that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data. 	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>Legislative requirements to be followed reduce the likelihood of interference with other marine users resulting in a collision.</p>	<p>Controls based on legislative requirements – must be adopted.</p>	<p>Yes C 13.3</p>
<p>Implementation of a 500 m PSZ around FPU</p>	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>The PSZ is a requirement under Australian regulations and reduces the likelihood of interactions with third parties and the FPU.</p>	<p>Control based on legislative requirement – must be adopted.</p>	<p>Yes C 1.2</p>
<p>Establishment of temporary exclusion zones by relevant vessels which are</p>	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>Establishment of a temporary exclusion zones around vessels reduces the likelihood of</p>	<p>Controls based on legislative requirements –</p>	<p>Yes C 1.3</p>

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communicated to marine users.		interaction with other marine users.	must be adopted.	
In the event of a spill, emergency response activities implemented in accordance with the OPEP.	F: Yes CS: Costs associated with implementing response strategies vary dependent on nature and scale of spill event. Standard practice.	Potentially reduces consequence by implementing response to reduce impacts to the marine environment,	Control based on regulatory requirement – must be adopted.	Yes C 13.10
Arrangements supporting the activities in the OPEP (per Table 7-11) will be tested to ensure the OPEP can be implemented as planned.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirement based on vessel class. Unlikely to have a significant reduction in consequence.	Controls based on legislative requirements – must be adopted.	Yes C 13.11
Good Practice				
Notify AHO of activities and movements, where vessels will be in field >3 weeks, no less than four working weeks prior to scheduled activity commencement date.	F: Yes. CS: Minimal cost. Standard practice.	Notification of AHO will enable them to update maritime charts thereby reducing the likelihood of a collision with a third-party vessel.	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 1.5
Notify AMSA JRCC of activities and movements of the activity 24 to 48 hours before vessel operations commence.	F: Yes. CS: Minimal cost. Standard practice.	Communication of the Petroleum Activities Program to other marine users ensures they are informed and aware, thereby reducing the likelihood of a collision with a third-party vessel occurring	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 1.6
Mitigation: Oil spill response	Refer to Appendix H: Oil Spill Preparedness and Response Mitigation Assessment			
Professional Judgement – Eliminate				
Eliminate use of vessels.	F: No. The use of vessels is required to conduct the Petroleum Activities Program. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
Risk Based Analysis				
A quantitative spill risk assessment was undertaken considering three potential locations (see detail above).				
Preventative Barriers – Safety and Environmental Critical Elements				
Hierarchy	Control/Barrier	SCE/Management System Reference	Type of Effect	Control Adopted

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Elimination	N/A	No elimination, substitution or engineering controls were identified beyond those incorporated in design.		
Substitution				
Engineering Controls	Maintaining collision warning systems and navigational aids to alert facility of a potential collision with marine vessels, and to alert marine vessels of facility location so they may take timely action to avoid the facility and hence reduce likelihood of collision.	P34 – Collision prevention systems	Detection (Technical)	See Section 7.2.8
Engineering Controls	Maintaining availability of critical external and internal communication systems to facilitate prevention and response to accidents and emergencies.	E04 – Safety critical communications systems	Detection (Technical)	See Section 7.2.8
Mitigating Barrier – Safety and Environmental Critical Elements				
Engineering Controls	N/A	No engineering controls were identified beyond those incorporated in design.		
Emergency Response	Maintaining environmental incident response equipment to implement initial response to enact the Scarborough Operations Oil Pollution First Strike Plan.	E05 – Environmental incident response equipment	Mitigation (Technical)	Yes C 13.7
Management System Specific Measures: Key Standards or Procedures				
Procedures and Administration	Implementing management systems to maintain: <ul style="list-style-type: none"> • M03 – Maintenance and inspections • M04 – Safe work control • Marine Services Management Procedure • Marine Assurance Overview Procedure • Contracting and Procurement Procedure. 	MSPS M03 – Maintenance and inspections on MSPS M04 – Safe work control Marine Services Management Procedure Marine Assurance Overview Procedure Contracting and Procurement Procedure	Prevention (Administration)	Yes See Section 7.13 and Appendix H for discussion around the ALARP assessment of controls related to hydrocarbon spill response.
Emergency Response and Contingency Planning	<ul style="list-style-type: none"> • Implementing management systems to maintain: • M06 – Emergency Preparedness • Scarborough Emergency Response Plan 	MSPS M06 – Emergency preparedness Scarborough Emergency Response Plan Scarborough Operations Oil Pollution First Strike Plan	Mitigation (Administration)	Yes See Section 7.13 and Appendix H: Oil Spill Preparedness and Response Mitigation Assessment for discussion around the

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	<ul style="list-style-type: none"> Scarborough Operations Oil Pollution First Strike Plan Oil Pollution Emergency Arrangements – Australia. 	Oil Pollution Emergency Arrangements – Australia.		ALARP assessment of controls related to hydrocarbon spill response.
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ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision type A, Section 2.3.1), Woodside considers the adopted controls appropriate to manage the risks of an unplanned hydrocarbon release as a result of vessel collision. As no reasonable additional/alternative controls were identified for vessel activities that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.

If hydrocarbon loss of containment occurs, mitigation measures and emergency response protocols are in place to minimise the consequence.

Controls have been selected following hierarchy of control principles and consider independence of each barrier and their type of effect in controlling the hazardous event. Qualitative hazard analysis and spill risk assessment considers potential for causal events and their consequences. Based on the environmental risk assessment outcomes (Highly Unlikely likelihood and Moderate consequence) and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the potential impacts, risks and potential escalation events.

The controls in place for prevention and mitigation of significant process safety release events are specified and assured through implementing Woodside risk management procedures.

- Given the controls in place to prevent vessel collision and loss of separation events, and mitigate their consequences, it is considered that the risk is managed to ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of risk and associated impacts assessed in this section are provided in Section 7.2.6.4 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):

- Overall risk consequence/risk ratings for individual receptors are less than the significant impact level defined in the OPP.
- EPOs and controls in the OPP that are relevant to an unplanned hydrocarbon release from a vessel collision have been adopted.
- There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation.

Acceptability Statement:

The impact assessment has determined that an accidental hydrocarbon release as a result of a vessel collision represents a moderate current risk rating and is unlikely to result in a consequence greater than Moderate. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the Petroleum Activities Program is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice. The adopted controls are considered consistent with industry legislation, codes and standards, good practice and professional judgement and meet the requirements and expectations of Australian Marine Orders, AMSA and AHO identified during impact assessment and consultation. The potential risks and consequences are considered acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2) including those with an Indigenous connection with, or traditional use in nearshore areas as defined in Section 4.9).

Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of a loss of vessel structural integrity to a level that is broadly acceptable; and demonstrates the EPO is met.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
EPO 20 No release of hydrocarbons to the marine environment due to a vessel collision associated with the Petroleum Activities Program.	C 1.2 Implementation of a 500 m PSZ around FPU.	PS 1.2.1 Refer to Section 6.7.1	MC 1.2.1 Refer to Section 6.7.1
	C 1.3 Establishment of temporary SEZ by applicable vessels and communicated to marine users.	PS 1.3.1 Refer to Section 6.7.1	MC 1.3.1 Refer to Section 6.7.1
	C 1.5 Notify AHO of activities no less than four working weeks prior to scheduled activity commencement date where vessels will be in the Operational Area, but outside the Petroleum Safety Zone >3 weeks	PS 1.5.1 Refer to Section 6.7.1	MC 1.5.1 Refer to Section 6.7.1
	C 1.6 Vessels to notify AMSA Joint Rescue Coordination Centre (JRCC) of vessel activities and movements 24 to 48 hours before the scheduled activity commencement date, and at the end of activities.	PS 1.6.1 Refer to Section 6.7.1	MC 1.6.1 Refer to Section 6.7.1
	C 13.1 Marine Order 30 – Prevention of vessel collisions – 2016, including: <ul style="list-style-type: none"> • adherence to steering and sailing rules including maintaining look-outs (e.g. visual, hearing, radar, etc), proceeding at safe speeds, assessing risk of collision and taking action to avoid collision (monitoring radar) • adherence to navigation light display requirements, including visibility, light position/shape appropriate to activity • adherence to navigation noise signals as required. 	PS 13.1 Vessels compliant with Marine Order 30 (Prevention of Collisions) 2016 (which requires vessels to be visible at all times) to prevent unplanned interaction with marine users.	MC 13.1 Marine Assurance inspection records demonstrate compliance with standard maritime safety procedures (Marine Orders 21, 27 and 30).
	C 13.2 Marine Orders 21 (Safety and emergency arrangements) 2016, including: <ul style="list-style-type: none"> • vessels' adherence to minimum safe manning levels • maintenance of navigation equipment in efficient working order (compass/radar) • navigational systems and equipment required are those specified in Regulation 19 of Chapter V of SOLAS 	PS 13.2.1 Vessels compliant with Marine Order 21 (Safety and emergency arrangements) 2016 to prevent unplanned interaction with marine users.	

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	<ul style="list-style-type: none"> AIS that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data. 		
	<p>C 13.3 Marine Order 27 (safety of navigation and radio equipment) 2016:</p> <ul style="list-style-type: none"> vessel navigational systems and equipment mentioned in Regulations 19 and 20 of Chapter V of SOLAS for the vessel are type approved and installed on board vessels navigational system and equipment required are those specified in Regulation 19 of Chapter V of Safety of Life at Sea navigational systems and equipment are maintained in working order navigational activities and incidents of importance to safety of navigation on the vessel are recorded. Automatic Identification System that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data. 	<p>PS 13.3.1 Vessels compliant with Marine Order 27 (Safety of navigation and radio equipment) 2016 to prevent unplanned interaction with marine users.</p>	
	<p>C 13.7 Maintaining environmental incident response equipment to implement initial response to enact the Scarborough Operations Oil Pollution First Strike Plan.</p>	<p>PS 13.7.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> E05 – Environmental incident response equipment, including: <ul style="list-style-type: none"> satellite tracking drifter buoy able to monitor spill movement sufficient hydrocarbon spill response equipment for control and/or clean-up of liquid 	<p>MC 13.7.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
		hydrocarbon spills to ocean ○ minimum equipment coverage, to maintain spill response capability.	
	C 13.10 In the event of a spill, emergency response activities implemented in accordance with the OPEP.	PS 13.10.1 In the event of a spill the Vessel OPEP requirements are implemented.	MC 13.10.1 Records of completed incident documentation.
	C 13.11 Arrangements supporting the activities in the OPEP will be tested to ensure the OPEP can be implemented as planned.	PS 13.11.1 Exercises/tests will be conducted in alignment with the frequency identified in Table 7-13: Testing of response capability Specifically, for FPU Level 2 Exercises: <ul style="list-style-type: none"> • First FPU Level 2 exercise within 3 months post hookup • Second FPU Level 2 exercise within 3 months post RFSU • First Operations Phase (post Final Facility Acceptance) FPU Level 2 exercise to be conducted within 12 months since previous Level 2. 	MC 13.11.1 Testing of arrangement records confirm that emergency response capability has been maintained.
		PS 13.11.2 Testing of arrangement records confirm that emergency response capability has been maintained.	MC 13.11.2 Emergency Management dashboard confirms that minimum level of personnel trained for core OPEP roles are available.
Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are presented in Appendix H: Oil Spill Preparedness and Response Mitigation Assessment			

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- external corrosion
- fatigue
- extreme environmental weather conditions (cyclone, high waves)
- operation outside of design
- fire/explosion event (escalation from LOC event)
- dropped object
- subsea equipment hydrocarbon loss of containment (fire/explosion) (Section 6.8.5)
- loss of marine vessel separation with FPU
- topsides loss of containment (fire/explosion) or loss of control of suspended load from facility lifting operations (Section 6.8.6).

Vessel collision with FPU causing structural damage with potential for ignition and escalation are also managed under the Scarborough Safety Case (MAE-05, and MAE-04) – see C17.8.

The Scarborough FPU's hull/substructure, topsides structures, mooring and ballast systems are designed to provide and maintain structural integrity under all expected operational and environmental conditions through service life.

Substructures, Moorings and Ballast systems

The FPU's substructure (e.g. hull structure, hull mating posts, mooring and riser/caisson supports, protection frames and fire/blast partition supports) is designed to provide and maintain structural integrity under all expected operational and environmental conditions through service life, and to provide sufficient robustness to maintain availability of critical systems. The FPU hull design includes key features such as no hydrocarbon storage in the hull, no external hull penetrations above the waterline, with design to maintain stability with two compartments flooding. The mooring arrangement consists of 20 mooring lines, with 5 lines per column in a 4 by 5 pattern, connected via wire and chain to anchor piles ensuring appropriate redundancy.

The FPU substructure (hull) and mooring is designed to;

- consider a range of dynamic fatigue factors through the design life
- consider impacts of potential dropped objects and swung loads
- withstand potential impacts by the largest vessel class from Woodside's integrated marine fleet
- suitably withstand extreme and abnormal environmental loading (100-year and 10,000 year cyclonic return periods respectively).

The FPU ballast system consists of equipment including pumps, piping, valves, fittings, instrumentation and controls necessary to ballast and de-ballast the FPU hull's ballast tanks and void compartments for all pre-service (including float over and integration) and operating conditions. The facility is designed such that stability is maintained in all design conditions without the use of the ballast system. However, the ballast system is capable of adjusting ballast weight to correct inclination in case of an accidental flooding event. The ballast system can be operable from local or remote control rooms.

The ASV complies with Class requirements. It maintains a ballast and bilge management system with alarms, and a watertight integrity system with tank design which prevents down-flooding.

Topside Structures

The design and integrity of topside primary steel structures (such as main trusses, deck framing, flare boom, deck posts, crane pedestals, blast and fire walls, and various secondary structures) are key to preventing structural failures which could lead to a loss of containment of hydrocarbon containing equipment, loss of flare system and other critical systems integrity which could lead to progressive collapse of the FPU's topside structure and loss of containment of stored hydrocarbons to the environment.

The topsides structures are designed to have adequate structural capacity to support its self-weight, all facilities (including allowance for future installed facilities), and all operating and environmental loads during in-service conditions to ensure its integrity for the facility life.

The design has considered in-service loads and accident limit state loads including:

- permanent and variable (live action) structural loads
- environmental loads, including hull motion induced loads
- Lower Deck's Bottom of Steel (BOS) is designed to clear the wave crest associated with the 10,000-year storm
- seismic loads (for subsea and mooring structures)
- fatigue inducing loads (hull motions, Vortex Induced Vibration (VIV), transportation induced loads)
- dropped and swung loads
- potential fire and explosion loads.

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A ship collision study assessed the risks associated with loss of marine vessel separation through consideration of collision between the FPU and errant vessels (powered or drifting) and in-field vessels, including Support Vessels. The frequency of collision has been established for passing vessels within the area, based on data obtained from AMSA and are presented in the Scarborough FPU Safety Case. The conclusions of the study are summarised as follows:

- Attendant vessels present the most frequent threat to the FPU, however with drive-off impact energies considered within the capacity of the FPU hull structure.
- The subsea system risers are protected from Support Vessel drive-off by their location outside the Support Vessel operating area and are provided with impact protection within robust I-tubes. The frequency of riser damage to support vessel collision is thus considered negligible (F).
- FPU mooring lines are not vulnerable to support vessel collision, as the chains are supported from chain stoppers 20m below water level.
- The energy associated with errant vessels adrift or under power is expected to be high and could lead to catastrophic damage to the FPU hull integrity (Section 6.8.3).

Based on the vessel traffic density in the area the expected collision frequency that may cause significant damage to the FPU is considered Highly Unlikely in the order of 8×10^{-5} per annum.

FPU Loss of Structural Integrity – Credible Scenario

Loss of structural integrity of the FPU resulting in foundering or a full capsized could result in the worst-case loss of the full diesel inventory stored on the FPU (crane pedestals, fire water pump, black start and emergency diesel storage tanks). In such an instance, the maximum total volume of marine diesel stored on the FPU is 470 m^3 . Loss of full diesel inventory concurrently from both crane pedestal tanks and smaller tanks is selected as a conservative scenario for environmental consequence assessment, suitably governing other potential smaller or lower rate discharges from stored hydrocarbons such as distributed topsides lube oil storage systems, process system drain and waste drums.

ASV Loss of Structural Integrity – Credible Scenario

Damage to the ASV could cause capsizing, foundering or sinking. In accordance with AMSA guidance, the maximum credible scenario for loss of vessel is the volume of the largest fuel tank, 359 m^3 of diesel at the surface. Further loss could occur at the seabed, however at a slower rate and the instantaneous surface release is considered conservative. The potential impact of this scenario is within that of the FPU loss of structural integrity scenario.

Quantitative Spill Risk Assessment

Modelling of a 470 m^3 surface release of marine diesel was undertaken at the FPU location (RPS, 2024) (Table 6-43). The modelling assessed the extent of a marine diesel spill for all seasons, using historic samples of wind and current data for the region (2006-2015, inclusive). A total of 200 simulations were modelled over an annual period, with each simulation tracked for 42-days. The coordinates of the modelled spill locations are detailed in Table 6-43.

A description of the characteristics of MDO, including predicted weathering is presented in Section 6.8.2, and QSRA outcomes further described in Detailed Impact Assessment section below.

Escalation events

Loss of structural integrity/stability has the potential to cause unplanned hydrocarbon release from subsea equipment due to over-stress of subsea risers. Process safety management measures are described in this structural integrity section (preventative and mitigative barriers), with subsea system escalation consequence presented in (Section 6.8.5).

Localised topsides structural integrity failures and dropped objects have the potential to cause unplanned hydrocarbon release to the environment associated with Topsides Loss of Containment hazards, with causes and controls discussed in Section 6.8.6 and Safety Case MAE-02.

Outcome Mitigation

Potential hydrocarbon release environmental consequences associated with loss of structural integrity/stability are mitigated at facility by detection and alarm, ballasting system response, emergency shutdown (for isolation of reservoir, topsides and pipeline/trunkline inventories), SSIVs and trunkline non-return valves (NRV), critical communications systems and emergency preparedness (including facility ERP, spill response arrangements). Ignition control, emergency power, safety critical buildings and fire/explosion escalation controls (such as depressurisation blowdown systems and firewalls) are part of the FPU design as described in the Scarborough Safety Case for Major Accident mitigation, thus contributing to management of associated potential environmental consequences of MAEs.

Likelihood Assessment

The frequency of structural failure attributed to weather is drawn from industry published data based upon data within the World Offshore Accident Databook as described in the Scarborough FPU Safety Case. The adopted data is based on that for all units worldwide (fixed and mobile, excluding towing) is 1.3×10^{-5} per annum.

The structural degradation (corrosion and fatigue) design target reliability level for structural integrity of the FPU is 3×10^{-5} per annum, and is taken as a conservative value for potential loss of FPU topsides hydrocarbons to sea. This gives a likelihood level of 1 “Highly Unlikely” on the Woodside Risk Matrix.

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With respect to seismic induced failures, as a floating installation, seismic events would not be capable of impacting the FPU directly, however the mooring system could be impacted. Due to the relatively low seismic activity within the area and design consideration, seismic events are not considered a credible threat.

A worse-case catastrophic loss of structural integrity/stability event could occur during severe loading conditions such as in a storm exceeding abnormal environmental loading design criteria (1:10,000 year cyclonic return period). Potential hydrocarbon release in such conditions however would not be anticipated to exhibit worst-case environmental consequences, given high energy sea surface mixing and extreme cyclonic weathering effects.

Detailed Impact Assessment

Assessment of Potential Impacts

Environment that May Be Affected

The overall EMBA for the Petroleum Activities Program is based on stochastic modelling, which compiles data from 200 hypothetical worst-case spills under a variety of weather and metocean conditions (as described in **Section 6.8.1**). The EMBA therefore covers a larger area than the area that would be affected during any one single spill event, and therefore represents the total extent of all the locations where hydrocarbon thresholds could be exceeded from all modelling runs. The trajectory of a single spill would have a considerably smaller footprint.

As described in Section 6.8.1, three hydrocarbon spill locations were modelled in order to represent the range of locations of where vessel collision could occur within the PAA. The EMBA has been defined using a combination of all three locations, as shown in Figure 4-2. The largest extent of the Hydrocarbon EMBA is based on the entrained threshold from the modelled locations and therefore includes the results from 600 modelling runs. In the event of a spill the EMBA would be much smaller and is intermittent e.g. a plume travels away from the release location based on prevailing currents and winds directions. Therefore one area is not exposed to hydrocarbons above thresholds for the entire simulation.

Location 3 presents the worst credible loss of containment event applicable to loss of structural integrity, at the Offshore Operational Area, FPU location (470 m³ MDO instantaneous surface release). As the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean transport mechanism, a different EMBA is discussed for each fate, with modelling results presented below.

Surface Hydrocarbons: Modelling of surface hydrocarbons from the loss of FPU structural integrity scenario shows a surface hydrocarbon slick would form down-current of the release location, with the trajectory dependent on prevailing wind and current conditions at the time. The modelling indicates that the EMBA from this spill scenario would be confined to open water, with surface hydrocarbons extending up to about 105 km from the release location at or above the 10 g/m² impact threshold, with the direction of maximum travel to the northeast. A socio-cultural EMBA for surface hydrocarbons which includes the threshold for visible surface hydrocarbons of 1 g/m² may extend up to about 115 km from the release site, with the direction of maximum travel being to the southwest. No emergent receptor locations are predicted to be contacted by floating hydrocarbons.

Entrained Hydrocarbons: The modelling indicates that locations exposed to entrained hydrocarbons at or above the threshold concentration of 100 ppb are predicted to be limited to offshore areas up to 287 km from the release site, with the direction of maximum travel being to the northwest. Concentrations above 100 ppb are not expected to exceed depths of approximately 30 m below MSL. The only sensitive receptor location predicted to be contacted by entrained oil concentrations at the 100 ppb threshold is the Gascoyne AMP (2.5% probability).

Dissolved Hydrocarbons: Dissolved aromatic hydrocarbons at concentrations equal to or greater than the 50 ppb threshold are predicted to be found up to 314 km from the spill site at Location 3, with the direction of maximum travel to the northwest. Concentrations above 50 ppb are not expected to exceed depths of approximately 40 m BMSL. The modelling predicted a 1.5% probability of dissolved oil concentrations at ≥50 ppb contacting the Gascoyne AMP; no other key receptors areas were predicted to be contacted at or above the dissolved oil threshold.

Accumulated Hydrocarbons: Accumulated hydrocarbons above threshold concentrations (≥100 g/m²) were not predicted by the modelling to occur at any location. Floating oil at concentrations equal to or greater than 1 g/m² are not predicted to contact any shoreline receptors.

Impact Assessment

An unplanned hydrocarbon release as a result of loss of structural integrity of the FPU has the potential to result in the following impacts:

- change in water quality
- impacts to marine fauna
- impacts to other marine users.

Modelling of the potential extent of a worst-case spill resulting from a loss of structural integrity demonstrates that impacts would be limited to offshore, open waters, with no shoreline contact predicted.

In the unlikely event of this scenario occurring there will be potential impacts to megafauna, plankton and fish populations (surface and water column biota) that are within the spill affected area.

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The potential biological and ecological impacts associated with a large-scale marine diesel spill in open waters (i.e. vessel collision) are described in detail in Section 6.8.2 and include impacts to plankton, seabirds, fish, marine mammals and marine reptiles. In the event of a spill from a loss of structural integrity of the FPU, potential impacts are considered Moderate.

Water Quality

The highly-mixed, open water location and characteristics of hydrocarbons released will result in rapid evaporation and dispersion. However, MDO contains a small proportion of heavy components (or low-volatile components) that tend to physically entrain into the upper water column in the presence of moderate winds (i.e. >12 knots) and breaking waves but may resurface if these conditions abate. If a substantial spill occurred, the heavier components could remain entrained or remain on the sea surface for an extended period and travel significant distances from the source, albeit at low concentrations.

Predicted weathering of marine diesel, based on typical conditions in the region, indicates that about 24% of the oil mass should evaporate within the first 24 hours (Figure 6-9) (RPS, 2024). After this time the majority of the remaining hydrocarbon is entrained into the upper water column.

The magnitude of potential impact of a change in water quality from unplanned release of MDO is assessed as slight. Receptor sensitivity of water quality is low (low value, open ocean), and therefore the consequence of a release of hydrocarbons on water quality is Negligible (F).

Marine Sediment

In the event of loss of structural integrity, there is the remote potential for full loss of the FPU to occur leading to an incremental increase of the FPU's footprint on the seabed. The potential area that would be affected can conservatively be defined as the existing FPU footprint plus 100 m in all directions; that is, approximately 237 m by 267 m (0.063 km²). The benthic habitats are dominated by soft bottom habitat and characterised by sparse marine life dominated by motile organisms. The benthic habitats surrounding the FPU have been subject to some disturbance (e.g. subsea infrastructure and FPU installation). Subsequently, the physical disturbance to the seabed resulting from the collapse of the FPU would be localised but may result in long-term disturbance to benthic communities.

The FPU could also act as a source of environmental contaminants due to material on board the platform (e.g. chemical/hydrocarbon inventories, corrosion of structural materials, debris, etc.). The potential for contamination would diminish over time, as the structure degrades. Depending on the nature of the loss of structural integrity, complete or partial salvage of the FPU may not be feasible. These structures are expected to be colonised by marine organisms, and a deepwater subsea habitat would develop over time on the structures. As such, the magnitude of a potential impact to water quality associated with loss of structural integrity is assessed as Negligible (F).

KEFs

The Exmouth Plateau KEF overlaps the Offshore Operational Area and seabed disturbance as a result of loss of structural integrity of the FPU may lead to a highly localised change in habitat and water quality. Impact to habitats would represent a small area relative to the large extent of the KEF. Physical habitat modification is not listed as a potential concern for the Exmouth Plateau KEF and potential impacts are unlikely to impact the ecological value of the KEF (as described in **Section 4.7**). As such, the magnitude of a potential impact to water quality associated with a loss of structural integrity is assessed as Slight (E).

AMPs

The quantitative spill risk assessment results indicate that the open water environment protected within the Gascoyne AMP may be affected by the released hydrocarbons.

A spill from the FPU in the PAA is unlikely to result in significant impacts to the AMPs based on the nature of the spilled hydrocarbons. Natural values for the AMPs include:

- marine turtle BIAs for Gascoyne Marine Park
- humpback whale migration BIA for Gascoyne Marine Park
- pygmy blue whale possible foraging area and migration BIAs for Gascoyne Marine Park
- diverse fish communities for Gascoyne Marine Park
- seabird breeding habitat BIAs for Gascoyne Marine Park.

While this results in exposure to hydrocarbons for some of the natural values of the marine parks, the impacts will be temporary as the MDO evaporates and degrades and moves with ocean currents. The evaluation of impacts to specific receptors are detailed in the individual receptor assessments above and below. Based on the assessment, the magnitude of a potential impact to AMPs associated with a release of hydrocarbons is Minor (D).

Marine Mammals

A change in marine fauna behaviour or injury/mortality to marine mammals may occur due to a change in water quality after an unplanned hydrocarbon release.

Air-breathing fauna such as marine mammals are most at risk from surface exposures due to the high volatile components. Marine mammals that have direct physical contact with surface, entrained or dissolved aromatic hydrocarbons may suffer surface fouling, ingest hydrocarbons and inhale toxic vapours. This may result in the irritation

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of sensitive membranes such as the eyes, mouth, digestive and respiratory tracts and organs, impairment of the immune system or neurological damage (Helm et al., 2015). If prey (fish and plankton) are contaminated, this can result in the absorption of toxic components of the hydrocarbons (PAHs).

In a review of cetacean observations in relation to a number of large-scale hydrocarbon spills, Geraci (1988) found little evidence of mortality associated with hydrocarbon spills. However, behavioural disturbance (i.e. avoiding spilled hydrocarbons) was observed in some instances for several species of cetaceans. This suggests that cetaceans are able to detect and avoid surface slicks. While this reduces the potential for physiological impacts from contact with hydrocarbons, active avoidance of an area may disrupt behaviours such as migration, or displace individuals from important habitat, such as foraging, resting or breeding.

When first released, MDO has a higher toxicity due to the presence of the volatile components. Individual cetaceans making contact close to the spill source at the time of the spill may be impacted. Cetacean presence is generally more concentrated in waters closer to shore with the exception of false killer whales. Although cetacean presence may occur throughout the PAA and defined EMBA, it is unlikely that a large number of cetaceans will be affected at the sea surface above thresholds, as only the Gascoyne AMP will be contacted with surface oil and this is highly unlikely to occur (1% probability of 1 g/m²).

Although potential impacts could include mortality or sub-lethal injury/illness of marine mammals, this would be expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering of surface oil to below impact thresholds, and the mobile transient nature of marine mammals and potential avoidance behaviour, unplanned releases of MDO are not expected to have a substantial adverse effect on the population or spatial distribution of marine mammals; or substantially modify, destroy or isolate an area of important habitat for migratory species. Additionally, unplanned releases will not seriously disrupt the lifecycle of an ecologically significant proportion of any migratory species.

There are specific conservation advices for some species which identify noise interference and vessel disturbance as key threats. While hydrocarbon spills are not explicitly identified as a threat, the sei whale conservation advice does include the management of physical disturbance and development activities. No explicit management actions are identified relevant to hydrocarbon spills.

Potential impacts are unlikely to lead to mortality or sub-lethal injury/illness of an EPBC listed protected species. Based on the detailed risk evaluation, the magnitude of potential impacts to marine mammals (focused on changes in behaviour) from unplanned MDO releases is assessed as slight. Receptor sensitivity of marine mammals is high (high value fauna), and therefore the consequence of a release of hydrocarbons on marine mammals is Minor (D).

Fish, Sharks and Rays

Injury/mortality to fish species may occur due to a change in water quality following an unplanned hydrocarbon release. Any surface and subsurface hydrocarbon release could impact fish, as they are widely dispersed throughout the water column.

Impacts to sharks and rays may occur through direct contact with hydrocarbons and contaminate the tissues and internal organs, either through direct contact or via the food chain (consumption of prey). As gill breathing organisms, sharks and rays may be vulnerable to toxic effects of dissolved hydrocarbons (entering the body via the gills) and entrained hydrocarbons (coating of the gills inhibiting gas exchange). In the offshore environment, it is probable that pelagic shark species are able to detect and avoid hydrocarbons by swimming into deeper water or away from the affected areas.

Fish mortalities are rarely observed to occur as a result of hydrocarbon spills (International Tanker Owners Pollution Federation, 2011b). This has generally been attributed to the possibility that pelagic fish are able to detect and avoid surface waters underneath hydrocarbon spills by swimming into deeper water or away from the affected areas. Fish that have been exposed to dissolved aromatic hydrocarbons are capable of eliminating the toxicants once placed in clean water; hence, individuals exposed to a spill are likely to recover (King et al., 1996). Where fish mortalities have been recorded, the spills (resulting from the groundings of the tankers Amoco Cadiz in 1978 and the Florida in 1969) have occurred in sheltered bays.

Laboratory studies have shown that adult fish can detect hydrocarbons in water at very low concentrations, and large numbers of dead fish have rarely been reported after hydrocarbon spills (Hjermann et al., 2007). This suggests that juvenile and adult fish can avoid water contaminated with high concentrations of hydrocarbons.

The effects of exposure to oil on the metabolism of fish appear to vary according to the organs involved, exposure concentrations and route of exposure (waterborne or food intake). Oil reduces the aerobic capacity of fish exposed to aromatics in the water, and to a lesser extent affects fish consuming contaminated food (Cohen et al., 2005). The liver, a major detoxification organ, appears to be where anaerobic activity is most impacted, probably increasing anaerobic activity to help eliminate ingested oil from the fish (Cohen et al., 2005).

Fish are perhaps most susceptible to the effects of spilled oil in their early life stages, particularly during egg and planktonic larval stages, which can become entrained in spilled oil. Contact with oil droplets can mechanically damage feeding and breathing apparatus of embryos and larvae (Fodrie and Heck, 2011). The toxic hydrocarbons in water can result in genetic damage, physical deformities and altered developmental timing for larvae and eggs exposed to even low concentrations over prolonged timeframes (days to weeks) (Fodrie and Heck, 2011). Subtler, chronic effects on the life history of fish because of exposure in early life stages to hydrocarbons include disruption to complex behaviour such

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as predator avoidance, reproductive and social behaviour (Hjermann et al., 2007). Prolonged exposure of eggs and larvae to weathered concentrations of hydrocarbons in water has also been shown to cause immunosuppression and allows expression of viral diseases (Hjermann et al., 2007).

Adult fish exposed to low hydrocarbon concentrations are likely to metabolise the hydrocarbons and excrete the derivatives, with studies showing that fish can metabolise petroleum hydrocarbons and that accumulated hydrocarbons are released from tissues when the fish is returned to hydrocarbon-free sea water. Several fish communities in these areas are demersal (i.e. living closer to the seabed) where concentrations of entrained hydrocarbons will be lower; any impacts are expected to be highly localised.

When first released, MDO has a higher toxicity due to the presence of the volatile components. Individual fish making contact close to the spill source at the time of the spill may be impacted. Fish presence is generally concentrated in waters closer to shore. Although fish presence may occur throughout the entire PAA and defined EMBA, it is unlikely that a large number of fish will be affected at the sea surface above thresholds. Mobile transient fauna are not expected to remain within entrained hydrocarbon plumes for an extended time. Therefore, no acute impacts or risks associated with entrained exposures from an unplanned MDO release are expected. Any impacts from this exposure are expected to result in localised short-term effects to limited small numbers of juvenile fish and prey species (larvae and planktonic organisms), which are not expected to affect population viability and recruitment of fish. Consequently, diverse fish assemblages are not expected to be significantly impacted.

Although potential impacts could include mortality or sub-lethal injury/illness of pelagic fish, this would be expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds and degradation of entrained fractions, and the mobile transient nature of fish, unplanned releases of MDO are not expected to have a substantial adverse effect on the population or spatial distribution of fish; or substantially modify, destroy or isolate an area of important habitat for migratory species. Additionally, unplanned releases will not seriously disrupt the lifecycle of an ecologically significant proportion of any migratory fish species.

There are specific conservation advices for some fish species which identify habitat degradation/modification as a key threat. While for some species there are specific requirements (e.g. sawfish), no specific requirements have been identified for relevant species (i.e. species identified as having potential to occur in the EMBA).

The magnitude of a potential impact to fish associated with a release of hydrocarbons is minor (D). Although potential impacts could include mortality or sub-lethal injury/illness of pelagic fish, this would be expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds and degradation of entrained fractions, and the mobile transient nature of fish, unplanned release is not expected to have a substantial adverse effect on the population, or spatial distribution of fish/sharks/rays.

Marine Reptiles

A change in marine fauna behaviour or injury/mortality to marine reptiles may occur due to a change in water or sediment quality following an unplanned hydrocarbon release.

Marine reptiles can be impacted by surface exposure when they surface to breathe, and by shoreline accumulation of hydrocarbons when breeding and nesting.

Hydrocarbons in surface waters may impact turtles when they surface to breathe and inhale toxic vapours. Their breathing pattern, involving large 'tidal' volumes and rapid inhalation before diving, results in direct exposure to petroleum vapours which are the most toxic component of the hydrocarbon spill (Milton and Lutz, 2003). This can lead to lung damage and congestion, interstitial emphysema, inhalant pneumonia and neurological impairment (National Oceanic and Atmospheric Administration, 2010). Contact with entrained hydrocarbons can result in hydrocarbon adherence to body surfaces, irritating mucous membranes in the nose, throat and eyes, leading to inflammation and infection (Gagnon and Rawson, 2010).

Adult sea turtles exhibit no avoidance behaviour when they encounter hydrocarbon spills (National Oceanic and Atmospheric Administration, 2010). Oiling can also irritate and injure skin, which is most evident on pliable areas such as the neck and flippers (Lutcavage et al., 1995). A stress response associated with this exposure pathway includes an increase in the production of white blood cells, and even a short exposure to hydrocarbons may affect the functioning of their salt gland (Lutcavage et al., 1995).

When first released, MDO has a higher toxicity due to the presence of the volatile components. Individual turtles making contact close to the spill source at the time of the spill may be impacted. Turtle presence is generally more concentrated in waters closer to shore, with infrequent presence of turtles as far offshore as the PAA. Although turtle presence may occur throughout the PAA and defined EMBA, it is unlikely that a large number of turtles will be affected. With no shoreline accumulation, there is negligible potential for impacts to turtle nesting beaches.

Impacts to sea snakes from direct contact with hydrocarbons are likely to result in similar physical effects to those recorded for marine turtles.

Potential impacts are unlikely to lead to mortality or sub-lethal injury/illness of an EPBC listed protected species. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, and the mobile transient nature of individuals, an unplanned release from a vessel collision is not expected to substantially modify, destroy or isolate an area of important habitat for migratory species. It is not expected that unplanned releases will have a substantial adverse

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effect on the population, or spatial distribution of marine reptiles; or seriously disrupt the lifecycle of an ecologically significant proportion of any migratory species.

Impacts to turtles from unplanned hydrocarbon releases are to be managed in accordance with the Recovery Plan for marine turtles in Australia (Commonwealth of Australia, 2017). The Recovery Plan identifies ensuring spill risk strategies and response programs include management for turtles and their habitats. In addition, there is in place approved Conservation Advice for the short-nosed sea snake (DSEWPaC, 2011), which includes ensuring there is no anthropogenic disturbance in areas where the species occurs, excluding necessary actions to manage the conservation of the species.

Based on the detailed risk evaluation, the magnitude of potential impacts to marine reptiles from unplanned hydrocarbon releases is assessed as no lasting effects (from change in fauna behaviour) and slight (from injury/mortality to fauna). Receptor sensitivity of marine reptiles is high (high value fauna), and therefore the overall consequence of a release of hydrocarbons on marine reptiles is Minor (D).

Seabirds and Migratory Shorebirds

A change in marine fauna behaviour or injury/mortality to seabirds and migratory shorebirds may occur due to a change in water or sediment quality following an unplanned hydrocarbon release.

Seabirds and migratory birds are particularly vulnerable to contact with floating hydrocarbons, which may mat feathers. This may lead to hypothermia from loss of insulation and ingestion of hydrocarbons when preening to remove hydrocarbons. Both impacts may result in mortality (Hassan and Javed, 2011). Pathways of biological exposure that can result in impact may occur through ingesting contaminated fish (nearshore waters) or invertebrates (intertidal foraging grounds such as beaches, mudflats and reefs). Ingestion can also lead to internal injury to sensitive membranes and organs (International Petroleum Industry Environmental Conservation Association, 2004). Whether the toxicity of ingested hydrocarbons is lethal or sub-lethal will depend on the weathering stage and its inherent toxicity. Exposure to hydrocarbons may have longer term effects, with impacts to population numbers due to decline in reproductive performance and malformed eggs and chicks, affecting survivorship and losing adult birds.

When first released, MDO has a higher toxicity due to the presence of the volatile components. Individual birds making contact close to the spill source at the time of the spill may be impacted. Bird presence within the NWMR is more concentrated in waters closer to shore with the potential for individual migratory birds within the PAA.

There are specific conservation advices for some species which identify habitat degradation as the key threat, but generally no explicit management actions are identified relating to hydrocarbon spills.

The magnitude of a potential impact to seabirds and migratory shorebirds associated with a release of hydrocarbons is Slight (E) (from change in fauna behaviour) and Minor (D) (from injury/mortality to fauna). Although potential impacts could include mortality or sub-lethal injury/illness of birds, this is expected to comprise a small proportion of the resident and transitory population. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, and the mobile transient nature of individuals, unplanned hydrocarbon releases are not expected to substantially modify, destroy or isolate an area of important habitat for migratory species.

Commonwealth and State Managed Fisheries

A change in marine fauna behaviour or injury or mortality to marine fauna – in particular to commercially targeted species, or their prey species (e.g. plankton) – can impact fisheries.

Fish exposure to hydrocarbon can result in 'tainting' of their tissues. Even very low levels of hydrocarbons can impart a taint or 'off' flavour or smell in seafood. Tainting is reversible through the process of depuration which removes hydrocarbons from tissues by metabolic processes, although it depends on the magnitude of the contamination. Fish have a high capacity to metabolise these hydrocarbons while crustaceans (such as prawns) have a reduced ability (Yender et al., 2002). Seafood safety is a major concern associated with spill incidents. Therefore, actual or potential contamination of seafood can affect commercial and recreational fishing and can impact seafood markets long after any actual risk to seafood from a spill has subsided (Yender et al., 2002).

A major spill could result in the establishment of an exclusion zone around the spill affected area. There would be a temporary prohibition on fishing activities for a period and subsequent potential for economic impacts to affected commercial fishing operators. Additionally, hydrocarbon can foul fishing equipment such as traps and trawl nets, requiring cleaning or replacement.

MDO presence in the water would be restricted to the surface and upper water column only. Dissolved aromatics (i.e. the form that is bioavailable) are in such small concentrations in MDO that their effect in the marine environment is negligible (F); i.e. tainting from an MDO exposure is not considered likely to occur. Any exclusion zone established would be limited to the immediate vicinity of the release point, and due to the rapid weathering of MDO would only be in place days after release, therefore physical displacement to vessels is unlikely to be a significant impact.

A number of Commonwealth and State fishery management areas are located within the PAA and EMBA. FishCube data was requested to analyse the potential for interaction of fisheries with the PAA, which was used to determine consultation with State Fisheries who may be impacted by proposed petroleum activities (Department of Primary Industries and Regional Development [DPIRD], 2021). Table 4-27 provides an assessment of the potential interaction and provides further detail on the fisheries that have been identified through desk-based assessment and consultation (**Section 5**).

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In the highly unlikely event of a release of marine diesel to the environment as a result of vessel collision there may be the presence of hydrocarbons in areas used by the fisheries that overlap the EMBA (Table 4-27).

Although potential impacts from a worst case spill could include mortality or sub-lethal injury/illness of pelagic fish (described in the specific receptor evaluation), this would be expected to comprise a small proportion of the resident and transitory population. Given the hydrocarbon characteristics, expected rapid weathering to below impact thresholds and low fishing effort, an unplanned hydrocarbon spill from the Petroleum Activities Program is not expected to have an adverse effect on the sustainability of commercial fishing; or to interfere with other marine users.

Based on the detailed risk evaluation, the magnitude of potential impacts to Commonwealth and State managed fisheries from an unplanned hydrocarbon release is assessed as Slight (E).

Shipping

In the event of a spill, an exclusion zone may be established around the spill affected area. This could result in exclusion of other users such as shipping vessels or vessels used by the mining and petroleum industries. Any exclusion zone established would be limited to the immediate vicinity of the release point, and due to the rapid weathering of MDO would only be in place for days after release, therefore physical displacement to vessels is unlikely to be a significant impact.

Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, short duration of displacement, and the offshore location of the PAA, unplanned releases of MDO are not expected to interfere with shipping to a greater extent than necessary.

Based on the assessment, the magnitude of a potential impact to shipping associated with an unplanned release of hydrocarbons is Slight (E).

Summary of Assessment Outcomes

Receptor	Impact	Receptor Sensitivity Level	Risk Consequence	Likelihood	Risk Rating
Water quality	Change in water quality	Low value (open water)	Negligible (F)	Highly unlikely	Low
Marine sediment	Change in sediment quality	Low value	Negligible (F)	Highly unlikely	Low
Plankton	Injury/mortality to fauna	Low value (open water)	Negligible (F)	Highly unlikely	Low
Marine mammals	Change in fauna behaviour	High value species	Minor (D)	Highly unlikely	Moderate
	Injury/mortality to fauna	High value species	Minor (D)	Highly unlikely	Moderate
Fish, sharks and rays	Change in fauna behaviour	High value species	Minor (D)	Highly unlikely	Moderate
	Injury/mortality to fauna	High value species	Minor (D)	Highly unlikely	Moderate
Marine reptiles	Change in fauna behaviour	High value species	Slight (E)	Highly unlikely	Low
	Injury/mortality to fauna	High value species	Minor (D)	Highly unlikely	Moderate
Seabirds and migratory shorebirds	Change in fauna behaviour	High value species	Slight (E)	Highly unlikely	Low
	Injury/mortality to fauna	High value species	Minor (D)	Highly unlikely	Moderate
AMPs	Change in habitat	High value	Minor (D)	Highly unlikely	Moderate
KEFs	Change in habitat	High value	Slight (E)	Highly unlikely	Low
Commonwealth and State managed fisheries	Changes to the functions, interests or activities of other users	High value marine use	Slight (E)	Highly unlikely	Low
Shipping	Changes to the functions, interests or activities of other users	Medium value	Slight (E)	Highly unlikely	Low

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Demonstration of ALARP				
Overall Risk Consequence: The risk rating for an unplanned worst case discharge from a loss of structural integrity is Moderate based on a Minor consequence to the high value receptors (marine fauna, AMPs and KEFs), a highly unlikely likelihood. The risk consequence/risk rating for individual receptors are consistent with the levels rated in the OPP.				

Demonstration of ALARP				
Hierarchy	Control/Barrier	SCE/Management System Reference	Type of Effect (refer to Table 6-46)	Control Adopted
Preventative Barriers – Safety and Environmental Critical Elements				
Elimination	N/A	No elimination or substitution controls were identified beyond those incorporated in design.		
Substitution				
Engineering Controls	Maintain structural integrity to ensure availability of critical systems during a major accident or significant environment event, and prevent structural failures from causing or contributing to escalation of significant environmental loss of containment events.	P21 – Substructures P07 – Topsides/surface structures P22 – Ballast and Bilge Systems P23 – Mooring Systems	Prevention (Technical) Mitigation (Technical) Reduction (Technical)	Yes C 14.1
	Maintaining collision warning systems and navigational aids to alert facility of a potential collision with marine vessels, and to alert marine vessels of facility location (and PSZ) so they may take timely action to avoid the facility and hence reduce likelihood of collision.	P34 – Collision Prevention Systems	Detection (Technical)	Yes C 14.2 PSZ refer C 1.2
Mitigating Barrier – Safety and Environmental Critical Elements				
Engineering Controls	Maintaining availability of critical external and internal communication systems to facilitate prevention and response to accidents and emergencies.	E04 – Safety critical communications systems	Detection (Technical) Mitigation (Technical)	Yes C 14.3
Emergency Response	Maintaining environmental incident response equipment to implement initial response to enact the Scarborough Operations Oil Pollution First Strike Plan.	E05 – Environmental incident response equipment	Mitigation (Technical)	Yes C 13.7
Legislation, Codes and Standards				
Procedures and Administration	OPGGS (Safety) Regulations 2009: Accepted Safety Case for the facility to: <ul style="list-style-type: none"> identify hazards that have the potential to cause an MAE detail assessment of MAE risks describe the physical barriers SCEs and the safety management systems 	Scarborough Safety Case	Prevention/Mitigation (Administration)	Yes C 14.4

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	identified as being required to reduce the risk to personnel associated with an MAE to ALARP, thus contributing to management of associated potential environmental consequences of MAEs.			
Management System Specific Measures: Key Standards or Procedures				
Procedures and Administration	Implementing management systems on FPU to maintain: <ul style="list-style-type: none"> M02 – Operating Practices M03 – Maintenance and inspections. 	MSPS M02 – Operating Practices MSPS M03 – Maintenance and inspections	Prevention (Administration)	Yes See Section 7.2.8
Emergency Response and Contingency Planning	Implementing management systems on FPU to maintain: <ul style="list-style-type: none"> M06 – Emergency Preparedness Scarborough Emergency Response Plan Scarborough Operations Oil Pollution First Strike Plan Oil Pollution Emergency Arrangements – Australia. 	MSPS M06 – Emergency preparedness Scarborough Emergency Response Plan Scarborough Operations Oil Pollution First Strike Plan Oil Pollution Emergency Arrangements – Australia.	Mitigation (Administration)	Yes See Section 7.2.8 Refer to Appendix H: Oil Spill Preparedness and Response Mitigation Assessment for discussion around the ALARP assessment of controls related to hydrocarbon spill response.

ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision type B, Section 2.3.1), Woodside considers the adopted controls appropriate to manage the risks of an unplanned hydrocarbon release as a result of loss of FPU/ASV loss of structural integrity/stability.

The principle of inherent safety and environmental protection is based on the prevention of a significant environmental event through design of the Scarborough FPU facility, ensuring the equipment is operated within the design envelope through operating practices and assurance through maintenance and inspection. If a loss of structural integrity occurs, mitigation measures are in place to minimise the consequence by limiting the inventory which can be released and implementing remediation.

Controls have been selected following hierarchy of control principles and consider independence of each barrier and their type of effect in controlling the hazardous event. Qualitative hazard analysis and spill risk assessment considers potential for causal events and their consequences. Based on the environmental risk assessment outcomes (Highly Unlikely likelihood and Moderate consequence) and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the potential impacts, risks and potential escalation events.

The application of Woodside Risk Management Procedures, and implementation of the Scarborough FPU Safety Case ensures the continuous identification of hazards, systematic assessment of risks and ongoing assessment of alternative control measures to reduce risk to ALARP, which includes:

- ongoing hazard identification, risk assessment and the identification of control measures
- ongoing integrity management of hardware control measures, assured in accordance with the technical performance standards which define requirements to be suitably maintained, such that they retain effectiveness, functionality, availability and survivability
- engineering codes and standards
- MSPS for Safety Critical Management System Controls.

Given the controls in place to prevent FPU loss of structural integrity events, and mitigate their consequences, it is considered that the risk is managed to ALARP.

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Demonstration of Acceptability
<p>Acceptability Criteria and Assessment</p> <p>Demonstration of acceptability for the sources of risk and associated impacts assessed in this section are provided in Section 7.2.6.4 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):</p> <ul style="list-style-type: none"> • Overall risk consequence/risk ratings for individual receptors are less than the significant impact level defined in the OPP. • EPOs and controls in the OPP that are relevant to loss of structural integrity have been adopted. • There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation.
<p>Acceptability Statement:</p> <p>The impact assessment has determined that a loss of structural integrity represents a Moderate current risk rating and is highly unlikely to result in a risk consequence greater than Minor. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the Petroleum Activities Program is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice. The adopted controls are considered consistent with industry legislation, codes and standards, good practice and professional judgement (supported by hierarchy of controls and risk based analysis). The FPU is designed to satisfy AMSA regulatory requirements including applicable Marine Orders, and is supported by verification via a Recognised Organisation, DNV. The ASV meets industry standard Class requirements. No additional requirements were identified during impact assessment and consultation. The potential risks and consequences are considered acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2) including those with an First Nations connection or with traditional use in nearshore areas as defined in Section 4.9.</p> <p>Therefore, Woodside considers the adopted controls appropriate to, manage the risks of FPU loss of structural integrity/stability to a level that is broadly acceptable; and demonstrates the EPO is met.</p>

Environmental Performance Outcomes, Standards and Measurement Criteria			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
<p>EPO 21</p> <p>No release of hydrocarbons to the marine environment due to structural integrity failure or loss of stability of the FPU/ASV.</p>	<p>C 13.7</p> <p>Maintaining environmental incident response equipment to implement initial response to enact the Scarborough Operations Oil Pollution First Strike Plan.</p>	<p>PS 13.7.1</p> <p>Refer to Section 6.8.2</p>	<p>MC 13.7.1</p> <p>Refer to Section 6.8.2</p>
	<p>C 14.1</p> <p>Maintain structural integrity to ensure availability of critical systems during a major accident or significant environment event, and prevent structural failures from causing or contributing to escalation of significant environmental loss of containment events.</p>	<p>PS 14.1.1</p> <p>FPU Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE technical Performance Standard(s) to prevent environment risk related Damage to SCEs for:</p> <ul style="list-style-type: none"> • P07 – Topsides/ Surface Structures • P21 – Substructures <p>to together:</p> <ul style="list-style-type: none"> • provide and maintain structural integrity under all design conditions through service life (including to support SCE systems) 	<p>MC 14.1.1</p> <p>Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
		<ul style="list-style-type: none"> prevent structural failure from causing or contributing to the escalation of significant environmental loss of containment events by providing support/protection of SCE systems during an emergency event <p>And:</p> <ul style="list-style-type: none"> P22 – Ballast and Bilge Systems, to support detection of loss of watertight integrity P23 – Mooring Systems, to provide station keeping within allowable excursion envelope. 	
	<p>C 14.2</p> <p>Maintaining collision warning systems and navigational aids to alert facility of a potential collision with marine vessels, and to alert marine vessels of facility location so they may take timely action to avoid the facility and hence reduce likelihood of collision.</p>	<p>PS 14.2.1</p> <p>FPU Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> P34 – Collision prevention systems to: <ul style="list-style-type: none"> alert facility of a potential collision with marine vessels alert marine vessels of facility location so they may take timely action to avoid the facility and hence reduce likelihood of collision. 	<p>MC 14.2.1</p> <p>Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>
	<p>C 14.3</p> <p>Maintaining availability of external and internal communication systems to facilitate response to accidents and emergencies.</p>	<p>PS 14.3.1</p> <p>FPU Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> E04 – Safety Critical Communication Systems to allow effective Emergency Response (ER) communications in emergencies, including: <ul style="list-style-type: none"> internal communications such as audible and visual warning systems, and voice communications during emergency events 	<p>MC 14.3.1</p> <p>Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
		<ul style="list-style-type: none"> ○ external communications such as voice communications to adjacent facilities, aircraft and vessels, and external incident control centres during emergency events. 	
	<p>C 14.4 OPGGS (Safety) Regulations 2009: Accepted Safety Case(s) to:</p> <ul style="list-style-type: none"> • identify hazards that have the potential to cause an MAE • detail assessment of MAE risks • describe the physical barriers SCEs and the safety management systems identified as being required to reduce the risk to personnel associated with an MAE to ALARP, thus contributing to management of associated potential environmental consequences of MAEs. 	<p>PS 14.4.1 An accepted Safety Case is implemented, and safety notification and reporting is undertaken in accordance with the Regulations (as applicable).</p> <ul style="list-style-type: none"> • For both the FPU and ASV, as well as any Safety Case bridging documents required to be developed. 	<p>MC 14.4.1 Acceptance letter from NOPSEMA demonstrates acceptance of the Safety Case(s). Evidence of FPU / ASV compliance with Safety Case(s) including any applicable bridging documents.</p>
Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are presented in Appendix H: Oil Spill Preparedness and Response Mitigation Assessment			

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Detailed Impact Assessment

Assessment of Potential Impacts

Water Quality

A well loss of containment may temporarily decrease the water quality in the immediate vicinity of the release.

The Scarborough reservoir properties are dry gas, primarily methane (approximately 95%) and nitrogen (approximately 4%), with some ethane, CO2 content and limited heavier hydrocarbon components. Understanding of the Scarborough gas composition was supported by information collected from reservoir samples and well tests obtained from the Scarborough-4 and Scarborough-5 appraisal wells, and compositional analysis undertaken in 2018 and 2019. Analysis of worst case (“heaviest”) reservoir composition indicates that no liquid hydrocarbons will exist at any pressure or temperature conditions that will be experienced in the environment. Liquid hydrocarbons are only expected at sub-zero temperatures which are not present in the marine environment at the location.

In the event of a well loss of containment during the production phase, the well may release gas at up to a worst-case discharge rate of 423 MMscf/d assumed over 65 days. Hydrocarbons will be released from the well until intervention, either:

- capping stack, or
- a relief well is drilled with successful well kill.

In the event of a release of gaseous hydrocarbons from a well loss of containment, the pressurised discharge will emit a jet of small gas bubbles with high momentum into the water column. The initial momentum of the jet would rapidly dissipate, and following the initial jet phase as the bubbles expand due to pressure reduction their buoyancy becomes the driving force for an upward plume of gas bubbles and entrained water.

As the gas travels upwards through the water column, dissolution will occur. The majority of the methane gas released would immediately dissolve into the water column, form hydrates, with a small proportion potentially reaching the sea surface. Studies show methane oxidation in deep water, and water column characteristics like pycnoclines (stratification of the water column due to differences in density) and thermoclines (stratification of the water column due to differences in water temperature), limit the amount of methane that is transported upwards to the sea surface. Even in relatively shallow water depths (less than 100 m water depths) only minor amounts of methane are actually released to the atmosphere (Deimling et al., 2015; Gentz et al., 2014; Schmale et al., 2010).

Because of the deep water location, it is expected that any transfer of methane to warmer surface waters would be restricted and, therefore, air-sea exchange would be limited (Gentz et al., 2014). Gentz et al. (2014) found approximately 80% of methane dissolution occurs below the water column stratification, such as with a pycnocline, and that methane levels return to background concentrations rapidly above the pycnocline. Methane dissolved in the water column is also subject to microbial oxidation, which further restricts transfer of methane into the upper surface water layer and the atmosphere (Gentz et al., 2014; Valentine et al., 2001). When methane is oxidised it forms water and carbon dioxide. Dissolved methane and carbon dioxide exist naturally in water and pose no risk to the marine environment.

Following the 2012 gas leak from the Elgin platform in the North Sea, monitoring of water and sediment (Webster et al., 2012a,b) and fish health (Webster et al., 2012b,c) found no evidence of hydrocarbon contamination above background levels. Although the sea temperatures were colder than those in the Offshore Operational Area, natural processes such as microbial oxidation would be expected to occur in the Offshore Operational Area which would greatly reduce any dry gas release to the atmosphere or impacts to the marine environment. Given this, changes in the chemistry of the water column or sediment from a gas release are expected to be localised and there is no pathway for impacts to habitat or ecosystem function or integrity.

Based on the risk evaluation, the magnitude of potential impact of a change in water quality from a well loss of containment is assessed as Slight short-term impact. Receptor sensitivity of water quality is Low (open ocean), and the consequence of a release of hydrocarbons on water quality is assessed as Slight (E).

Air Quality

A hydrocarbon release during a loss of well containment has the potential to result in localised, temporary reduction in air quality and contribution of greenhouse gases to the global concentration of these gases in the atmosphere. Potential impacts from reduced air quality are expected to be Slight (E), short-term and predominantly localised.. The ambient concentrations of methane and VOCs released from diffuse sources is difficult to accurately quantify, although the behaviour and fate is predictable in open offshore environments as it is dispersed rapidly by meteorological factors such as wind and temperature. Methane and VOC emissions from a hydrocarbon release in such environments are rapidly degraded in the atmosphere by reaction with photo chemically-produced hydroxyl radicals.

Outcome Mitigation

From an environmental management perspective, a hydrocarbon release caused by a well loss of containment is mitigated at the connected facility by detection and alarm; emergency shutdown (for isolation of inventories and the reservoir, critical communications systems and emergency preparedness (including facility ERP, spill response and drilling a relief well, if required).

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Likelihood Assessment

Woodside has a history of implementing industry standard practice in well design and construction. In Woodside’s 60-year history, it has not experienced any well integrity events that have resulted in significant releases or significant environmental impacts.

The blowout likelihood was evaluated using Blowout and Well release Frequencies based on SINTEF offshore blowout database as analysed in the IOGP, 2019 Study *Risk Assessment Data Directory Blowout Frequencies – Report 434-02* (September 2019). This uses data from 1980-2014 to determine likelihood for well blowouts and releases. For a gas well, the IOGP study calculated gas blowout frequency during production as 7.20×10^{-5} per year per well.

Given consideration for 8 and 13 subsea gas wells and using SINTEF/IOGP database, blowout during production occurs with a frequency of 5.8×10^{-4} to 9.4×10^{-4} per year which gives a likelihood level of 2 “Unlikely” on the Woodside Risk Matrix. An order of magnitude reduction has been taken to reduce the likelihood of significant environmental impacts to Level 1 “Highly Unlikely”, for the following reasons:

SINTEF and Lloyds data presented in the IOGP 2019 Blowout Frequencies study considers Production well integrity events between 1980 and 2011, with some additional data from the North Sea between 2011 and 2014. Frequencies are informed by incidents which occurred in Gulf of Mexico, which occurred prior to standards improvement following the Macondo event. Similarly, improvements in standards have been achieved in the North Sea compared to the pre-Macondo era. External causes are excluded for subsea production wells, as causes discussed appears to only be relevant to dry-tree/platform wells.

For the international blowout incidents analysed, these are expected to have resulted in varied release outcomes with varied flow and environmental consequence outcomes – not all are aligned with a worst case unconstrained full-bore blowout, from the highest flowing well, nor necessarily required a relief well to remediate (which is the basis for this risk assessment)

Woodside has adopted international best practice – the Offshore Energies UK (OEUK) Well Lifecycle Integrity Guidelines (post-Macondo industry improvements). Woodside continue to apply a rigorous well integrity management program (refer WOMP) as required under WMS and Australian regulations, including verification, and testing of key barriers including SSSVs.

Additionally, when considering likelihood from an ‘Experience’ perspective, and considering the significant environmental consequence likelihood as the outcome of a blowout event; historical blowouts resulting in significant impact to the environment have not occurred “many times in industry”. Hence, alignment with Highly Unlikely likelihood classification is deemed appropriate.

Summary of Assessment Outcomes

Receptor	Impact	Receptor Sensitivity Level	Risk Consequence	Likelihood	Risk Rating
Water quality	Change in water quality	Low value (open water)	Slight (E)	Highly unlikely	Low
Air quality	Change in air quality	Low value (offshore airshed)	Slight (E)	Highly unlikely	Low

Overall Risk Consequence: The risk rating for an unplanned discharge from a loss of well control is Low based on a slight consequence to a low value receptor (open water/offshore airshed) and a highly unlikely likelihood. The risk consequence/risk rating for individual receptors are consistent with the levels rated in the OPP.

Demonstration of ALARP

Hierarchy	Control/Barrier	SCE/Management System Reference	Type of Effect (refer to Table 6-46)	Control Adopted
Preventative Barriers – Safety and Environmental Critical Elements				
Elimination	N/A	No elimination or substitution controls were identified beyond those incorporated in design.		
Substitution				

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Engineering Controls	Maintaining well and hydrocarbon-containing infrastructure integrity to contain reservoir fluids within the well envelope to avoid a significant well loss of containment to environment.	P10 – Wells	Prevention (Technical)	Yes C 15.1
Mitigating Barrier – Safety and Environmental Critical Elements				
Engineering Controls	Maintaining availability of external and internal communication systems to facilitate response to accidents and emergencies.	E04 – Safety Critical Communications	Mitigation (Technical)	Yes C 14.3
Engineering Controls	Maintaining Safety Instrumented System (Safety Instrumented Functions and emergency shutdown actions) to detect and respond to pre-defined initiating conditions, and/or initiate responses that put the process plant, equipment and the wells in a safe condition so as to prevent or mitigate the effects of a significant well loss of containment to environment.	F06 – Safety Instrumented System P10 – Wells	Reduction/Control (Technical)	Yes C 15.2
Legislation, Codes and Standards				
Procedures and Administration	OPGGS (Resource Management and Administration) Regulations 2011: Accepted Well Operations Management Plan (WOMP) to demonstrate that the risks to well integrity are managed in accordance with sound engineering principles, standards, specifications, and good oilfield practice. It describes the systems in place to ensure well design and integrity is managed for the well lifecycle, thus contributing to management of associated potential environmental consequences of well integrity events.	Scarborough Operate Phase WOMP	Prevention/Mitigation (Administration) Control based on legislative requirements – must be adopted.	Yes C 15.3
Good Practice				

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<p>Subsea lifts of equipment during IMMR activities will occur overboard in deployment zone and stepped into location, in accordance with dropped object assessment.</p>	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>Lifting within designated deployment zone will reduce the risk of dropped objects in proximity to existing subsea infrastructure that could potentially cause damage/leaks.</p>	<p>Benefits outweigh cost/sacrifice.</p>	<p>Yes C 15.4</p>
<p>Management System Specific Measures: Key Standards or Procedures</p>				
<p>Procedures and Administration</p>	<p>Implementing management systems to maintain:</p> <ul style="list-style-type: none"> • M02 – Operating practices • M03 – Maintenance and inspections • M04 – Safe work control • Marine Services Management Procedure • Marine Assurance Overview Procedure • Contracting and Procurement Procedure. 	<p>MSPS M02 – Operating practices MSPS M03 – Maintenance and inspections MSPS M04 – Safe work control Marine Services Management Procedure Marine Assurance Overview Procedure Contracting and Procurement Procedure.</p>	<p>Prevention (Administration)</p>	<p>Yes See Section 7.13 and Appendix H for discussion around the ALARP assessment of controls related to hydrocarbon spill response.</p>
<p>Emergency Response and Contingency Planning</p>	<p>Implementing management systems to maintain:</p> <ul style="list-style-type: none"> • M06 – Emergency Preparedness • Scarborough Emergency Response Plan • Scarborough Operations Oil Pollution First Strike Plan • Oil Pollution Emergency Arrangements – Australia. 	<p>MSPS M06 – Emergency preparedness Scarborough Emergency Response Plan Scarborough Operations Oil Pollution First Strike Plan Oil Pollution Emergency Arrangements – Australia.</p>	<p>Mitigation (Administration)</p>	<p>Yes See Section 7.13 and Appendix H for discussion around the ALARP assessment of controls related to hydrocarbon spill response.</p>

ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision type A, Section 2.3.1), Woodside considers the adopted controls appropriate to manage the risks and consequences of an unlikely unplanned hydrocarbon release as a result of a well loss of containment.

Controls have been selected following hierarchy of control principles and consider independence of each barrier and their type of effect in controlling the hazardous event. A qualitative spill risk assessment considers studies of gas release behaviour and fate through a deep water-column when considering potential for environmental impact. Based on the environmental risk assessment outcomes (highly unlikely likelihood and slight consequence) and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the potential impacts and risks.

The principle of inherent safety and environmental protection is based on the prevention of the significant environmental events through design of well integrity and ensuring the wells are operated within their design envelope through operating practices and assurance through maintenance and inspection. If hydrocarbon loss of containment occurs, mitigation measures are in place to minimise the consequence by limiting the inventory which can be released and implementing remediation.

The controls in place for prevention and mitigation of significant process safety release events are specified and assured through implementing the WOMP, SCE management procedures including performance standards for SCEs, and MSPS for Safety Critical Management System Controls.

The application of Woodside Risk Management Procedures, and implementation of the WOMP ensures the continuous identification of hazards, systematic assessment of risks and ongoing assessment of alternative control measures to reduce risk to ALARP, which includes:

- ongoing hazard identification, risk assessment and the identification of control measures
- ongoing integrity management of hardware control measures in accordance with the technical performance standards which define requirements to be suitably maintained, such that they retain effectiveness, functionality, availability and survivability.

Wells Integrity Codes and Standards

Given the controls in place to prevent and control loss of containment events and mitigate their consequences, alongside procedural control of well intervention activities, it is considered that the risk associated with Well Loss of Containment for Scarborough subsea wells is managed to ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.2.6.4 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (**Section 2.3.5**):

- Overall risk consequence/risk ratings for individual receptors are less than the significant impact level defined in the OPP.
- EPOs and controls in the OPP that are relevant to a loss of well control have been adopted.
- There are no changes to internal context specific to this risk from the OPP.
- Potential impacts from an unplanned hydrocarbon release, from well loss of containment, was raised during consultation (Section 5). Further information was provided to relevant persons as requested (App F) and this feedback was considered in the finalisation of the EP.

Acceptability Statement:

The impact assessment has determined that an unplanned hydrocarbon release resulting from a well loss of containment represents a Low current risk rating and is highly unlikely to result in a consequence greater than Slight. A gas release is expected to result in a temporary change to water quality with no pathway for impacts to habitat or ecosystem function or integrity. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the Petroleum Activities Program is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice. The adopted controls are considered consistent with industry legislation, codes and standards, and industry good practice. Opportunities to reduce risk have been adopted during the well integrity and protective system design.

The potential risks and consequences are considered acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2) including those with an First Nations connection or with traditional use in nearshore areas as defined in Section 4.9. Therefore, Woodside considers the adopted controls appropriate to

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manage the risks and consequences of a loss of well control to a level that is broadly acceptable and demonstrates the EPO is met.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	Controls	Standards	Measurement Criteria
EPO 22 No release of hydrocarbons to the marine environment due to well loss of containment.	C 14.3 Maintaining availability of external and internal communication systems to facilitate response to accidents and emergencies.	PS 14.3.1 Refer to Section 6.8.3	MC 14.3.1 Refer to Section 6.8.3
	C 15.1 Maintaining well and hydrocarbon-containing infrastructure integrity to contain reservoir fluids within the well envelope to avoid a significant well loss of containment to environment.	PS 15.1.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for: <ul style="list-style-type: none"> • P10 – Wells, to: <ul style="list-style-type: none"> ○ ensure a well retains the mechanical integrity to contain reservoir fluids within the well envelope at all times to avoid a significant well loss of containment to environment; including operate phase environmentally critical equipment for pressure containment, structures, monitoring and isolating systems associated with the well. 	MC 15.1.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and manage-change information summarised in Section 7.2.8 .
	C 15.2 Maintaining Safety Instrumented System (Safety Instrumented Functions and emergency shutdown actions) to detect and respond to pre-defined initiating conditions, and/or initiate responses that put the process plant, equipment and the wells in a safe condition so as to prevent or mitigate the effects of a significant well	PS 15.2.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for: <ul style="list-style-type: none"> • F06 – Safety Instrumented System • P10 – Wells, <ul style="list-style-type: none"> ○ to together detect and respond to pre-defined 	MC 15.2.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and manage-change information

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	Controls	Standards	Measurement Criteria
	loss of containment to environment.	initiating conditions and/or initiate responses that put the process plant, equipment and wells in a safe condition to prevent or mitigate the effects of a significant well loss of containment to environment.	summarised in Section 7.2.8.
	<p>C 15.3 OPGGS (Resource Management and Administration) Regulations 2011: Accepted Well Operations Management Plan (WOMP) to demonstrate that the risks to well integrity are managed in accordance with sound engineering principles, standards, specifications, and good oilfield practice.</p> <p>It describes the systems in place to ensure well design and integrity is managed for the well lifecycle, thus contributing to management of associated potential environmental consequences of well integrity events.</p>	<p>PS 15.3.1 An accepted WOMP is implemented, and well integrity notification and reporting are undertaken in accordance with the Regulations (as applicable).</p>	<p>MC 15.3.1 Acceptance letter from NOPSEMA demonstrates acceptance of the WOMP. Records demonstrate applicable NOPSEMA notification and reporting.</p>
	<p>C 15.4 Subsea lifts of equipment will occur overboard in deployment zone and stepped into location, in accordance with dropped object assessment.</p>	<p>PS 15.4.1 Subsea lifts of equipment occur overboard in deployment zone and stepped into location.</p>	<p>MC 15.4.1 Records demonstrate that subsea lifts of equipment have occurred in the deployment zone and stepped into location.</p>

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6.8.5 Unplanned Gas Release: Subsea Equipment and Trunkline Loss of Containment

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.2.6 – Unplanned Hydrocarbon Release														
Context														
Relevant Activities Subsea Infrastructure – Section 3.9.3 Export Trunkline Operations – Section 3.9.4 Subsea IMMR Activities – Section 3.9.1.6				Existing Environment Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6 Protected Places – Section 4.8 Socio-economic and Cultural – Section 4.10					Consultation Consultation – Section 5					
Impacts and Risks Evaluation Summary														
Source of Risk	Environmental Value Potentially Impacted						Evaluation							
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence	Likelihood	Risk Rating	ALARP Tool	Acceptability	Outcome
Release of hydrocarbons resulting from loss of containment from subsea equipment and Trunkline			✓	✓				A	E	1	L	LCS GP PJ	Broadly Acceptable	EPO 23
Description of Source of Impact/Risk														
<p>During operations, hydrocarbons extracted from the reservoir will flow from the wellheads via the Xmas trees and manifolds daisy-chained along three 16" rigid production flowlines 13 km, 14 km and 18 km long to the FPU, connected via three 14" risers. On the FPU, the gas is separated from the MEG and dehydrated further prior to export. Export of dry gas is via three 14" export risers to a Riser Base Manifold (RBM) featuring three Non-Return Valves before connecting into the 32" header line. From there, the Scarborough Trunkline to shore is approximately 430 km in length, and of dual diameter: 32" diameter from the FPU location, increased to a nominal 36" diameter at ~KP200 through to the onshore LNG facility.</p> <p>The subsea systems include hydrocarbon containing components between the well isolations through to the riser emergency shutdown valves at the FPU where flowline-risers terminate, and export risers/trunkline originates and runs to the onshore LNG facility. Across the subsea equipment, there is potential for a loss of containment of gas from the trunkline, flowlines, jumpers, risers and supporting subsea infrastructure (such as FLETs/ILTs, Pig Laucher/receiver, RBFLETs, Manifolds)</p> <p>The potential hazard sources that could instigate a loss of containment of inventory from the trunkline or subsea flowlines and risers are:</p> <ul style="list-style-type: none"> • internal corrosion • external corrosion • erosion (for flowlines) • over/under pressure • low temperature 														

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- equipment fatigue (risers and structural supports)
- overstress (pipeline stability, scour and freespan)
- FLIP (flowline induced pulsation).
- Loss of control of suspended load from visiting vessel and FPU
- external impacts such as anchor impact/dragging
- extreme weather/environmental events that exceed design limits of subsea pipelines/flowlines
- critical equipment failures
- human error.

Escalation from other significant environment events interacting with the FPU can cause subsea equipment loss of containment:

- Loss of Structural Integrity/Stability (including FPU position keeping/mooring failure) (**Section 6.8.3**)
- Loss of Marine Vessel Separation with FPU (**Section 6.8.2**).

Credible Scenario – Subsea Equipment and Trunkline Loss of Containment

The worst-case credible hydrocarbon release caused by subsea loss of containment is a release from the Scarborough Export Trunkline (SCATL). The SCATL is estimated to typically contain approximately 28,000 tonnes of hydrocarbon gas. Catastrophic failure could potentially release hydrocarbons (primarily methane) to the water column, and evolve gas to the sea surface in waters less than approximately 700m deep. No appreciable surface expression of gas would be expected from the subsea and flowline system upstream of the FPU, and deep trunkline sections.

For potential shallow water loss of containment events, there may be potential for localised, temporary reduction in air quality, and escape of GHG to the atmosphere.

A subsea loss of containment from subsea riser infrastructure (above the seabed) may escalate to major accident events. An ignited gas release adjacent to the FPU could cause large scale fire and explosion with significant equipment damage. Potential escalation from subsea loss of containment with potential for spill to the environment is considered a cause for FPU Loss of Structural Integrity/Stability (**Section 6.8.3**).

Detailed Impact Assessment

Assessment of Potential Impacts

Water Quality

A loss of containment from the subsea equipment (such as worst-case export trunkline) may temporarily decrease the water quality in the immediate vicinity of the release. As described in Section 6.8.4, the Scarborough reservoir properties are dry gas, primarily methane (approximately 95%) and nitrogen (approximately 4%), with some ethane, CO₂ content and limited heavier hydrocarbon components. Given that hydrocarbons of the Scarborough reservoir contain no measurable liquid fraction, in the event of a subsea riser equipment loss of containment there is expected to be no or negligible liquid component. As such, quantitative spill modelling has not been undertaken.

If a worst case subsea loss of containment event occurred from the export trunkline in deep-water, the majority of the methane gas released would dissolve into the water column (methane is highly soluble in water), with a small proportion expected to reach the sea surface and 'flash off' on exposure to the atmosphere. The proportion reaching the surface will be greater in shallower waters whilst reducing the depth and duration of water-column interaction.

As discussed in Section 6.8.4, changes in the chemistry of the water column or sediment from a gas release are expected to be localised and there is no expected pathway for impacts to habitat or ecosystem function or integrity. Based on the risk evaluation, the magnitude of potential impact of a change in water quality from a loss of containment is assessed as Slight short-term impact. Receptor sensitivity of water quality is Low (open ocean), and the consequence of an unplanned release of hydrocarbons on water quality is assessed as Slight (E).

Air Quality

For potential shallow water loss of containment events, there may be potential for localised, temporary reduction in air quality, and contribution of greenhouse gases to the global concentration of these gases in the atmosphere. Potential impacts from reduced air quality are expected to be Slight (E), short-term and predominantly localised. There is potential for human health effects for workers in the immediate vicinity of atmospheric emissions. The ambient concentrations of methane and VOCs released from diffuse sources is difficult to accurately quantify, although the behaviour and fate is predictable in open offshore environments as it is dispersed rapidly by meteorological factors such as wind and temperature. Methane and VOC emissions from a hydrocarbon release in such environments are rapidly degraded in the atmosphere by reaction with photo chemically-produced hydroxyl radicals.

Escalation Events

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Subsea loss of containment releases from the production and export risers or full-bore releases from the Export RBM 32" piping sections adjacent to the FPU 500m safety zone are considered credible to cause a flammable gas environment at the sea-surface. Significant release events with ignition present possible causes for unplanned hydrocarbon release due to FPU Loss Structural Integrity/Stability Section 6.8.3. Process safety management measures described in this Subsea Loss of Containment section are applicable to subsea system controls (preventative and mitigative barriers), with escalation consequence and risk presented in Section 6.8.3. Significant subsea loss of containment events adjacent to the FPU with potential for ignition and escalation are also managed under the Scarborough Safety Case (MAE01, and MAE-04), with worst-case associated liquid hydrocarbon release to environment considered Highly Unlikely.

Outcome Mitigation

From an environmental management perspective, a hydrocarbon release caused by a subsea loss of containment is mitigated at the connected facility by detection and alarm; emergency shutdown (for isolation of reservoir, topsides and pipeline/trunkline inventories), SSIVs and trunkline non-return valves (NRV), critical communications systems and emergency preparedness (including facility ERP, spill response).

Quantitative Risk Assessment

The Scarborough Export Trunkline Detailed Design Quantitative Risk Assessment (QRA) studies were applied to inform and review trunkline route selection and protection design. The detailed design QRA summarises the following potential key hazards to the residual unprotected export trunkline sections:

Shipping/Vessel Activity/Dropped Objects

Shipping activity along the export trunkline in Commonwealth waters is relatively low, with some activity in KP32-58 and along four shipping fairway crossings. Credible shipping impact scenarios included sinking and dropped/dragged anchor scenarios. Design risk based analysis indicates that impacts from small vessels such as tugs, fishing vessels and pleasure craft would result in minor damage only.

The separation distance between the FPU cranes and subsea risers established in design means that potential dropped objects do not pose a material threat to subsea risers, pipelines or umbilicals, with management system measures in place to manage lifting in restricted areas.

Impacts to the trunkline from larger vessels (such as OSV's and larger) could result in major damage (e.g. significant displacement) and in some instances, loss of containment. Export trunkline protection design measures has been incorporated in specific segments of the export pipeline to reduce the safety and environmental risk from the shipping impacts to a level that is considered ALARP. Risk-based analysis considering implementation of these pipeline protection measures, indicated a significant proportion of residual major damage frequencies between the State Waters boundary and KP58 would be caused by OSV's and other vessels of similar size. In these instances, results suggested significant lateral displacement of the export trunkline may be caused by a dragged anchor, however the risk of loss of containment is negligible. The remaining damage frequencies are from large vessels such as bulk carriers and tankers, and have potential to cause a loss of containment event, albeit at a very low likelihood of occurrence.

Commercial Fishing

Trawl activity is low throughout the SCATL route, and the route avoids the Pilbara Trawl Managed Fishery. The export trunkline was checked for fishing interference loads and found to withstand the loads associated with credible trawl board impact/fishing vessel pull-over and hooking without loss of containment.

Maintenance of subsea infrastructure structural protection frames are included in mechanical integrity controls set out for export trunkline integrity performance standard P09 – Pipeline / Trunkline Systems.

Summary of Assessment Outcomes

Receptor	Impact	Receptor Sensitivity Level	Risk: Consequence	Risk: Likelihood	Risk Rating
Water quality	Change in water quality	Low value (open water)	Slight (E)	Highly unlikely	Low
Air quality	Change in air quality	Low value (offshore airshed)	Slight (E)	Highly unlikely	Low

Overall Risk Rating: The risk rating for an unplanned hydrocarbon release from a worst-case subsea / Trunkline loss of containment is Low based on a Slight consequence to a low value receptor (open water/offshore airshed) and a Highly Unlikely likelihood. The risk rating for individual receptors are consistent with the levels rated in the OPP.

Demonstration of ALARP				
Hierarchy	Control/Barrier	SCE/Management System Reference	Type of Effect (refer to Table 6-46)	Control Adopted
Preventative Barriers – Safety and Environmental Critical Elements				
Elimination	N/A	No elimination or substitution controls were identified beyond those incorporated in design.		
Substitution				
Engineering Controls	Maintaining pipeline, riser and hydrocarbon-containing infrastructure integrity to avoid significant loss of containment to environment.	F06 – Safety instrumented system P09 – Pipeline / trunkline systems P21 – Substructures	Prevention (Technical)	Yes C 16.1
Mitigating Barrier – Safety and Environmental Critical Elements				
Engineering Controls	Maintain availability of external and internal communication systems to facilitate response to accidents and emergencies.	E04 – Safety critical communications	Mitigation (Technical)	Yes C 14.3
Engineering Controls	Maintaining Safety Instrumented System (Safety Instrumented Functions and emergency shutdown actions) to detect and respond to pre defined initiating conditions, and/or initiate responses that put the process plant, equipment and wells in a safe condition (e.g. through appropriate isolation of hazardous inventories) so as to prevent or mitigate the effects of a significant loss of containment to environment.	F06 – Safety instrumented system P09 – Pipeline / trunkline systems P10 – Wells (for flowline protection/ isolation)	Reduction/ Control (Technical)	Yes C 15.2
Emergency Response	Maintaining environmental incident response equipment to implement initial response to enact the Scarborough Operations Oil Pollution First Strike Plan.	E05 – Environmental incident response equipment	Mitigation (Technical)	Yes C 13.7
Legislation, Codes and Standards				
Procedures and Administration	OPGGS (Safety) Regulations 2009: Accepted Safety Case for the facility to: <ul style="list-style-type: none"> identify hazards that have the potential to cause an MAE detail assessment of MAE risks describe the physical barriers SCEs and the safety management systems identified as being required to reduce the risk to personnel associated with an MAE to ALARP, thus contributing to management of associated potential environmental consequences of MAEs. 	Scarborough Safety Case	Prevention/ Mitigation (Administration)	Yes C 14.4

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Demonstration of ALARP				
Hierarchy	Control/Barrier	SCE/Management System Reference	Type of Effect (refer to Table 6-46)	Control Adopted
Procedures and Administration	<p>OPGGS (Safety) Regulations 2009: Accepted Safety Case for the Export Trunkline to:</p> <ul style="list-style-type: none"> identify hazards that have the potential to cause an MAE detail assessment of MAE risks describe the physical barriers SCEs and the safety management systems identified as being required to reduce the risk to personnel associated with an MAE to ALARP, thus contributing to management of associated potential environmental consequences of MAEs. 	Scarborough Trunkline (SCATL) Safety Case	Prevention/Mitigation (Administration)	Yes C 16.2
Management System Specific Measures: Key Standards or Procedures				
Procedures and Administration	<p>Implementing management systems to maintain:</p> <ul style="list-style-type: none"> M02 – Operating practices M03 – Maintenance and inspections M04 – Safe work control Marine Services Management Procedure Marine Assurance Overview Procedure Contracting and Procurement Procedure. 	<p>MSPS M02 – Operating practices</p> <p>MSPS M03 – Maintenance and inspections</p> <p>MSPS M04 – Safe work control</p> <p>Marine Services Management Procedure</p> <p>Marine Assurance Overview Procedure</p> <p>Contracting and Procurement Procedure.</p>	Prevention (Administration)	Yes See Section 7.2.3
Emergency Response and Contingency Planning	<p>Implementing management systems to maintain:</p> <ul style="list-style-type: none"> M06 – Emergency Preparedness Scarborough Emergency Response Plan Scarborough Operations Oil Pollution First Strike Plan Oil Pollution Emergency Arrangements – Australia. 	<p>MSPS M06 – Emergency preparedness</p> <p>Scarborough Emergency Response Plan</p> <p>Scarborough Operations Oil Pollution First Strike Plan</p> <p>Oil Pollution Emergency Arrangements – Australia.</p>	Mitigation (Administration)	Yes See Section 7.2.3 Refer to Appendix H: Oil Spill Preparedness and Response Mitigation Assessment for discussion around the ALARP assessment of controls related to hydrocarbon spill response

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ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.3), Woodside considers the adopted controls appropriate to manage the risks of an unplanned hydrocarbon release as a result of subsea loss of containment.

The principle of inherent safety and environmental protection is based on the design of the subsea equipment, flowlines, export trunkline and risers. The system is design in accordance with recognised subsea design standards and subject to third-party independent verification. Woodside practices mean that the system is operated within their design envelope through operating practices, and assurance through maintenance and inspection. If hydrocarbon loss of containment occurs, mitigation measures and emergency response protocols are in place to minimise the consequence.

Controls have been selected following hierarchy of control principles and consider independence of each barrier and their type of effect in controlling the hazardous event. Qualitative spill risk assessment considers studies of gas release behaviour and fate through a deep water-column when considering potential for environmental impact and escalation potential. Based on the environmental risk assessment outcomes (Highly Unlikely likelihood and Slight consequence) and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the potential impacts and risks.

The controls in place for prevention and mitigation of significant process safety release events are specified and assured through implementing the Scarborough FPU and Export Trunkline Safety Cases, SCE management procedures including performance standards for SCEs, and MSPS for Safety Critical Management System Controls.

The application of Woodside Risk Management Procedures, and implementation of the Safety Cases involves the continuous identification of hazards, systematic assessment of risks and ongoing assessment of alternative control measures to reduce risk to ALARP, which includes:

- ongoing hazard identification, risk assessment and the identification of control measures
- ongoing integrity management of hardware control measures in accordance with the technical performance standards which define requirements to be suitably maintained, such that they retain effectiveness, functionality, availability and survivability
- subsea system, pipeline and riser codes and standards.

Given the controls in place to prevent subsea equipment or Trunkline loss of containment events and mitigate their consequences, alongside controls of subsea IMMR activities, it is considered that the risk associated with Subsea Loss of Containment is managed to ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in **Section 7.2.6.4** of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (**Section 2.3.5**):

- Overall risk consequence/risk ratings for individual receptors are less than the significant impact level defined in the OPP.
- EPOs and controls in the OPP that are relevant to a loss of containment have been adopted.
- There are no changes to internal context specific to this risk from the OPP.
- No potential impacts from an unplanned hydrocarbon release from subsea equipment loss of containment was raised during consultation (**Section 5**).

Acceptability Statement:

The impact assessment has determined that an unplanned hydrocarbon release resulting from a subsea loss of containment represents a low current risk rating and is unlikely to result in a risk consequence greater than Slight. A gas release is expected to only result in a temporary change to water and air quality with no pathway for impacts to habitat or ecosystem function or integrity. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the Petroleum Activities Program is not considered to be inconsistent with the overall recovery objectives and actions of these. The adopted controls are considered consistent with industry legislation, codes and standards, and industry good practice. Risk and impact reduction measures have been identified and implemented through design, with subsea system operations aligned with Woodside’s proven operational management system.

The potential risks and consequences are considered acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2 including those with an First Nations connection with, or traditional use in, nearshore areas as defined in Section 4.9). Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of a subsea loss of containment to a level that is broadly acceptable and demonstrates the EPO is met.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
EPO 23 No release of hydrocarbons to the marine environment from subsea equipment and the Scarborough Trunkline	C 13.7 Maintaining environmental incident response equipment to implement initial response to enact the Scarborough Operations Oil Pollution First Strike Plan.	PS 13.7.1 Refer to Section 6.8.2	MC 13.7.1 Refer to Section 6.8.2
	C 14.3 Maintaining availability of external and internal communication systems to facilitate response to accidents and emergencies.	PS 14.3.1 Refer to Section 6.8.3	MC 14.3.1 Refer to Section 6.8.3
	C 14.4 OPGGS (Safety) Regulations 2009: Accepted Safety Case for the facility to: <ul style="list-style-type: none"> • identify hazards that have the potential to cause an MAE • detail assessment of MAE risks • describe the physical barriers SCEs and the safety management systems identified as being required to reduce the risk to personnel associated with an MAE to ALARP, thus contributing to management of associated potential environmental consequences of MAEs.	PS 14.4.1 Refer to Section 6.8.3	MC 14.4.1 Refer to Section 6.8.3
	C 15.2 Maintaining Safety Instrumented System (Safety Instrumented Functions and emergency shutdown actions) to detect and respond to pre-defined initiating conditions, and/or initiate responses that put the process plant, equipment and the wells in a safe condition so as to prevent or mitigate the effects of a significant well loss of containment to environment.	PS 15.2.1 Refer to Section 6.8.4	MC 15.2.1 Refer to Section 6.8.4.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
	<p>C 16.1</p> <p>Maintaining pipeline, riser and hydrocarbon-containing infrastructure integrity to avoid a significant loss of containment to environment.</p>	<p>PS 16.1.1</p> <p>Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> • F06 – Safety instrumented system • P09 – Pipeline / trunkline systems • P21 – Substructures, to together: <p>maintain the minimum required mechanical and structural integrity to prevent significant loss of containment to environment detect and respond to pre-defined initiating conditions to protect mechanical integrity.</p>	<p>MC 16.1.1</p> <p>Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>
	<p>C 16.2</p> <p>OPGGS (Safety) Regulations 2009: Accepted Safety Case for the Export Trunkline.</p>	<p>PS 16.2.1</p> <p>An accepted SCATL Safety Case is implemented, and safety notification and reporting is undertaken in accordance with the Regulations (as applicable).</p>	<p>MC 16.2.1</p> <p>Acceptance letter from NOPSEMA demonstrates acceptance of the Safety Case.</p>

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6.8.6 Unplanned Diesel Release: FPU Topsides Loss of Containment including Bunkering/Refuelling

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.2.6 – Unplanned Hydrocarbon Release														
Context														
Relevant Activities Topsides – Section 3.9.1.1 Process Description – Section 3.9.7 Hydrocarbon and Chemical Inventories and Selection – Section 3.9.16				Existing Environment Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6 Cultural Features and Heritage Values – Section 4.9 Socio-economic Environment – Section 4.10						Consultation Consultation – Section 5				
Impact/Risks Evaluation Summary														
Source of Risk	Environmental Value Potentially Impacted								Evaluation					
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tool	Acceptability	Outcome
Hydrocarbon release from topsides process equipment to the marine environment			✓	✓		✓		A	F	2	M	LCS GP PJ	Acceptable if ALARP	EPO 24
Loss of hydrocarbons (MDO) to marine environment from bunkering/refuelling			✓			✓		A	F	1	L	LCS GP PJ	Broadly Acceptable	
Description of Source of Impact/Risk														
<p>The FPU has a range of topsides process and non-process equipment which contain liquid hydrocarbon inventories. A loss of containment from the topsides includes hydrocarbon inventories that could be released to the environment from high pressure process gas equipment and piping manifolds, and non-process hydrocarbon inventories. Topside process and non-process hydrocarbon inventories are provided in Table 3-5.</p> <p>Hazards that could lead to loss of containment from the topsides are:</p> <ul style="list-style-type: none"> • corrosion • erosion • material defect • welding defect • piping/equipment repair/defect • vibration fatigue failure • equipment overpressure • extreme weather • rotating equipment failure/uncontrolled transfer • loss of control of suspended load (crane or rigging failures) 														

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- critical equipment failures
- human/management error.

Escalation from other significant environment events interacting with the FPU can cause topsides loss of containment:

- Loss of Structural Integrity/Stability (including FPU position keeping/mooring failure) (Section 6.8.3)
- Loss of Marine Vessel Separation with FPU (Section 6.8.2).

Diesel LOC from Bunkering

Bunkering of marine diesel can occur vessels to vessel (including to the ASV) and the vessel to FPU. It is likely refuelling of vessels (and other equipment) will take place primarily within the Offshore Operational Area (comparatively there is a low likelihood for refuelling within the Trunkline Operational Area due to the nature of vessel activities primarily transiting this area).

The FPU and ASV have a dedicated diesel bunkering station which supports pumping of diesel from Support Vessel to FPU diesel storage systems. Onboard transfer of diesel is also undertaken.

LOC from Diesel System

FPU diesel storage tanks (2 x 219 m³) are housed within the East and West crane pedestals and are integral into the structure which supports the crane. As such the tank structures have a low probability of failure.

Both Storage Tanks will be in operation simultaneously and are lined up to the Diesel Circulation Pumps continuously.

During design development, Main Power Generators maximum consumption and day tanks filling rate have been reduced to eliminate potential uncontained overflow of the machinery open drain tank. The Diesel system supplies diesel to a number of users via day tanks such as the emergency power generator and the fire water pumps generator. Diesel will be supplied to day tanks via diesel distribution network (normally there will be no flow to the day tanks).

The Machinery Open Drain (MOD) system collects liquid with potential lube oil/diesel content both from hazardous and non-hazardous areas. The collected hydrocarbon drains will be pumped to the Open Drain Waste Drum for onshore disposal.

The Control Room Operator is alerted to an increasing level of liquids in the MOD tank that would signify an upstream leakage or spill that would need to be investigated.

Topsides Loss of Containment – Credible Scenarios

Worst case Topsides loss of containment scenarios that could occur are:

- A loss of containment and subsequent hydrocarbon release to the marine environment due to diesel storage tank or distribution system failure. The largest total single tank diesel inventory in crane pedestals is 220 m³ per tank, which are the largest liquid hydrocarbon storage tanks on the facility.
- A loss of containment and subsequent hydrocarbon release to the marine environment due to Lube Oil tank leaks and overflow onto Hazardous Open Drains.

Bunkering Loss of Containment – Credible Scenarios

Two credible scenarios for the loss of containment of marine diesel during bunkering operations have been identified:

Scenario 1 – Partial or total failure of a bulk transfer hose or fittings during bunkering, due to operational stress or other integrity issues could spill marine diesel to the deck and/or into the marine environment. This would be in the order of less than 0.2 m³ (200 L), based on the likely volume of a bulk transfer hose (assuming a failure of the dry break and complete loss of hose volume).

Scenario 2 – Partial or total failure of a bulk transfer hose or fittings during bunkering, combined with a delay to shutoff fuel pumps, for a period of up to fifteen minutes, resulting in approximately 50 m³ (50,000 L) marine diesel lost to the deck and/or into the marine environment.

Given the limited volume of the potential release and offshore location, no modelling has been undertaken as potential diesel releases are less than the 470 m³ of MDO modelled and assessed in Section 6.8.3 for the Offshore Operational Area, and 250 m³ modelled and assessed in Section 6.8.2 for the Trunkline Operational Area

Woodside spill records indicate that while there have been smaller releases (<30 L) associated with bunkering, there have been no recorded partial or total failures of bulk transfer hose or fittings during bunkering, combined with a failure in procedure to shut off fuel pumps for a period of up to fifteen minutes. Thus the scenario of an 50 m³ loss of diesel is a conservative worst-case.

International Tanker Owners Pollution Federation Limited (IOTPF) (2020) data reports that for tanker operations during 1970-2017, 7% of small (<7 tonnes) spills occurred during bunkering and 2% of medium (7-700 tonnes) spills. While this data is from the oil tanker industry it has been used as an indicator of potential for spills associated with bunkering activities. A risk assessment by AMSA of oil spills in Australian ports and waters (Det Norske Veritas, 2011) identifies transfer spills as a risk.

Detailed Impact Assessment

Water Quality

The highly-mixed, open water location and characteristics of hydrocarbons released will result in rapid evaporation and dispersion. However, MDO contains a small proportion of heavy components (or low-volatile components) that tend to physically entrain into the upper water column in the presence of moderate winds (i.e. >12 knots) and breaking waves but may resurface if these conditions abate. If a substantial spill occurred, the heavier components could remain entrained or remain on the sea surface for an extended period and travel significant distances from the source, albeit at low concentrations.

Predicted weathering of marine diesel, based on typical conditions in the region, indicates that about 24% of the oil mass should evaporate within the first 24 hours (Figure 6-9) (RPS, 2024). After this time the majority of the remaining hydrocarbon is entrained into the upper water column.

The magnitude of potential impact of a change in water quality from unplanned release of MDO is assessed as slight. Receptor sensitivity of water quality is low (low value, open ocean), and therefore the consequence of a release of hydrocarbons on water quality is Negligible (F).

Plankton

MDO may cause acute toxic effects to planktonic organisms that come into contact close to the spill source at the time of the spill however. Given the short generation times and high productivity of planktonic communities, this impact would be localised and have a Negligible (F) on planktonic species populations.

Marine Fauna

A range of marine species may be present around the FPU / ASV or vessels being refuelled, such as cetaceans, marine turtles, whale sharks, fishes and birds. These species are widely distributed relative to the potential EMBA that would result from a topsides loss of containment or bunkering release (due to the smaller volume of hydrocarbons compared to the scenario considered in Section 6.8.3). Many large marine fauna in the region are migratory and are seasonally present in the PAA, which reduces the potential for exposure depending on the timing of a spill. Marine fauna at or near the sea surface may be contacted by liquid-phase hydrocarbons, resulting in oiling. This may lead to impacts such as irritation of sensitive mucous membranes (e.g. eyes, mouth and digestive tract), matting of feathers (leading to inability to fly and loss of insulation) or clogging of filtering structures (e.g. gills). Pelagic and site attached fish (i.e. those resident around risers and jackets) may be exposed to spilled hydrocarbons, but are expected to avoid areas of high concentrations. Depending on the degree of exposure and the sensitivity of the receptor, these impacts may lead to injury or death. Mortality of larger fauna is not expected to occur. No impacts to ecosystem function are expected. Given the volatile nature of the hydrocarbons, the potential for these impacts is largely constrained to the initial 12 hours immediately after the release. Hence, the highest potential impacts to species would be Minor (D).

Escalation Events

Significant FPU topsides loss of containment or bunkering loss with ignition or dropped object events, present possible causes for FPU Loss Structural Integrity/Stability Section 6.8.3. Process safety management measures described in this FPU Topsides Loss of Containment section are applicable to topsides controls (preventative and mitigative barriers), with escalation consequence and risk presented in Section 6.8.3. Significant FPU topsides loss of containment events with potential for ignition and escalation are also managed under the Scarborough Safety Case, with worst-case associated liquid hydrocarbon release to environment considered Highly Unlikely.

Outcome Mitigation

Potential hydrocarbon release environmental consequences associated with topsides and bunkering loss of containment are mitigated at the FPU by detection and alarm, emergency shutdown (for isolation of equipment such as diesel circulation pumps, plus reservoir, topsides and pipeline/trunkline inventories), facility drain systems, critical communications systems and emergency preparedness (including facility ERP, spill response arrangements). Ignition control, emergency power, safety critical buildings and fire/explosion escalation controls (such as depressurisation blowdown systems and firewalls) are part of the FPU design as described in the Scarborough Safety Case for Major Accident mitigation, thus contributing to management of associated potential environmental consequences of MAEs.

The likelihood of worst-case credible hydrocarbon release from topsides equipment and spill during bunkering has been assessed as Unlikely.

Quantitative Risk Assessment

An MDO spill from a topsides or bunkering loss of containment is expected to be confined to within several kilometres of the release site, and well within the affected area assessed in Section 6.8.3. Once released to the open offshore marine environment a spill of MDO is expected to weather rapidly. As a consequence, the potential for impacts to environmental receptors is limited to those in the immediate vicinity. MDO weathering modelling indicates approximately 24% of the mass should evaporate within the first 24 hours (Section 6.8.1.8).

Commonwealth and State Managed Fisheries

A change in marine fauna behaviour or injury or mortality to marine fauna – in particular to commercially targeted species, or their prey species (e.g. plankton) – can impact fisheries.

Fish exposure to hydrocarbon can result in ‘tainting’ of their tissues. Even very low levels of hydrocarbons can impart a taint or ‘off’ flavour or smell in seafood. Tainting is reversible through the process of depuration which removes hydrocarbons from tissues by metabolic processes, although it depends on the magnitude of the contamination. Fish have a high capacity to metabolise these hydrocarbons while crustaceans (such as prawns) have a reduced ability (Yender et al., 2002). Seafood safety is a major concern associated with spill incidents. Therefore, actual or potential contamination of seafood can affect commercial and recreational fishing and can impact seafood markets long after any actual risk to seafood from a spill has subsided (Yender et al., 2002).

A major spill could result in the establishment of an exclusion zone around the spill affected area. There would be a temporary prohibition on fishing activities for a period and subsequent potential for economic impacts to affected commercial fishing operators. Additionally, hydrocarbon can foul fishing equipment such as traps and trawl nets, requiring cleaning or replacement.

MDO presence in the water would be restricted to the surface and upper water column only. Dissolved aromatics (i.e. the form that is bioavailable) are in such small concentrations in MDO that their effect in the marine environment is negligible (F); i.e. tainting from an MDO exposure is not considered likely to occur. Any exclusion zone established would be limited to the immediate vicinity of the release point, and due to the rapid weathering of MDO would only be in place days after release, therefore physical displacement to vessels is unlikely to be a significant impact.

A number of Commonwealth and State fishery management areas are located within the PAA and EMBA. FishCube data was requested to analyse the potential for interaction of fisheries with the PAA, which was used to determine consultation with State Fisheries who may be impacted by proposed petroleum activities (Department of Primary Industries and Regional Development [DPIRD], 2021). Table 4-27 provides an assessment of the potential interaction and provides further detail on the fisheries that have been identified through desk-based assessment and consultation (Section 5).

In the highly unlikely event of a release of marine diesel to the environment there may be the presence of hydrocarbons in areas used by the fisheries that overlap the EMBA (Table 4-27).

Although potential impacts from a worst case spill could include mortality or sub-lethal injury/illness of pelagic fish (described in the specific receptor evaluation), this would be expected to comprise a small proportion of the resident and transitory population. Given the hydrocarbon characteristics, expected rapid weathering to below impact thresholds and low fishing effort, an unplanned hydrocarbon spill from the Petroleum Activities Program is not expected to have an adverse effect on the sustainability of commercial fishing; or to interfere with other marine users.

Based on the detailed risk evaluation, the magnitude of potential impacts to Commonwealth and State managed fisheries from an unplanned hydrocarbon release is assessed as Slight (E).

Shipping

In the event of a spill, an exclusion zone may be established around the spill affected area. This could result in exclusion of other users such as shipping vessels or vessels used by the mining and petroleum industries. Any exclusion zone established would be limited to the immediate vicinity of the release point, and due to the rapid weathering of MDO would only be in place for days after release, therefore physical displacement to vessels is unlikely to be a significant impact.

Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, short duration of displacement, and the offshore location of the PAA, unplanned releases of MDO are not expected to interfere with shipping to a great extent.

Based on the assessment, the magnitude of a potential impact to shipping associated with an unplanned release of hydrocarbons is Slight (E).

Summary of Assessment Outcomes

Receptor	Impact	Receptor Sensitivity Level	Risk Consequence	Likelihood	Risk Rating
Water quality	Change in water quality	Low value (open water)	Slight (E)	Unlikely	Moderate
Plankton	Injury/mortality to fauna	Low value (open water)	Negligible (F)	Unlikely	Low
Marine mammals	Change in fauna behaviour	High value species	Negligible (F)	Unlikely	Low
	Injury/mortality to fauna	High value species	Negligible (F)	Unlikely	Low
Fish	Change in fauna behaviour	High value species	Slight (E)	Unlikely	Moderate

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	Injury/mortality to fauna	High value species	Slight (E)	Unlikely	Moderate
Marine reptiles	Change in fauna behaviour	High value species	Slight (E)	Unlikely	Moderate
	Injury to fauna	High value species	Slight (E)	Unlikely	Moderate
Seabirds and migratory shorebirds	Change in fauna behaviour	High value species	Slight (E)	Unlikely	Moderate
	Injury to fauna	High value species	Slight (E)	Unlikely	Moderate
Commonwealth and State managed fisheries	Changes to the functions, interests or activities of other users	High value marine use	Slight (E)	Highly unlikely	Low
Shipping	Changes to the functions, interests or activities of other users	Medium value	Slight (E)	Highly unlikely	Low

Overall Risk Consequence: The risk rating for an unplanned worst-case discharge from FPU topsides including bunkering loss of containment is Moderate based on a Slight consequence to the high value receptors (seabirds and migratory shorebirds and marine reptiles), an unlikely likelihood. The risk consequence/risk rating for individual receptors are consistent with the levels rated in the OPP.

Demonstration of ALARP				
Hierarchy	Control/Barrier	SCE/Management System Reference	Type of Effect (refer to Table 6-47)	Control Adopted
Preventative Barriers – Safety and Environmental Critical Elements				
Elimination	N/A	No elimination or substitution controls were identified beyond those incorporated in design.		
Substitution				
Engineering Controls	Maintain topsides hydrocarbon-containing infrastructure integrity (e.g. piping systems, pressure vessels, heat exchangers, rotating equipment and liquid- hydrocarbon containing tanks) to prevent significant environmental loss of containment events.	P04 – Tanks P03 – Rotating Equipment P11 – Pressure Equipment	Prevention (Technical)	Yes C 17.1
Engineering Controls	Maintain Safety Instrumented Systems and Relief System to prevent hydrocarbon loss of containment/uncontrolled transfer.	F06 – Safety Instrumented System (Emergency shutdown System and valves) F21 – Relief System	Prevention (Technical)	Yes C 17.2
Engineering Controls	Maintain facility lifting equipment to prevent platform lifting equipment failure or dropped/swinging loads that could result in significant environmental loss of containment events.	P20 – Lifting Equipment	Prevention (Technical)	Yes C 17.3
Mitigating Barrier – Safety and Environmental Critical Elements				
Engineering Controls	Maintain availability of critical external and internal communication systems to facilitate prevention and	E04 – Safety Critical Communications	Mitigation (Technical)	Yes C 14.3

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	response to accidents and emergencies.			
Engineering Controls	Maintain Safety Instrumented Systems (e.g. emergency shutdown and safety instrumented functions), Blowdown and Drain Systems; to isolate, remove and control hazardous inventories so as to mitigate the effects of a significant loss of containment event/prevent escalation.	F06 – Safety Instrumented System (Emergency shutdown System and valves) F09 – Depressurisation (Blowdown) F22 – Drain Systems (Hazardous, Non-hazardous area, Machinery Drains)	Reduction/Control (Technical)	Yes C 17.4
Emergency Response	Maintaining environmental incident response equipment to implement initial response to enact the Scarborough Operations Oil Pollution First Strike Plan.	E05 – Environmental incident response equipment	Mitigation (Technical)	Yes C 13.7
Engineering Controls	Maintaining <ul style="list-style-type: none"> structural integrity/impact protection critical infrastructure building integrity emergency power (UPS) hydraulic systems (e.g. to support Safety Instrumented Systems and actuation of SCE valves/isolations), to ensure availability of critical systems during a major accident or significant loss of containment to environment, and prevent failures from contributing to escalation of significant environmental loss of containment events.	PS P07 – Topsides/Surface Structures P21 – Substructure E02 – Safety Critical Buildings F10 – Hazardous Area Ventilation F25 – UPS/ Emergency Power F06 – Safety Instrumented System (hydraulic supplies)	Mitigation (Technical)	Yes C 17.5

Legislation, Codes and Standards

Procedures and Administration	OPGGGS (Safety) Regulations 2009: Accepted Safety Case for the facility to: <ul style="list-style-type: none"> identify hazards that have the potential to cause an MAE detail assessment of MAE risks describe the physical barriers SCEs and the safety management systems identified as being required to reduce the risk to personnel associated 	Scarborough Safety Case	Prevention/Mitigation (Administration)	Yes C 14.4
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	with an MAE to ALARP, thus contributing to management of associated potential environmental consequences of MAEs.			
Management System Specific Measures: Key Standards or Procedures				
Procedures and Administration	Implementing management systems to maintain: <ul style="list-style-type: none"> M02 – Operating practices M03 – Maintenance and inspections M04 – Safe work control Contracting and Procurement Procedure. Lifting Operations Procedures and Standards. 	MSPS M02 – Operating practices MSPS M03 – Maintenance and inspections MSPS M04 – Safe work control Contracting and Procurement Procedure. Lifting Operations Procedures and Standards	Prevention (Administration)	Yes See Section 7
Emergency Response and Contingency Planning	Implementing management systems to maintain: <ul style="list-style-type: none"> M06 – Emergency Preparedness Scarborough Emergency Response Plan Scarborough Operations Oil Pollution First Strike Plan Oil Pollution Emergency Arrangements – Australia. 	MSPS M06 – Emergency preparedness Scarborough Emergency Response Plan Scarborough Operations Oil Pollution First Strike Plan Oil Pollution Emergency Arrangements – Australia.	Mitigation (Administration)	Yes See Section 7 Refer to Appendix H: Oil Spill Preparedness and Response Mitigation Assessment for discussion around the ALARP assessment of controls related to hydrocarbon spill response.
Good Practice				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Bunkering equipment controls: <ul style="list-style-type: none"> All hoses that have a potential environmental risk following damage or failure shall be linked to the vessel's preventative maintenance system. All bulk transfer hoses shall have current 	F: Yes. CS: Minimal cost. Standard practice.	By ensuring the appropriate equipment is in place, tested and maintained appropriately, the likelihood of a spill occurring is reduced. Although no significant reduction in consequence could result, the overall risk is reduced.	Benefits outweigh cost/sacrifice	Yes C 17.6

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<p>certification and be in good condition, and inspected as required.</p> <ul style="list-style-type: none"> • There shall be dry-break couplings and flotation on fuel hoses. • There shall be an adequate number of appropriately stocked, located and maintained spill kits. 				
<p>Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including:</p> <ul style="list-style-type: none"> • Implement a completed PTW and/or JSA for the hydrocarbon bunkering/refuelling operation. • Visually monitor gauges, hoses, fittings and the sea surface during the operation. • Check hoses prior to commencement • Commence bunkering/refuelling in daylight hours. If the transfer is to continue into darkness, the JSA risk assessment must consider lighting and the ability to determine if a spill has occurred. • Do not transfer hydrocarbons in marginal 	<p>F: Yes. CS: Minimal cost. Standard practice.</p>	<p>By ensuring the appropriate equipment is in place, tested and maintained appropriately, the likelihood of a spill occurring is reduced. Although no significant reduction in consequence could result, the overall risk is reduced.</p>	<p>Benefits outweigh cost/sacrifice.</p>	<p>Yes C 17.8</p>

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weather conditions.				
Spill kits positioned in high-risk locations around the FPU/crewed vessels, excluding the USV (near potential spill points such as transfer stations).	F: Yes. CS: Minimal cost. Standard practice.	Spill kits would reduce the likelihood of a deck spill from entering the marine environment. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 17.7
Professional Judgement – Eliminate				
Vessels to avoid refuelling in the Montebello Marine Park	F: Yes CS: Schedule implications on timing refuelling if required to travel outside of the Marine Park	By avoiding refuelling in the Montebello Marine Park, removes spill risk during bunkering activity which can reduce consequence potential to more sensitive marine receptors, compared to other areas of the Petroleum Activities Program	Benefits outweigh cost/sacrifice.	Yes C 18.5
Vessels brought into port to refuel.	F: No. It is not operationally practical to transit vessels back to port for refuelling based on the frequency of the refuelling requirements and potential maximum distance from the nearest port. CS: Significant due to schedule delay and vessel transit costs/risks, increased emissions and day rates.	Eliminates the risk in the PAA, However, moves risk to another location. Therefore, no overall benefit.	Disproportionate . The cost/sacrifice outweighs the benefit gained.	No

ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision type A, Section 2.3.3), Woodside considers the adopted controls appropriate to manage the risks and consequences of an unlikely unplanned hydrocarbon release as a result of a topside loss of containment or bunkering/refuelling.

The principle of inherent safety and environmental protection is based on the design of the FPU equipment. The system is design in accordance with recognised design standards and subject to third-party independent verification. Woodside practices ensure the system is operated within their design envelope through operating practices, and assurance through maintenance and inspection. If hydrocarbon loss of containment occurs, mitigation measures and emergency response protocols are in place to minimise the consequence.

Based on the environmental risk assessment outcomes (Unlikely likelihood and Moderate consequence) and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the potential impacts and risks.

The controls in place for prevention and mitigation of significant process safety release events are specified and assured through implementing the Scarborough FPU Safety Case, SCE management procedures including performance standards for SCEs, and MSPS for Safety Critical Management System Controls.

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The application of Woodside Risk Management Procedures, and implementation of the Safety Case ensures the continuous identification of hazards, systematic assessment of risks and ongoing assessment of alternative control measures to reduce risk to ALARP, which includes:

- ongoing hazard identification, risk assessment and the identification of control measures
- ongoing integrity management of hardware control measures in accordance with the technical performance standards which define requirements to be suitably maintained, such that they retain effectiveness, functionality, availability and survivability
- engineering codes and standards.

Given the controls in place to prevent loss of containment events and mitigate their consequences, alongside administrative and management system measures, it is considered that the risk associated with Topsides Loss of Containment is managed to ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.2.6.4 and 7.2.1.3 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):

- Overall risk consequence/risk ratings for individual receptors are less than the significant impact level defined in the OPP.
- EPOs and controls in the OPP that are relevant to a topsides loss of containment have been adopted.
- There are no changes to internal context specific to this risk from the OPP.
- Potential impacts from an unplanned hydrocarbon release, from the topsides loss of containment, was raised during consultation (Section 5) and this feedback was considered in the finalisation of the EP.

Acceptability Statement:

The impact assessment has determined that, given the adopted controls, a topsides loss of containment or accidental discharge of hydrocarbons as a result of bunkering failure represents a moderate risk rating that is unlikely to result in a consequence greater than minor that is localised to the release location. Further opportunities to reduce the risks have been investigated above. The adopted controls are considered good practice and meet requirements of the facility Safety Case.

The potential risks are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2). Therefore, Woodside considers the adopted controls appropriate to, manage the risks of a topsides loss of containment to a level that is acceptable; and demonstrate the EPO is met.

Environmental Performance Outcomes, Standards and Measurement Criteria Adopted Control(s)

<i>Environmental Performance Outcomes</i>	<i>Controls</i>	<i>Environmental Performance Standards</i>	<i>Measurement Criteria</i>
EPO 24 No release of hydrocarbons or chemicals to the marine environment from FPU Topsides or bunkering activities	C 14.3 Maintaining availability of external and internal communication systems to facilitate response to accidents and emergencies.	PS 14.3.1 Refer to Section 6.8.3	MC 14.3.1 Refer to Section 6.8.3
	C 13.7 Maintaining environmental incident response equipment to implement initial response to enact the Scarborough Operations Oil Pollution First Strike Plan.	PS 13.7.1 Refer to Section 6.8.2	MC 13.7.1 Refer to Section 6.8.2
	C 14.4	PS 14.4.1 Refer to Section 6.8.3	MC 14.4.1 Refer to Section 6.8.3

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Adopted Control(s)			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
	<p>OPGGS (Safety) Regulations 2009: Accepted Safety Case for the facility to:</p> <ul style="list-style-type: none"> • identify hazards that have the potential to cause an MAE • detail assessment of MAE risks • describe the physical barriers SCEs and the safety management systems identified as being required to reduce the risk to personnel associated with an MAE to ALARP, thus contributing to management of associated potential environmental consequences of MAEs. 		
	<p>C 17.4 Maintain Safety Instrumented Systems (e.g ESD and safety instrumented functions), Blowdown and Drain Systems; to isolate, remove and control hazardous inventories so as to mitigate the effects of a significant loss of containment event.</p>	<p>PS 17.4.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> • F06 – Safety Instrumented System to; <ul style="list-style-type: none"> - detect and respond to pre-defined initiating conditions and initiate responses that function to put the process plant, equipment, and the wells in a safe condition through appropriate isolation of hazardous inventories so as to prevent or mitigate the effects of a significant environmental loss of containment event. • F09 – Depressurisation (Blowdown) to; <ul style="list-style-type: none"> - safely depressurise the facility in order to 	<p>MC 17.4.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria Adopted Control(s)			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
		avoid or minimise the escalation of an uncontrolled loss of containment. <ul style="list-style-type: none"> • F22 – Drains Systems (Hazardous, Non-hazardous area, Machinery Drains) to; <ul style="list-style-type: none"> - support appropriate containment for disposal of environmentally hazardous liquids to avoid harm to the environment. 	
	C 17.1 Maintain topsides hydrocarbon-containing infrastructure integrity (e.g. piping systems, pressure vessels, heat exchangers, rotating equipment and liquid-hydrocarbon containing tanks) to prevent significant environmental loss of containment events.	PS 17.1.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for: <ul style="list-style-type: none"> • P04 – Tanks • P11 – Pressure Equipment • P03 – Rotating Equipment, to together provide minimum required mechanical integrity for identified SCE systems for operation within defined integrity limits so as to prevent a loss of containment that may result in a significant loss of containment to environment	MC 17.1.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8 .
	C 17.2 Maintain Safety Instrumented Systems and Relief System to prevent hydrocarbon loss of containment/uncontrolled transfer.	PS 17.2.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for: <ul style="list-style-type: none"> • F06 – Safety Instrumented System 	MC 17.2.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and

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Environmental Performance Outcomes, Standards and Measurement Criteria Adopted Control(s)			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
		<ul style="list-style-type: none"> F21 Relief System, to detect and respond to pre-defined initiating conditions and/or initiate responses that put the process, plant equipment in a safe condition to prevent or limit the escalation of a significant release to environment. 	maintain/assure and manage-change information summarised in Section 7.2.8 .
	<p>C 17.3 Maintain facility lifting equipment to prevent platform lifting equipment failure or dropped/swinging loads that could result in significant environmental loss of containment events.</p>	<p>PS 17.3.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> P20 – Lifting Equipment, <p>to prevent FPU lifting equipment failure or dropped/swinging loads that could result in a loss of containment/structural failures by maintaining lifting equipment integrity.</p>	<p>MC 17.3.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>
	<p>C 17.5 Maintain structural integrity / impact protection through:</p> <ul style="list-style-type: none"> critical infrastructure building integrity emergency power (UPS) Safety Instrumented Systems, enabling actuation of SCE valves/isolations, <p>to ensure availability of critical systems during a major accident or significant loss of containment to environment, and prevent failures from contributing to escalation of significant environmental loss of containment events.</p>	<p>PS 17.5 Integrity will be managed in accordance with SCE Management Procedure (Section 7.2.8) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for:</p> <ul style="list-style-type: none"> P07 and P21 (refer PS 14.1 (refer structural integrity/ stability, Section 6.8.3) E02 – Safety Critical Buildings and F10 – Hazardous Area Ventilation, to protect essential equipment from adverse environmental conditions, <p>by:</p> <ul style="list-style-type: none"> providing ventilation to ensure that the 	<p>MC 17.5 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety Critical Element Management Procedure (Section 7.2.8), in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in Section 7.2.8.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria Adopted Control(s)			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
		<p>zonal classification is maintained within an enclosure or building via adequate or dilution ventilation</p> <ul style="list-style-type: none"> preventing ingress of hazardous products from external sources into buildings/enclosures located within a hazardous/non-hazardous area. <p>And:</p> <ul style="list-style-type: none"> F25 – UPS/Emergency Power, to provide continuous supply of power (emergency generation and uninterruptable power supply (UPS) to Essential loads following a total (mains) power failure F06 – Safety Instrumented System, to maintain Safety Instrumented Systems for actuation of SCE valves/isolations. 	
	<p>C 17.6 Bunkering equipment will include:</p> <ul style="list-style-type: none"> All hoses that have a potential environmental risk following damage or failure shall be linked to the vessel / FPU preventative maintenance system. All bulk transfer hoses shall have current certification and be in good condition, and inspected as required. There shall be dry-break couplings and flotation on fuel hoses. 	<p>PS 17.6.1 All diesel transfer hoses to have dry break couplings and pressure rating (or current certification and be in good condition) suitable for intended use.</p>	<p>MC 17.6.1 Records confirm presence of dry break of couplings (if required), flotation devices (if required) and appropriate preventative maintenance of transfer hoses.</p>
	<p>C 17.8 Procedures include requirements to be implemented during bunkering/refuelling operations, including:</p>	<p>PS 17.8.1 Compliance with procedures for the management of bunkering/helicopter operations.</p>	<p>MC 17.8.1 Records demonstrate bunkering/refuelling undertaken in accordance with contractor bunkering procedures.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria Adopted Control(s)			
Environmental Performance Outcomes	Controls	Environmental Performance Standards	Measurement Criteria
	<ul style="list-style-type: none"> Implement a completed PTW and/or JSA for the hydrocarbon bunkering/ refuelling operation. Visually monitor gauges, hoses, fittings and the sea surface during the operation. Check hoses prior to commencement. Commence bunkering/ refuelling in daylight hours. If the transfer is to continue into darkness, the JSA risk assessment must consider lighting and the ability to determine if a spill has occurred. <p>Do not transfer hydrocarbons in marginal weather conditions.</p>		
	<p>C 18.5 Vessels will avoid refuelling in the Montebello Marine Park.</p>	<p>PS 18.5.1 No Vessels to be refuelled in the Montebello Marine Park, including the Multiple Use Zone (MUZ).</p>	<p>MC 18.5.1 Records demonstrate refuelling of vessels carried out outside of the Montebello Marine Park.</p>
	<p>C 17.7 Spill kits positioned in high-risk locations around the FPU/crewed vessels, excluding the USV (near potential spill points such as transfer stations).</p>	<p>PS 17.7.1 Spill kits to be available, appropriately stocked and located in high-risk areas, for use to clean up deck spills (Uncrewed Surface Vessel excepted).</p>	<p>MC 17.7.1 Records confirm that spill kits are present, maintained, and suitably stocked.</p>

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Chemical storage areas are typically set up in cabinets or drained/bunded storage areas to contain releases to deck from transportable containers (e.g. bulk containers, barrels, drums, pails, etc.). Releases from equipment are predominantly from the failure of hydraulic hoses or minor leaks from process components, or spills during refuelling of equipment, which can either be located within bunded/drained areas or outside of bunded/drained areas (e.g. over grating on cranes).

The FPU and Support Vessels/ASV also store other non-process chemicals and hydrocarbons, in various volumes (Section 3.9.16.2 and Section 3.9.16.1). Operational non-process chemicals and maintenance chemicals present on the facility and support vessels/ASV are generally held in low quantities (usually less than 50 L isolatable volumes).

Detailed Impact Assessment

Assessment of Potential Impacts

Water Quality

Unplanned discharges of non-process chemicals and hydrocarbons may decrease the water quality in the immediate vicinity of the release. Only small volumes are anticipated, resulting in very short-term impacts to water quality, and limited to the immediate release location.

MEG is miscible in water, non-hazardous and biodegradable. It is rated OCNS Group E and is considered PLONOR. A maximum credible spill of MEG is expected to mix with the receiving environment with no lasting environmental impact.

Accidental releases of chemicals (including corrosion inhibitor) or non-process hydrocarbons will decrease the water quality in the immediate area of the release. The consequence is expected to be a Negligible (F) given the open ocean mixing environment, distance from sensitive receptors and relatively low credible release volumes.

Marine Fauna

Depending on the chemical released, the toxicity and/or potential to bioaccumulate may potentially result in localised impacts to pelagic fish or other marine species in the vicinity of the discharge. Given that surface discharges are rapidly dispersed, and subsea discharges (from ROVs) would be of very small volumes, potential impacts would be highly localised and temporary. Potential impacts to plankton from an accidental chemical spill may include acute toxicity, resulting in mortality of planktonic organisms. Given the rapid turnover of plankton communities and nature and scale of the credible releases, these impacts would be short-lived (hours to days). Impacts to fish are expected to be of no lasting effect, as fish species are mobile and expected to avoid the area affected by an accidental chemical spill. Impacts to air-breathing fauna such as cetaceans, birds and marine turtles are expected to be restricted to irritation of sensitive membranes, such as the eyes, mouth and digestive system. As such, potential impacts are considered Slight (E).

Summary of Assessment Outcomes

Receptor	Impact	Receptor Sensitivity	Risk Consequence	Likelihood	Risk Rating
Water quality	Change in water quality	Low value (open water)	Negligible (F)	Possible	Moderate
Migratory shorebirds and seabirds	Injury/mortality to fauna	High value species	Slight (E)	Highly unlikely	Low
Fish, sharks and rays		High value species	Slight (E)	Highly unlikely	Low
Marine mammals		High value species	Slight (E)	Highly unlikely	Low
Marine reptiles		High value species	Slight (E)	Highly unlikely	Low

Overall Risk Consequence: The overall risk consequence/risk rating for an unplanned deck and subsea spills is Moderate based on negligible consequence to the low value receptors (Water Quality) and a possible likelihood. The risk consequence/risk ratings for water quality is consistent with the levels rated in the Scarborough OPP. Potential impacts to marine fauna have been additionally assessed in this EP; there is no change in risk rating (low); however, the risk consequence is slightly higher due to the higher receptor sensitivity level.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Liquid chemical and fuel storage areas are banded or secondarily contained when they are not being handled/moved temporarily.	F: Yes. CS: Minimal cost. Standard practice.	Implementation of procedures for chemical storage and handling on the vessels will reduce the consequence of impacts resulting from unplanned discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability.	Controls based on legislative requirements – must be adopted.	Yes C 19.1
Good Practice				
Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints.	F: Yes. CS: Minimal cost. Standard practice.	Environmental assessment of chemicals in discharges will reduce the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes C 8.4
Spill kits positioned in high-risk locations around the FPU/crewed vessels, excluding the USV (near potential spill points such as transfer stations).	F: Yes. CS: Minimal cost. Standard practice.	Spill kits would reduce the likelihood of a deck spill from entering the marine environment. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 17.7
Implementation of waste management procedures which provide for safe handling and transportation, segregation and storage and appropriate classification of all waste generated.	F: Yes. CS: Minimal cost. Standard practice.	Controls outlined in the management plan will reduce the likelihood of an unplanned release. The consequence is unchanged.	Benefits outweigh cost sacrifice.	Yes C 19.4
LCV, AHT, ASV and crewed Support Vessels have self-containing hydraulic oil drip tray management system.	F: Yes. CS: Minimal cost. Standard practice.	Requirements for self-containing hydraulic oil drip tray management system would reduce the likelihood of contaminants being discharged to the marine environment. No change in consequence would occur.	Benefits outweigh cost/sacrifice.	Yes C 19.5
Relevant machinery (including ROV) to	F: Yes. CS: Minimal cost. Standard practice.	Regular maintenance will reduce the likelihood of an	Benefits outweigh cost/sacrifice.	Yes C 19.6

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
undergo scheduled maintenance.		unplanned release. The consequence is unchanged.		
ROV fluid levels to be monitored during use and set with alarms.	F: Yes. CS: Minimal cost. Standard practice.	Monitoring will reduce the likelihood of an unplanned release. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 19.7
Limiting unplanned volume of subsea control fluid discharged to the marine environment through monitoring subsea control fluid use, investigating material discrepancies.	F: Yes. The use of control fluid is monitored to maintain adequate fluid in the system. CS: Minimal cost	Limits the volumes of subsea control fluid discharged to the marine environment.	Benefits outweigh cost/sacrifice.	Yes C 19.10
Implement Woodside Engineering Operating Standard – Subsea Isolation). Proven isolation in place for relevant IMMR activities.	F: Yes CS: Minimal cost. Standard practice.	Maintaining and testing the ability to isolate wells and export trunklines will ensure barriers are in place and verified limiting the volume of hydrocarbon released.	Control is a WMS requirement – must be adopted.	Yes C 11.3
Safely storing chemicals to prevent the release to the marine environment.	F: Yes. CS: Minimal cost. Standard practice.	Reduces risk of unplanned chemical release.	Benefits outweigh cost sacrifice.	Yes C 19.1
Mitigation: Oil spill response	Refer to Appendix H: Oil Spill Preparedness and Response Mitigation Assessment			
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
Below-deck storage on vessels of all hydrocarbons and chemicals.	F: Yes. It is feasible to store some level of inventory for hydrocarbons and chemicals below deck when not in use. CS: Time in double-handling of chemicals/hydrocarbons in moving below-deck and then back to upper deck for use. H&S risks associated with moving and handling chemicals/hydrocarbons.	Storage of chemicals and hydrocarbons below deck where practicable can reduce the likelihood of spills which may escalate overboard.	Benefits outweigh cost/sacrifice.	Yes C 19.12

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
A reduction in the volumes of chemicals and hydrocarbons stored onboard vessels.	F: Yes. Increases the risks associated with transportation and lifting operations. CS: Project delays if required chemicals not on board. Increases the risks associated with transportation and lifting operations.	No reduction in likelihood or consequence since chemicals will still be required to enable operational activities to occur.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No

ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.3), Woodside considers the adopted controls appropriate to manage the risks and consequences of an unplanned release of chemicals. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.2.1 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):

- Overall risk consequence for individual receptors are less than the significant impact level defined in the OPP.
- EPOs and controls in the OPP that are relevant to an unplanned chemical and minor hydrocarbon spill have been adopted.
- There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation.

Acceptability Statement:

The impact assessment has determined that unplanned chemical and minor hydrocarbon spills represents a Moderate current risk rating and is unlikely to result in a risk consequence greater than Slight. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the Petroleum Activities Program is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice. The adopted controls are considered consistent with industry legislation, codes and standards, good practice and professional judgement and meet the requirements and expectations of Australian Marine Orders identified during impact assessment.

Further opportunities to reduce the impacts have been investigated above. The potential risks and consequences are considered acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of an unplanned discharge of chemicals/hydrocarbons to a level that is broadly acceptable and demonstrates the EPO is met.

Environmental Performance Outcomes, Standards and Measurement Criteria

EPO	Adopted Control(s)	EPS	MC
EPO 24 No release of hydrocarbons or	C 8.4 Chemicals will be selected with the lowest practicable	PS 8.4.1 Refer to Section 6.7.9	MC 8.4.1 Refer to Section 6.7.9

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
chemicals to the marine environment from FPU Topsides or bunkering activities	environmental impacts and risks subject to technical constraints.		
	C 11.3 Implement Woodside Engineering Operating Standard – Subsea Isolation). Proven isolation in place for relevant IMMR activities.	PS 11.3.1 Refer to Section 6.7.12	MC 11.3.1 Refer Section 6.7.12
	C 19.1 Liquid chemical and fuel storage containers are banded or secondarily contained when they are not being handled/moved temporarily.	PS 19.1.1 Failure of primary containment in liquid chemical and fuel storage areas does not result in loss to the marine environment.	MC 19.1.1 Records confirm all liquid chemicals and fuel storage meets banding and secondary containment requirements.
	C 17.7 Spill kits positioned in high risk locations around the FPU/crewed vessel (near potential spill points such as transfer stations).	PS 17.7.1 Refer to Section 6.8.6	MC 17.7.1 Refer to Section 6.8.6
	C 19.4 Implementation of waste management procedures which provide for safe handling and transportation, segregation and storage and appropriate classification of all waste generated.	PS 19.4.1 Hazardous and non-hazardous waste managed in accordance with the waste management procedure.	MC 19.4.1 Records demonstrate compliance with waste management procedure.
	C 19.5 LCV, AHTs, ASV and crewed Support Vessels have self-containing hydraulic oil drip tray management system to reduce risk of spills to deck.	PS 19.5.1 Vessels maintain a system to contain any on-deck spills of hydraulic oil.	MC 19.5.1 Records demonstrate LCV, AHT, ASV and Support Vessels are equipped with self-containing hydraulic oil drip tray management system.
	C 19.6 Relevant equipment where there is a risk of spill (particularly hydraulic oil) to ocean during use (i.e. ROVs, subsea pumps, passive heave compensators) to undergo preventative maintenance.	PS 19.6.1 Planned preventative maintenance to be carried out on relevant FPU / subsea equipment to reduce risk of hydraulic oil (or other) spill to ocean to during use.	MC 19.6.1 Maintenance records show preventative maintenance of relevant FPU / subsea equipment is being undertaken.
	C 19.7 ROV hydraulic fluid levels to be monitored during use and set with alarms to allow	PS 19.7.1 ROV fluid levels to be monitored during use.	MC 19.7.1 Records demonstrate monitoring of ROV fluids was undertaken.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	detection of any leaks or equipment failure.		
	C 19.10 Limiting unplanned volume of subsea control fluid discharged to the marine environment through monitoring subsea control fluid use and investigating material discrepancies.	PS 19.10.1 Subsea control fluid use monitored and, where losses are unexplained, potential integrity issues are investigated.	MC 19.10.1 Records demonstrate subsea control fluid use is documented, and unexplained discrepancies investigated.
	C 19.12 Below-deck storage on vessels of all chemicals where practicable.	PS 19.12.1 Chemicals stored below-deck where practicable.	MC 19.12.1 Inspections show storage where practicable of chemicals below deck.

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6.8.8 Unplanned Discharge: Loss of Solid Hazardous and Non-hazardous Wastes

Scarborough OPP – Relevant Impact Assessment Section														
OPP Section 7.2.2 – Unplanned Discharge: Solid Waste														
Context														
Relevant Activities Vessel Operations – Section 3.11 FPU Installation, Commissioning, Operations – Sections 3.6, 3.7, 3.8, and 3.9			Existing Environment Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6 Protected Places – Section 4.8 Socio-economic Environment – Section 4.10						Consultation Consultation – Section 5					
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Accidental loss of hazardous or non-hazardous solid wastes to the marine environment		✓	✓			✓		A	F	2	M	LCS GP	Broadly Acceptable	EPO 25

Description of Source of Impact/Risk
<p>Normal operations on the FPU and Vessels will generate a variety of hazardous and non-hazardous wastes. These materials could potentially impact the marine environment, if incorrectly disposed of, lost overboard or discharged in significant quantities.</p> <p>Non-hazardous wastes include domestic and industrial wastes such as paper and cardboard, aluminium cans, bottles, polystyrene, organics and scrap steel. Hazardous wastes include recovered solvents, excess or spent chemicals, oil contaminated materials (e.g. sorbents, filters and rags), batteries, used lubricating oils and potentially material containing Naturally Occurring Radioactive Material (NORMs). Sand and sludges containing a variety of contaminants (e.g. mercury, NORMS) may be periodically generated during well clean up, process and vessel maintenance.</p> <p>Equipment (small hand-held tools) and Personal Protective Equipment (PPE) may also be accidentally lost overboard. Equipment that has been recorded as being lost on other similar facilities and vessels has primarily been windblown or dropped overboard and has included things such as hardhats, gloves, safety glasses and small tools or materials. Equipment (small hand-held tools) and PPE are not classified as waste as per the Woodside <i>Offshore Facilities Waste Management Plan</i> and are not included any further in this risk assessment. Equipment (small hand-held tools) and PPE lost overboard are recorded, investigated and corrective actions tracked as per requirements in Section 7.10.3 and Section 7.12.3. Loss of hazardous and non-hazardous wastes have occurred during backloading activities, periods of adverse weather and incorrect waste storage.</p> <p>All waste materials not suitable for discharge to the environment, including hazardous wastes (i.e. liquid and solid wastes), generated during the Petroleum Activities Program are transported to shore for disposal or recycling by Woodside’s licenced waste contractor.</p>

Detailed Impact Assessment

Assessment of Potential Impacts

The potential impacts of hazardous or non-hazardous solid waste accidentally discharged to the marine environment include contamination of the environment as well as secondary impacts relating to potential contact of marine fauna with wastes. This could result in entanglement or ingestion and lead to injury and death of individual animals and changes to aesthetic values. The temporary or permanent loss of waste materials into the marine environment is not likely to have a significant environmental impact, based on the location of the PAA, the types, size and frequency of wastes that could occur, and species present.

Water and Sediment Quality

Hazardous solid wastes such as paint cans, oily rags, etc., can cause localised contamination of the water and sediment through a release of toxins and chemicals. Given likely small volumes of any unplanned solid waste discharge, and the occasional nature of the event, these would result in temporary and highly localised changes to the water quality and has been assessed as negligible (F)

Seabirds and Migratory Shorebirds, Fish, Marine Reptiles and Marine Mammals

Marine fauna, including fish, seabirds and shorebirds, marine mammals and marine reptiles may be impacted through ingestion or entanglement of waste or through exposure to toxic chemicals. Ingestion or entanglement of marine fauna has the potential for physical harm which may limit feeding/foraging behaviours potentially resulting in mortalities. Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris was listed as a key threatening process under the EPBC Act in August 2003 (DoEE, 2018). The Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia’s coasts and oceans (DoEE, 2018) identifies EPBC Act-listed species for which there are scientifically documented adverse impacts resulting from marine debris. Marine turtles and seabirds in particular may be at risk from plastics which may cause entanglement or be mistaken for food (e.g. DoEE, 2018; Commonwealth of Australia, 2017) and ingested causing damage to internal tissues and potentially preventing feeding activities. In the worst instance this could have a lethal affect to an individual. Marine debris has been identified as threat in the Recovery Plan for Marine Turtles in Australia (2017–2027).

Impacts to species including fish, birds, marine mammals and marine reptiles from the unplanned discharge of solid waste is unlikely given low occurrence of unplanned discharges and the location of the activities at significant distance from sensitive habitats. Significant impacts are unlikely to occur at an individual level and will not occur at a population level, nor result in the decrease of the quality of the habitat such that the extent of these species is likely to decline.

While the threat abatement plan for impacts of marine debris on vertebrate marine life does not list explicit management actions for non-related industries (DEWHA, 2009b), management controls will reduce the risk of unplanned discharge of solid waste.

The temporary or permanent loss of waste materials into the marine environment is not likely to have a significant environmental impact, based on the nature and scale of activities that may generate wastes, the types, size and frequency of wastes that could occur. As such, potential impacts are considered Slight (E).

Summary of Assessment Outcomes

<i>Receptor</i>	<i>Impact</i>	<i>Receptor Sensitivity</i>	<i>Risk Consequence</i>	<i>Likelihood</i>	<i>Risk Rating</i>
Water quality	Change in water quality	Low value (open water)	Negligible (F)	Unlikely	Low
Sediment quality	Change in water quality	Low value (open water)	Negligible (F)	Unlikely	Low
Seabirds and migratory shorebirds	Injury/mortality to fauna	High value species	Slight (E)	Unlikely	Moderate
Fish, sharks and rays		High value species	Slight (E)	Unlikely	Moderate
Marine mammals		High value species	Slight (E)	Unlikely	Moderate
Marine reptiles		High value species	Slight (E)	Unlikely	Moderate

Overall Risk Consequence: The overall risk rating for unplanned discharge of hazardous and non-hazardous solid waste is Moderate based on a Slight consequence, to the high value receptors (marine fauna), and unlikely likelihood. The risk consequence levels/risk ratings for individual receptors are consistent with the levels rated in the OPP.

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which provide safe handling and transportation, segregation and storage and appropriate classification of all waste generated.	CS: Minimal cost. Standard practice.	unplanned release. The consequence is unchanged.		C 20.3
<p>Vessel ROV or crane may be used to attempt recovery of solid wastes lost overboard.</p> <p>Where safe and practicable for this activity will consider:</p> <ul style="list-style-type: none"> risk to personnel to retrieve object whether the location of the object is in recoverable water depths object's proximity to subsea infrastructure ability to recover the object (i.e. nature of object, lifting equipment or, ROV availability and suitable weather). <p>Any material dropped objects/waste that remain in the title will undergo an impact assessment and be added to the inventory.</p>	<p>F: May not always be possible. Assessed case by case.</p> <p>CS: Potentially significant cost. Standard practice.</p>	Occurs after an unplanned release of solid waste and therefore no change to the likelihood. Since the waste objects may be recovered, a reduction in consequence is possible.	Benefit outweighs cost sacrifice.	Yes C 20.5

Professional Judgement – Eliminate

No additional controls identified.

Professional Judgement – Substitute

No additional controls identified.

Professional Judgement – Engineered Solution

No additional controls identified.

ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.3), Woodside considers the adopted controls appropriate to manage the risks and consequences of accidental loss of hazardous or non-hazardous solid wastes/equipment to the marine environment. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in **Section 7.2.2.3** of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (**Section 2.3.5**):

- Overall risk consequence/risk ratings for individual receptors are less than the significant impact level defined in the OPP.

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Demonstration of Acceptability
<ul style="list-style-type: none"> EPOs and controls in the OPP that are relevant to an unplanned release of hazardous and non-hazardous wastes have been adopted. There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation.
<p>Acceptability Statement:</p> <p>The impact assessment has determined that unplanned discharges from a release of solid hazardous and non-hazardous wastes represents a low current risk rating and is unlikely to result in a risk consequence greater than slight. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the Petroleum Activities Program is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice. The adopted controls are considered consistent with industry legislation, codes and standards, good practice and professional judgement and meet the requirements of Australian Marine Orders identified during impact assessment.</p> <p>The potential risks and consequences are considered acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2) including those with an First Nations connection or with traditional use in nearshore areas as defined in Section 4.9). Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of accidental discharge of non-hazardous and hazardous waste to a level that is broadly acceptable; and demonstrates the EPO is met.</p>

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>EPO 25</p> <p>No release of solid hazardous or non-hazardous waste¹⁰⁶ to the marine environment.</p>	<p>C 8.1</p> <p>Marine Order 95 – marine pollution prevention—garbage (as appropriate to vessel class) which requires putrescible waste and food scraps to pass through a macerator, so it is capable of passing through a screen with no opening wider than 25 mm.</p>	<p>PS 8.1.1</p> <p>Refer to Section 6.7.9</p>	<p>MC 8.1.1</p> <p>Refer to Section 6.7.9</p>
	<p>C 20.1</p> <p>Vessels will comply with Marine Order 94 (where relevant to vessel class - Marine pollution prevention – packaged harmful substances) 2014 which requires:</p> <ul style="list-style-type: none"> vessels carrying harmful substances in packaged form must comply with 2 to 5 of MARPOL Annex III, with respect to stowage requirements <p>a Vessel Master may only wash a substance overboard if:</p> <ul style="list-style-type: none"> the physical, chemical and biological properties 	<p>PS 20.1.1</p> <p>Vessels contracted whose practices comply with Marine Orders as applicable to vessel size, type and class (Marine Orders 94).</p>	<p>MC 20.1.1</p> <p>Marine verification records demonstrate compliance with standard maritime safety procedures (Marine Order 94).</p>

¹⁰⁶ Waste as defined in the Woodside Offshore Facilities Waste Management Plan

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	<p>of the substance have been considered, and</p> <ul style="list-style-type: none"> washing overboard is considered the most appropriate manner of disposal, and the Vessel Master has authorised the washing overboard. 		
	<p>C 20.2 Management of NORMs in accordance with Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) guidelines.</p>	<p>PS 20.2.1 In the event that waste materials are routinely identified as NORM (above exempted levels) disposal will be coordinated in line with the Management of NORM guidelines (Radiation Health and Safety Advisory Council 2005), and State waste management requirements for appropriate waste disposal.</p>	<p>MC 20.2.1 Waste management records demonstrate appropriate handling and disposal of NORM classified material.</p>
	<p>C 20.3 Implementation of waste management procedures on FPU which provide for safe handling and transportation, segregation and storage and appropriate classification of all waste generated.</p>	<p>PS 20.3.1 Implementation of Waste Management Plan for FPU or the existing Woodside <i>Offshore Facilities Waste Management Plan</i>, including:</p> <ul style="list-style-type: none"> waste segregation and storage records of all waste to be disposed, treated or recycled shall be maintained, and shall include (though not limited to) quantity of waste, waste type and disposal/recycle location waste streams shall be appropriately handled, tested, monitored and managed according to their hazard and recyclability class. 	<p>MC 20.3.1 Records demonstrate implementation of Waste Management Plan for FPU. Non-conformance with PS defined as systemic failure of waste management process / plan, or failure to appropriately manage a waste stream to prevent loss to the environment.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	<p>C 20.5 Vessel ROV or crane may be used to attempt recovery of solid wastes lost overboard. Where safe and practicable for this activity will consider:</p> <ul style="list-style-type: none"> • risk to personnel to retrieve object • whether the location of the object is in recoverable water depths • object's proximity to subsea infrastructure • ability to recover the object (i.e. nature of object, lifting equipment or, ROV availability and suitable weather). <p>Any material dropped objects/waste that remain in the title will undergo an impact assessment and be added to the inventory.</p>	<p>PS 20.5.1 Material¹⁰⁷ solid waste/equipment dropped to the marine environment will be recovered where safe and practicable to do so.</p> <ul style="list-style-type: none"> • Where retrieval is not practicable and/or safe, material items (property) that are lost to the marine environment will undergo an impact assessment and will be added to the inventory for the title. 	<p>MC 20.5.1 Records demonstrate outcomes of the safe and practicable evaluation, including an impact assessment for the objects remaining.</p>

¹⁰⁷ For the purposes of this control/performance standard 'material' is defined as unplanned releases of waste events with an environmental consequence greater than a negligible impact (e.g. localized with no lasting effect).

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- Crane operator error; dropped anchor/object from Support Vessel
- adverse weather conditions.

Detailed Impact Assessment

Assessment of Potential Impacts

In the unlikely event of an object being dropped into the marine environment, potential environmental effects would be limited to localised physical impacts on benthic communities. In most cases, objects will be able to be recovered and therefore these impacts will also be temporary in nature. However, there may be instances where objects are unable to be recovered due to health and safety, operational constraints or other factors such as the difficulty of recovering dropped objects at depth. When dropped objects are unable to be recovered, the impact will continue to be localised but would also be long-term.

Epifauna and Infauna

As a result of a change in water quality and change in habitat, localised injury or mortality to marine fauna resulting from an increase in turbidity may occur. Given a change to water quality is highly unlikely, the only receptors that would potentially be at risk of unplanned seabed disturbance are bottom dwelling species including epifauna and infauna. Benthic communities, including epifauna and infauna may be impacted by the dropped objects on the seabed. If not recovered, dropped objects may result in the permanent loss of a small area under the object.

Given the generally sparse benthic communities in the PAA and that no threatened or migratory species or ecological communities were identified, and those epifauna and infauna communities observed are likely to be well represented elsewhere in the region; impacts are expected to be restricted to a localised proportion of epifauna and infauna communities.

Epifauna and benthic habitats are likely to be sparse, comprising of ascidians, sponges, invertebrate communities and octocorals representative of the wider region, as well as larger motile organisms (demersal fish, shrimp, sea cucumbers etc.) and infauna (i.e. polychaetes). These communities are well represented through the region, and any impacts are likely to be at a localised proportion of communities (Keesing, 2019; Advisian, 2019a). The proposed export trunkline route avoids areas of potentially high diversity, relative to the surrounding area such as rock pinnacles.

The magnitude of potential impacts to epifauna and infauna from unplanned seabed disturbance during activities associated with the PAP is evaluated to be Slight. Sensitivity for epifauna and infauna is low, leading to a Negligible (F) risk consequence.

KEFs

The temporary or permanent loss of dropped objects into the marine environment during operational activities (as described above) is likely to result in a localised impact only, as the benthic communities associated with the PAA are of low sensitivity and are broadly represented throughout the NWMR. As described in Section 4.7, the Exmouth Plateau KEF overlaps the Offshore Operational Area and deeper waters of the Trunkline Operational Area. Benthic communities in these areas of the PAA are representative of the Exmouth Plateau and of deep water soft sediment habitats reported in the wider region (e.g. BHP Billiton, 2004; Woodside, 2005; Woodside, 2006; Brewer et al., 2007; RPS, 2011; Woodside, 2013; Apache, 2013).

Two additional KEFs overlap the Trunkline Operational Area: the Continental Slope Demersal Fish Communities and Ancient Coastline at 125 m Depth Contour KEFs. The Continental Slope Demersal Fish Community is recognised as a KEF because of its biodiversity values, including high levels of endemism (DAWE, 2020). The Trunkline Operational Area intersects a small portion of the KEF (Figure 4-13), across one of its thinnest points throughout its distribution. The Ancient Coastline at 125 m Depth KEF overlaps the Trunkline Operational Area, located about 360 km offshore (Figure 4-13), north-north-west of the Montebello Islands. External inspections of the export trunkline will be non-routine, and conducted where required, such as after a large cyclone event. The window where potential dropped objects may occur from Support Vessels will be extremely small and temporary, with any impact to the KEFs from unplanned habitat disturbance restricted to the footprint of a dropped object and will be highly localised.

Given the nature and scale of risks and consequences from dropped objects, no lasting effect is expected to seabed sensitivities within the PAA. Further, considering the types, size and frequency of dropped objects that could occur, it is highly unlikely that a dropped object would have a significant impact on any benthic community. Any unplanned seabed disturbance within the KEFs would be highly localised and relatively small compared to the size of the KEFs. There will be no substantial adverse effect on the KEFs or the communities within them. On this basis, the magnitude of potential impacts to KEFs from unplanned seabed disturbance during activities is Slight. Receptor sensitivity for KEFs is high, resulting in a Minor (D) risk consequence.

AMPs

The Trunkline Operational Area intersects the Montebello Marine Park between KP 109 to KP191. Dominant benthic organisms recorded within the section of the Trunkline Operational Area intersecting the AMP have included a wide

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Detailed Impact Assessment					
<p>variety of sponges and soft corals including whips and gorgonians, hydroids, seapens and crinoids (Advisian, 2019a), however these are typical of the benthos found both within the AMP (Advisian, 2019a) and regionally (Keesing, 2019). Due to the infrequent and short duration of any IMMR activities that may occur within this region of the Trunkline Operational Area and the small footprint of any objects that potentially may be dropped, it is highly unlikely there would be notable changes to filter feeder sponge habitats or indirect effects to benthic communities from increases in suspended sediments, however, due to the high sensitivity of the receptor, the risk consequence is Slight (E).</p>					
Summary of Assessment Outcomes					
<i>Receptor</i>	<i>Impact</i>	<i>Receptor sensitivity</i>	<i>Risk Consequence</i>	<i>Likelihood</i>	<i>Risk Rating</i>
Epifauna and infauna	Change in habitat Injury/mortality to fauna	Low value	Negligible (F)	Unlikely	Low
KEFs	Change in habitat	High Value	Slight (E)	Unlikely	Moderate
AMPs	Change in habitat	High Value	Slight (E)	Unlikely	Moderate
<p>Overall Risk Consequence: The overall risk rating for disturbance to benthic habitat from unplanned seabed disturbance is Moderate based on minor consequence to the high value receptors (KEFs and Montebello AMP) and a highly unlikely likelihood. The risk consequence/risk ratings for individual receptors are consistent with the levels rated in the OPP.</p>					

Demonstration of ALARP				
<i>Control Considered</i>	<i>Control Feasibility (F) and Cost/ Sacrifice (CS)</i>	<i>Benefit in Impact/Risk Reduction</i>	<i>Proportionality</i>	<i>Control Adopted</i>
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
Maintain facility lifting equipment to prevent platform lifting equipment failure or dropped/swinging loads that could result in significant environmental loss of containment events	F: Yes. CS: Minimal cost. Standard practice.	Regular maintenance of lifting equipment will ensure likelihood of a dropped load from equipment failure is reduced. No change in consequence will occur.	Benefits outweigh cost/sacrifice	Yes C 17.3
Vessel work procedures for lifts, bulk transfers and cargo loading, which require: <ul style="list-style-type: none"> The security of loads shall be checked prior to commencing lifts. Loads shall be covered if there is a risk of loss of loose materials. Lifting operations shall be conducted using the PTW and JSA systems to manage the specific risks of that lift, including consideration of weather and sea state. 	F: Yes. CS: Minimal cost. Standard practice.	Vessel work procedures for lifts, bulk transfers and cargo loading will reduce the risk of dropped objects.	Benefits outweigh cost/sacrifice.	Yes C 21.1
Subsea lifts of equipment during IMMR activities will	F: Yes.	Lifting within designated deployment zone will	Benefits outweigh cost/sacrifice.	Yes C 15.4

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
occur overboard in deployment zone and stepped into location, in accordance with dropped object assessment.	CS: Minimal cost. Standard practice.	reduce the risk of dropped objects in proximity to existing subsea infrastructure that could potentially cause damage/leaks.		
FPU and vessel inductions include control measures for dropped object prevention.	F: Yes. CS: Minimal cost. Standard practice.	By ensuring crew are appropriately trained in dropped object prevention, the likelihood of a dropped object event is reduced. No change in consequence will occur.	Benefits outweigh cost/sacrifice.	Yes C 21.2
Vessel ROV or crane may be used to attempt recovery of solid wastes/equipment lost overboard. Where safe and practicable for this activity will consider: <ul style="list-style-type: none"> risk to personnel to retrieve object whether the location of the object is in recoverable water depths object's proximity to subsea infrastructure ability to recover the object (i.e. nature of object, lifting equipment or, ROV availability and suitable weather). Any material dropped objects/waste that remain in the title will undergo an impact assessment and be added to the inventory.	F: May not always be possible. Assessed case by case. CS: Potentially significant cost. Standard practice.	Occurs after a dropped object event; therefore, no change to the likelihood. Since the object may be recovered, a reduction in consequence is possible.	Benefit outweighs cost sacrifice.	Yes C 20.5
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
Risk Based Analysis				
No additional controls identified.				

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>ALARP Statement: On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.3), Woodside considers the adopted controls appropriate to manage the risks and consequences of unplanned seabed disturbance. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.</p>				

Demonstration of Acceptability
Acceptability Criteria and Assessment
<p>Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.2.3.3 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):</p> <ul style="list-style-type: none"> • Overall risk consequence/risk ratings for individual receptors are less than the significant impact level defined in the OPP. • EPOs and controls in the OPP that are relevant to an unplanned seabed disturbance have been adopted. • There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation.
<p>Acceptability Statement: The impact assessment has determined that disturbance to seabed from dropped objects represents a moderate current risk rating and is unlikely to result in a risk consequence greater than Slight. The adopted controls are considered industry good practice. Further opportunities to reduce the impacts have been investigated above. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2) including those with an First Nations connection or with traditional use in nearshore areas as defined in Section 4.9. Therefore, Woodside considers the adopted controls appropriate to, manage the risks and consequences of unplanned seabed disturbance to a level that is broadly acceptable; and demonstrate the EPO is met.</p>

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>EPO 2 Seabed disturbance to be limited to planned activities and impacts described as part of the Petroleum Activities Program and will not occur outside the Operational Area.</p>	<p>C 17.3 Maintain facility lifting equipment to prevent platform lifting equipment failure or dropped/swinging loads that could result in significant environmental loss of containment events.</p>	<p>PS 17.3.1 Refer to Section 6.8.6</p>	<p>MC 17.3.1 Refer to Section 6.8.6</p>
<p>EPO 4 No adverse impact to unexpected finds of Underwater Cultural Heritage without a permit.</p>	<p>C 20.5 Vessel ROV or crane may be used to attempt recovery of solid wastes lost overboard. Where safe and practicable for this activity will consider:</p>	<p>PS 20.5.1 Refer to Section 6.8.8</p>	<p>MC 20.5.1 Refer to Section 6.8.8</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	<ul style="list-style-type: none"> risk to personnel to retrieve object whether the location of the object is in recoverable water depths object's proximity to subsea infrastructure ability to recover the object (i.e. nature of object, lifting equipment or, ROV availability and suitable weather). <p>Any material dropped objects/waste that remain in the title will undergo an impact assessment and be added to the inventory.</p>		
	<p>C 21.1 Vessel work procedures for lifts, bulk transfers and cargo loading, which require:</p> <ul style="list-style-type: none"> The security of loads shall be checked prior to commencing lifts. Loads shall be covered if there is a risk of loss of loose materials. <p>Lifting operations shall be conducted using the PTW and JSA systems to manage the specific risks of that lift, including consideration of weather and sea state.</p>	<p>PS 21.1.1 All lifts conducted in accordance with applicable installation vessel work procedures to limit potential for dropped objects.</p>	<p>MC 21.1.1 Records show lifts conducted in accordance with the applicable installation vessel work procedures.</p>
	<p>C 15.4 Subsea lifts of equipment will occur overboard in deployment zone and stepped into location, in accordance with dropped object assessment.</p>	<p>PS 15.4.1 Refer to Section 6.8.4</p>	<p>MC 15.4.1 Refer to Section 6.8.4</p>
	<p>C 21.2 Vessel inductions include awareness for crew in dropped object prevention.</p>	<p>PS 21.2.1 Dropped object prevention awareness is provided to the vessel crew.</p>	<p>MC 21.2.1 Records show dropped object prevention awareness is provided to the vessel crew.</p>

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6.8.10 Physical Presence (Unplanned): Interactions with Fauna

Scarborough OPP – Relevant Impact Assessment Section														
Section 7.2.5 – Physical Presence (Unplanned): Interactions with Fauna														
Context														
Relevant Activities FPU Layout and Description – Section 3.6 Vessel Operations – Section 3.11				Existing Environment Protected Species – Section 4.6					Consultation Consultation – Section 5					
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted						Evaluation							
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Physical presence of FPU, ASV and vessels results in accidental collision with marine fauna						✓		A	E	1	L	LCS	Broadly Acceptable	EPO 5, 27
Bird interactions with helicopters (bird strike) and the physical FPU structure(s).					✓	✓		A	E	1	L	LCS GP PJ	Broadly Acceptable	EPO 5, 27
Description of Source of Impact/Risk														
<p>Activities associated with the Petroleum Activities Program will require vessels for FPU installation, hook-up, commissioning, start-up, support operations, IMMR and gravimetry. The type and number of vessels in the PAA at any one time, and the duration of presence, will differ depending on the activities being undertaken.</p> <p>Vessel presence will be greater during FPU installation, hook-up and commissioning, compared with ongoing normal operations.</p> <p>A number of vessels may be operating concurrently during the Petroleum Activities Program, as described in Section 6.7.4. The largest number of vessels will be present during FPU installation and hook-up, including AHTs, an LCV and Support Vessel. This activity will be of short duration (~30 days).</p> <p>Vessels operating within the PAA may present a potential hazard to marine mammals and other protected marine fauna such as whale sharks and marine reptiles. Vessel movements can result in collisions between the vessel (hull and propellers) and marine fauna, potentially resulting in superficial or serious injury that may affect life functions (e.g. movement and reproduction) or cause mortality. The frequency and severity of impacts due to collisions vary greatly due to vessel type, vessel operation (specific activity, speed), physical environment (e.g. water depth), the type of marine fauna present and their behaviours.</p> <p>Vessels within the PAA are likely to be travelling <8 knots (and will often be stationary), unless operating in an emergency. At times, vessels will be transiting within the PAA or to and from a supply base where speed could be up to a maximum of about 15 knots.</p>														

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Seasonally, seabirds may rest and roost on the FPU facility. This presence may result in accidental bird strike incidents associated with helicopter use, and bird interactions with the FPU facility / infrastructure.

Detailed Consequence Assessment

Assessment of Potential Consequences

The likelihood of vessel/fauna collision being lethal is influenced by vessel speed, the greater the speed at impact, the greater the risk of mortality (Jensen and Silber, 2004; Laist et al., 2001). Vanderlaan and Taggart (2007) found that the chance of lethal injury to a large whale as a result of a vessel strike increases from about 20% at 8.6 knots to 80% at 15 knots. According to the data of Vanderlaan and Taggart (2007), it is estimated that the risk is less than 10% at a speed of four knots. Vessel-whale collisions at this speed are uncommon and, based on reported data contained in the US NOAA database (Jensen and Silber, 2004), there only two known instances of collisions when the vessel was travelling at less than six knots. Both of these were from whale watching vessels that were deliberately placed among whales.

Vessels undertaking the Petroleum Activities Program within the PPA are likely to be travelling less than eight knots (and will often be stationary). Therefore, the risk of a vessel collision with protected species resulting in death is inherently low. The risk of marine life getting caught in operating thrusters is highly unlikely, given the low presence of individuals, combined with the avoidance behaviour commonly displayed during dynamic positioning operations.

Unplanned interaction with marine fauna has the potential to occur within the PAA. There are a number of EPBC listed species with the potential to occur within the PAA (Section 4.6). It is recognised that there is both spatial and temporal variation in the potential for interaction with marine fauna. For example, the Trunkline Operational Area traverses a number of BIAs for marine species protected under the EPBC Act that may be seasonally present, including migration BIAs for humpback whales and pygmy blue whales, a foraging BIA for whale sharks and breeding and nesting BIAs for marine turtles. The Trunkline Operational Area also traverses the Montebello Marine Park between KP 109 and KP 192. The North-west Marine Parks Network Management Plan (DNP, 2018a) lists the natural values of the Montebello AMP as including a range of threatened, migratory, marine or cetacean species listed under the EPBC Act, including overlapping BIAs.

Marine Mammals

As described above, vessel speed influences the probability of a vessel collision with a cetacean and also whether a collision may result in lethal injury (Vanderlaan and Taggart, 2007). Additionally, behaviour of individuals may also influence the likelihood of a collision occurring. Although large cetaceans are expected to show localised avoidance in response to vessel noise, studies have reported limited behavioural response to approaching ships (McKenna et al., 2015) and individuals engaging in behaviours such as feeding, mating or nursing may be less aware of their surroundings and more susceptible to collision (Laist et al., 2001).

No known key aggregation areas for marine mammals (resting, breeding or feeding) are located within or immediately adjacent to the Offshore Operational Area. However, individuals may occasionally be present, including pygmy blue whales during seasonal migrations (Section 4.6.5). Pygmy blue whale may occasionally transit through the Offshore Operational Area as individuals and/or small groups during the northbound (April to July) and southbound (October to January) migratory seasons. However, the migration BIA is about 35 km to the west of the Offshore Operational Area and the likelihood of encountering pygmy blue whales is low. The nearest BIAs and HCTS for the southern right whale under the National Recovery Plan (DCCEE, 2024b) are over 190 km from the Operational Areas therefore it is not expected that there is a risk of vessel interaction.

The Trunkline Operational Area traverses migration BIAs for humpback whales and pygmy blue whales. The risk of vessel collision with marine mammals is present year-round but is seasonally elevated for humpback whales and pygmy blue whales during times of migration. Peak migration periods for humpback whales are June to August (northbound) and September to November (southbound). Pygmy blue whale migration periods are as described above for the Offshore Operational Area. Although there is increased likelihood of marine mammal presence within the Trunkline Operational Area, vessel presence will be significantly reduced, and will be transiting the area for short periods of time.

The Conservation Management Plan for the blue whale identifies vessel disturbance and strike as a threat to the EPBC listed species (Commonwealth of Australia, 2015a; TSSC, 2015b). The humpback whale is not a listed threatened species under the EPBC Act, but is a listed migratory species. Accordingly, there is no recovery plan in place for humpback whales, and no specific requirements with respect to potential impacts within BIAs.

Smaller cetaceans, such as dolphins, comprise a lower proportion of vessel collision records (DoEE, 2016), though it is difficult to determine if this is due to a lower collision rate or lower detection rate of incidents. Dolphins often engage in bow riding which may make them more vulnerable to entanglement with propellers or thrusters compared to larger cetaceans. As such, potential impacts are considered Slight (E).

Marine Reptiles

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Detailed Consequence Assessment

The Recovery Plan for Marine Turtles in Australia recognises turtles are at risk from vessel strikes, particularly in shallow coastal foraging habitats and interesting areas where there are high numbers of recreational and commercial vessels (Commonwealth of Australia, 2017).

The effect of vessel speed on turtle flee response can be significant. A study by Hazel et al. (2007) found that 60% of green turtles fled from vessels travelling at 2.2 knots (4 km/h) while only 4% fled from vessels travelling at 10.2 knots (19 km/h). When fleeing 75% of turtles moved away from the vessel's track, 8% swam along the vessel track and 18% crossed in front of the vessel. The study concluded that most turtles would be unlikely to avoid vessels travelling at speeds greater than around 2.2 knots (Hazel et al., 2007; Commonwealth of Australia, 2017a). Furthermore, the relatively small size of turtles and the significant time spent below the surface makes their observation by vessel operators extremely difficult or impossible. Green turtles observed by Hazel et al. (2009) generally only exposed the dorsal-anterior part of the head above the surface of the water and not for longer than two seconds.

The Trunkline Operational Area overlaps with an interesting buffer BIA and Habitat Critical to the survival of flatback, green, hawksbill and loggerhead turtles. There is no overlap with the Offshore Operational Area. An increased number of turtles may be encountered seasonally during the Petroleum Activities Program within the vicinity of offshore islands/archipelagos during interesting/nesting seasons. It is expected that individuals will respond to vessel presence by avoiding the immediate vicinity of the vessels, and combined with low vessel speed, will reduce the likelihood of a vessel-turtle collision. In addition, vessel movements within sensitive turtle areas (BIAs and Habitat Critical to survival) will be limited to occasional and temporary IMMR activities, further reducing the potential for impact at the individual and population level. As such, potential impacts are considered Slight (E).

Fish, Sharks and Rays

Boat strike is recognised by the Approved Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015a) as one of the threats to their recovery. Whale sharks are at risk from vessel strikes when feeding at the surface or in shallow waters (where there is limited option to dive). Whale sharks may traverse offshore NWS waters including the PAA during their migrations to and from Ningaloo Reef, as demonstrated by acoustic detections of tagged whale sharks at the North Rankin A and Goodwyn A platforms during two periods—June to July and October to January (Thomson et al. 2021) The PAA is located at least 215 km from the whale shark foraging (high density prey) BIA adjacent to Ningaloo Reef. The Trunkline Operational Area overlaps a small proportion of the foraging BIA for whale sharks between about KP 72 and KP 199, and they may be seasonally present between March and November (with the annual peak aggregation at Ningaloo Reef between April and May). The risk of vessel strike may be elevated during this period. However, this overlap represents only 0.15% of the overall area of the whale shark foraging BIA.

Smaller fish may also be at risk of injury or mortality from vessels through being caught in thrusters during station keeping operations (i.e. during DP). However, this is unlikely given the low presence of individuals, combined with the avoidance behaviour commonly displayed during station keeping operations. As such, potential impacts are considered Slight (E).

Seabirds and Migratory shorebirds

The injury or mortality of seabirds due to accidental collision with helicopters or interactions with the FPU facility / infrastructure is expected to be restricted to a low number (i.e. individuals) with negligible impacts at the population level. Because seabirds and migratory shorebirds are a high value species, potential impacts are considered Slight (E).

Cumulative Impacts

There is potential for cumulative impacts to marine fauna to occur as a result of overlap of PAP vessel activities. The FPU and ASV may be operational at the same time, as well as additional vessels during FPU hook-up and commissioning and other Scarborough activities being carried out under existing Environment Plans such as drilling and completions. During the operations phase of the FPU, concurrent vessel activities may occur between the FPU support vessel(s), IMMR and gravimetry. Given the offshore waters and deep water depths (approx. 900-1000 m), interaction with marine fauna is likely to be limited to individuals and/or small groups of transient cetaceans, with potential impacts expected to result in a behavioural disturbance, i.e. avoidance of the vessels, with a potential risk consequence of Slight (E) due to high value species.

Summary of Assessment Outcomes

Receptor	Impact	Receptor Sensitivity	Risk Consequence	Likelihood	Risk Rating
Marine mammals	Injury to/mortality of fauna	High value species	Slight (E)	Highly unlikely	Low
Marine reptiles		High value species	Slight (E)	Highly unlikely	Low
Fish, sharks and rays		High value species	Slight (E)	Highly unlikely	Low

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Detailed Consequence Assessment					
Seabirds and migratory shorebirds		High value species	Slight (E)	Highly unlikely	Low
<p>Overall Risk Consequence: The overall risk rating is Low based on slight consequence, to the high value receptors (marine mammals and reptiles) and a highly unlikely likelihood. The risk rating/risk consequence for individual receptors are consistent with the levels rated in the OPP.</p>					

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/ Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Implementing EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans including the following measures <ul style="list-style-type: none"> Vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone) and not approach closer than 100 m from a whale. Vessels will not approach closer than 50 m for a dolphin and/or 100 m for a whale (with the exception of animals bow riding). If the cetacean shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. 	F: Yes. CS: Minimal cost. Standard practice.	Reductions in speed around protected cetaceans reduce the likelihood of collision.	Controls based on legislative requirements – must be adopted.	Yes C 4.1
Good Practice				
Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	F: Yes. CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around whale sharks can potentially reduce the underwater noise footprint of a vessel.	Legislative control for State waters, Whale Shark Interaction Protocol, being adopted for the Petroleum Activities Program.	Yes C 4.2
Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone).	F: Yes CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around turtles can potentially reduce the underwater	Benefits outweigh cost/sacrifice. Good Practice.	Yes C 4.3

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/ Risk Reduction	Proportionality	Control Adopted
If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.		noise footprint of a vessel.		
Variation of the timing of the Petroleum Activities Program to avoid whale migration periods.	F: No. Timing of activities is linked to Vessel schedule. Timing of all activities is currently not determined, and due to Vessel availability and operational requirements, undertaking activities during migration seasons may not be able to be avoided. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Helicopter pre-arrival checklist to include inspection / check for birds in vicinity of helipad to reduce risk of bird strike.	F: Yes CS: Minimal – personnel time in carrying out checks and clearing birds away from helipad.	Potential for reduced likelihood of bird strike.	Benefits outweigh cost/sacrifice. Good Practice.	Yes C 22.1
Professional Judgement – Eliminate				
Not using vessels.	F: No. No alternative to the use of vessels during the Petroleum Activities Program was identified. Given vessels must be used to undertake the Petroleum Activities Program, there is no feasible means to eliminate the source of risk. CS: Not assessed, control not feasible.	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
The use of dedicated MFOs on Vessels for the duration of each activity to watch for whales and provide direction on and monitor compliance with Part 8 of the EPBC Regulations.	F: Yes. However, vessel bridge crews already maintain a constant watch during operations in compliance with the Woodside Marine – Charterers Instructions on the requirements of vessel and whale interactions, and crew undertake specific	Given that Vessel bridge crews already maintain a constant watch during operations in compliance with the Woodside Marine – Charterers Instructions, additional MFOs would not significantly further reduce the risk.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/ Sacrifice (CS)	Benefit in Impact/ Risk Reduction	Proportionality	Control Adopted
	cetacean observation training. CS: Additional cost of MFOs			
Manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the Trunkline Operational Area.	F: Yes. It is possible to carry out for vessels transiting within the Operational Area CS: will impact with longer transit times for vessels.	There is mounting evidence that reduction of vessel speeds can reduce vessel underwater noise emissions and increase the likelihood that fauna will be seen by vessels (and have more time to react) thereby reducing possibility of vessel strike. Where this control prevents impacts to humpback and pygmy blue whales at a population level, it maintains a culturally significant resource to a level that results in no observable change to coastal communities (migratory pathways maintained).	Benefits outweigh cost/sacrifice	Yes C 4.8

ALARP Statement:

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, **Section 2.3.3**), Woodside considers the adopted controls appropriate to manage the risks and consequences of potential interactions with fauna. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.

Demonstration of Acceptability

Acceptability Criteria and Assessment

Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.2.5.3 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (**Section 2.3.5**):

- Overall risk consequence/risk ratings for individual receptors are less than the significant impact level defined in the OPP.
- EPOs and controls in the OPP that are relevant to the risk of interactions with fauna have been adopted.
- There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation.

Acceptability Statement:

The impact assessment has determined that, given the adopted controls, interactions with fauna represents a low current risk rating that is unlikely to result in a risk consequence greater than Slight. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the Petroleum Activities Program is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice (Section 6.9.3). The adopted controls are considered consistent with industry good practice and professional judgement and meet the requirements of Part 8 (Division 8.1) of the EPBC Regulations 2000.

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Demonstration of Acceptability

Further opportunities to reduce the impacts have been investigated above. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2) including those with an First Nations connection or with traditional use in nearshore areas as defined in Section 4.9). Therefore, Woodside considers the adopted controls appropriate to manage the risks of interaction with marine fauna to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

EPO	Adopted Control(s)	EPS	MC
<p>EPO 5 Prevent injury or mortality to seabirds as a result of the Petroleum Activities Program.</p> <p>EPO 27 No injury or mortality to EPBC Act 1999 and WA Biodiversity Conservation Act 2016 listed marine fauna as a result of the Petroleum Activities Program.</p>	<p>C 4.1 EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures¹⁰⁸:</p> <ul style="list-style-type: none"> vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone) and not approach closer than 100 m from a whale. Vessels will not approach closer than 50 m for a dolphin and/or 100 m for a whale (with the exception of animals bow riding). If the cetacean shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. 	<p>PS 4.1.1 Refer to Section 6.7.4</p>	<p>MC 4.1.1 Refer to Section 6.7.4</p> <p>MC 4.1.2 Refer to Section 6.7.4</p>
	<p>C 4.2 Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.</p>	<p>PS 4.2.1 Refer to Section 6.7.4</p>	<p>MC 4.2.1 Refer to Section 6.7.4</p>
	<p>C 4.3 Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.</p>	<p>PS 4.3.1 Refer to Section 6.7.4</p>	<p>MC 4.3.1 Refer to Section 6.7.4</p>
	<p>C 4.8 Manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the Trunkline Operational Area.</p>	<p>PS 4.8.1 Refer to Section 6.7.4</p>	<p>MC 4.8.1 Refer to Section 6.7.4</p>

¹⁰⁸ For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability e.g. lifting, loading, back-loading, bunkering, close standby cover for overside working and emergency situations.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	<p>C 22.1 FPU Helicopter pre-arrival / pre-departure checklist to include inspection / check for birds in vicinity of helipad and clearing of the area, to reduce risk of bird strike.</p>	<p>PS 22.1 Before arrival and departure of helicopter(s) on the FPU¹⁰⁹, preparations include a check for bird presence and clearing of the area ('shooing') to make safe. Any required interactions with birds should be conducted in accordance with the <i>Woodside Frontline Offshore Seabird Management Plan (SBMP)</i> as per C3.3.</p>	<p>MC 22.1 FPU Helicopter pre-arrival checklist to include clearing of birds in the area.</p>

¹⁰⁹ Excludes first helicopter arrival post unattended period, when no personnel on deck to complete check (when other checks are in place such as helicopter fly-by inspection of helipad).

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6.8.11 Physical Presence (Unplanned): Introduction and Establishment of Invasive Marine Species

Scarborough OPP – Relevant Impact Assessment Section														
OPP Section 7.2.4 – Physical Presence (Unplanned): IMS														
Context														
Relevant Activities FPU Installation, Hook-up and Commissioning – Section 3.6 Vessel Operations – Section 3.11				Existing Environment Regional Context – Section 4.2				Consultation Consultation – Section 5						
Impact/Risk Evaluation Summary														
Source of Impact/Risk	Environmental Value Potentially Impacted							Evaluation						
	Soil and Groundwater	Marine Sediment	Water Quality	Air Quality (inc. odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Impact/Consequence	Likelihood	Current Risk Rating	ALARP Tools	Acceptability	Outcome
Introduction and establishment of invasive marine species (IMS) within the PAA.					✓	✓	✓	A	F	0	L	LCS	Broadly Acceptable	EPO 28
Description of Source of Impact/Risk														
<p>There are several pathways for the potential introduction and spread of Invasive Species, associated with the PAP, including the mobilisation of FPU (including topsides) and vessels from international waters. Vessels (including the FPU) shall obtain required biosecurity clearances/approvals per the <i>Biosecurity Act (2015)</i> prior to entering Australian waters. This process and risk management are handled by the Department of Agriculture, Fisheries and Forestry (DAFF) and focuses on risks associated with all pest species including both aquatic and terrestrial. The EP includes an impact and risk assessments from biofouling pathways for the introduction of Invasive Marine Species (IMS) during vessel operations (including immersible equipment) and the FPU within the Operational Area. This is aligned to the “Reducing marine pest biosecurity risks through good practice biofouling management” NOPSEMA Information paper (N-04750-IP899 A715054) specifically section 2 – Nationally accepted approach to biofouling management. Section 2 highlights that “Offshore industry biosecurity risk assessment processes that do not adequately account for biofouling risk factors can lead to unreliable or false ‘low’ risk assessment outcomes.” And therefore requiring additional assessment under this EP for biofouling risks.</p> <p>Vessel Operations</p> <p>During the Petroleum Activities Program, vessels will be transiting to and from the PAA and may mobilise from an Australian port or directly from international waters. Vessels include AHTs, LCV, ASV and other general Support Vessels (Section 3.11).</p> <p>Vessel activities in the Offshore Operational Area include FPU installation, hook-up commissioning, support of ongoing operations (including IMMR activities), and gravimetry surveys as discussed in Section 3. Vessel movements in the Trunkline Operational Area include IMMR activities during ongoing operations. Vessel presence, type and frequency will vary depending on the activities being undertaken and vessel numbers will be greater during FPU installation, hook-up and commissioning, compared with ongoing normal operations.</p> <p>All vessels are subject to some level of marine fouling whereby organisms attach to the vessel hull. This could particularly occur in areas where organisms can find a good attachment surface (e.g. seams, strainers and unpainted surfaces) or where turbulence is lowest (e.g. niches, sea chests, etc.), although commercial vessels typically maintain</p>														

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anti-fouling coatings to reduce the build-up of fouling organisms. Biofouling increases the risk of IMS presence on vessels. IMS could also be present as biofouling on immersible equipment (survey equipment, ROV etc.).

IMS could be translocated to the Offshore Operational Area and Trunkline Operational Area and either transferred directly to the seafloor or subsea structures where they could establish. IMS that transfer and establish on these structures, such as the FPU hull, could translocate to vessels that undertake operations in close proximity and subsequently transfer IMS to other locations such as ports. Organisms can also be drawn into ballast tanks during onboarding of ballast water as cargo is loaded or to balance vessels under load.

Cross contamination between vessels can also occur (e.g. IMS translocated between Vessels) during times when vessels need to be alongside each other.

FPU

The FPU will be wet-towed from international waters directly to the Offshore Operational Area prior to hook up for the life of the field. Prior to FPU sail-away from the construction yard in China, there is potential for the FPU to become exposed to, and therefore potentially become contaminated with IMS during stationary periods in the shipyard or during stopovers at international ports during the transit. IMS could then potentially be translocated between the FPU and Vessels during periods of proximity including during hook-up, commissioning, IMMR, support and supply operations.

Ballast water will be used in the FPU hull to maintain stability and may be exchanged upon arrival to the Scarborough field and during operations once moored. Ballast water if left unmanaged may act as a potential pathway through discharge of high-risk ballast water potentially containing IMS into the vicinity of the FPU and potentially submerged nearby vessel hulls. Where IMS settles on a vessel hull or is taken up into the ballast tanks of a nearby vessel, this can act as pathway where a vessel may unknowingly later discharge ballast water containing IMS into sensitive, unaffected environments.

Detailed Impact Assessment

Assessment of Potential Impacts

IMS are a subset of Non-indigenous Marine Species (NIMS) that have been introduced into a region beyond their natural biogeographic range resulting in impacts to social/cultural, human health, economic and/or environmental values. NIMS are species that have the ability to survive, reproduce and establish founder populations. However, not all NIMS introduced into an area will thrive or cause demonstrable impacts; the majority of NIMS around the world are relatively benign and few have spread widely beyond sheltered ports and harbours. NIMS are only considered IMS when they result in impacts to environmental values and/or have social/cultural, economic and/or human health impacts.

Once introduced, IMS may prey on local species (which had previously not been subject to this kind of predation and therefore not have evolved protective measures against the attack), they may outcompete indigenous species for food, space or light and can also interbreed with local species, creating hybrids such that the endemic species is lost. These changes to the local marine environment result in changes to the natural ecosystem.

IMS have also proven economically damaging to areas where they have been introduced and established. Such impacts include direct damage to assets (fouling of vessel hulls and infrastructure) and depletion of commercially harvested marine life (e.g. shellfish stocks). IMS have proven particularly difficult to eradicate from areas once established. If the introduction is detected early, eradication may be effective but is likely to be expensive, disruptive and, depending on the method of eradication, harmful to other local marine life.

Potential IMS have historically been introduced and translocated around Australia by a variety of natural and human means, including marine fouling and ballast water. Potential IMS vary from one region to another depending on various environmental factors such as water temperature, salinity, nutrient levels and habitat type, which dictate their survival and invasive capabilities. IMS typically require hard substrate in the photic zone; therefore, requiring shallow waters to become established. Highly disturbed, shallow-water environments such as shallow coastal waters, ports and marinas are more susceptible to IMS colonisation, whereas IMS are generally unable to successfully establish in deep-water ecosystems and open-water environments where the rate of dilution and the degree of dispersal are high (Williamson and Fitter, 1996; Paulay et al., 2002; Geiling, 2014).

Epifauna and Infauna

Epifauna and infauna are susceptible to impacts from IMS due to the risk of changes to the ecosystem dynamics such as competition for resources and predation.

Benthic productivity on the outer continental shelf and slope region of the PAA is low, and is a function of water depth, low nutrient availability, and the absence of hard substrates. Studies completed within the region indicate that benthic composition in deep-water habitats is generally lower in abundance than shallow water habitats of the region (DEWHA, 2008a; Brewer et al., 2007). The seafloor in the Offshore Operational Area is characterised by sparse marine life dominated by motile organisms (ERM, 2013). Such motile organisms included shrimp, sea cucumbers, demersal fish and small, burrowing worms and crustaceans. This soft bottom habitat also supports patchy distributions of mobile epibenthos, such as sea cucumbers, ophiuroids, echinoderms, polychaetes and sea-pens (DEWHA, 2008a). The dominant types of epifauna were arthropods and echinoderms (especially shrimp and sea cucumbers, respectively),

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Detailed Impact Assessment

while the dominant infauna groups were crustaceans and polychaetes (ERM, 2013). Benthic communities in the Offshore Operational Area are representative of the Exmouth Plateau and of deep-water soft sediment habitats reported in the region.

While Vessels have the potential to introduce IMS into the Offshore Operational Area, the deep offshore open waters (approximately 900–1000 m) are not conducive to the settlement and establishment of IMS. Furthermore, the Offshore Operational Area is away from shorelines and/or critical habitat. The likelihood of IMS being introduced and establishing viable populations on the seabed within the Offshore Operational Area or immediate surrounds is considered not credible.

The Trunkline Operational Area in shallower waters (30-40 m) presents a slightly increased risk of IMS establishment. The trunkline has the potential to act as suitable substrate for IMS establishment in these water depths if exposed, however given the short nature of typical activities undertaken in proximity to the trunkline in these water depths, it is considered the potential of IMS colonisation is low. Additionally given the isolation of the trunkline from other hard substrates such as islands or shoals, the risk of establishment, whilst credible, is remote. In addition, shallower waters represent a very small area of the overall PAA.

Accordingly, impact to epifauna/infauna in the PAA is considered remote. Receptor sensitivity for epifauna and infauna is low, leading to a Negligible (F) risk consequence.

Industry, Shipping, Defence

The establishment of IMS has the potential to cause changes to the functions, interests or activities of other users through indirect impact such as changes to fisheries target species resulting in economic and social implications, or due to compromised reputation to the oil and gas industry. IMS have proven particularly difficult to eradicate from areas once established. If the introduction is detected early, eradication may be effective but is likely to be expensive, disruptive and, depending on the method of eradication, harmful to other local marine life. Given the low likelihood of IMS translocation to, and colonisation of environments within the PAA, project activities will not result in establishment of IMS, and as such not adversely affect other marine user activities in the region.

FPU

The FPU poses a potential risk as a pathway for introduction of IMS through both settlement on the hull and in ballast water. Prior to being moored and operated in the Scarborough field, the FPU will originate from the construction yard located in the Yantai region of China and will be towed directly from China to the offshore operational area. The FPU will not enter Australian nearshore waters (within 12nm of Australian land) prior to hook-up to the pre-laid mooring lines.

A review of the potential risk associated with the establishment of IMS on the FPU prior to arrival in the Scarborough field, undertaken by an independent IMS expert (Biofouling Solutions), found that there is potential for IMS to be present in the waters in construction yard in China and subsequent risks associated with potential for these species to settle on the hull of the FPU. This included that up to 8 species of IMS known to occur in China which could survive the stresses of the tow to the Scarborough Offshore Operational Area.

To reduce likelihood of colonisation of biofouling (and potential associated IMS) on the hull of the FPU prior to sail-away to the Scarborough field, the hull has been coated with an antifouling coating (AFC) system which was selected based on tests conducted over an 8 month period in the waters of the construction yard in China. These trials included testing a range of market available antifouling coating paints on representative metal surfaces at representative depths. Additionally, niche areas and areas not able to be painted such as anodes, have a number of additional controls which will be implemented such as temporary covers and sealing of crevices to reduce seawater interactions with these niches to reduce the likelihood of IMS survival.

To reduce the likelihood of colonisation of biofouling (and potential associated IMS) from FPU ballast water uptake, the Scarborough FPU IMS Management Plan (FPU IMSMP) details key processes to reduce risk including:

- Prior to the FPU departing China for transit to Australia, ballasting will be undertaken using freshwater to maintain D2 requirements per IMO guidelines and ensure minimum keel draft during any movements within China.
- To commence the tow of the FPU to Australia, the FPU will need to ballast down in preparation for the wet tow to Australia. The Location of the ballast water (seawater origin) uptake will be in a low risk location and in compliance with Scarborough FPU IMSMP.
- During the wet tow to Australia, emergency scenarios may arise such as cyclones or poor weather conditions which may require the FPU to be ballasted to protect the structure, improve seakeeping and tow arrangement safety. Where practicable and per the Scarborough FPU IMSMP, the Scarborough FPU will be towed in > 50 m water depth such that any contingency ballast water taken in is of low risk. Once the cyclone conditions have passed, depending on distance remaining to transit, the FPU will again be de-ballasted to 19m draft to continue its journey to sail down to the Operational Area.

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Detailed Impact Assessment

During sail down to the Scarborough field the FPU will be towed by tugs. During the transit it will be constantly under tow at a speed of approximately 4 knots. The tow route will be designed to avoid shallow waters and areas of high risk of harbouring IMS. There is provision for the FPU to require stopover during the sail down if any issues are identified. If stopover is required management of IMS risk would be considered based on time at stationary speed and considering water depth to ensure that low risk status is maintained.

It is not considered credible that IMS could establish viable populations at the depth of the Offshore Operational Area, but there is potential that IMS may viably transfer between the FPU and vessels either through either direct transfer between the hull or by transfer through ballast water exchange. The ASV may be within close proximity to the FPU for up to a 6-month period. During this time, any potential IMS established on the FPU have the potential to transfer from the hull of the FPU to the hull of the ASV. Additionally, Project Vessels may operate within close proximity to the FPU during installation activities. However, this will only be for short and temporary periods of time during hook-up and commissioning of the FPU, therefore it is considered highly unlikely that IMS transfer could occur during these activities.

When examining the potential impacts from translocation of marine pests to the Scarborough facility itself during normal operations, interactions with the facility and any Support Vessels (most likely Australian sourced) are limited, with time within the 500 m Petroleum Safety Zone around the facility limited to Support Vessel transfers/bunkering. However, the risk of this occurring is considered manageable, given the ballast water and biofouling controls which are implemented during and prior to the Petroleum Activities Program.

Summary

In support of Woodside’s assessment of the risks and consequences of IMS introduction associated with the Petroleum Activities Program, Woodside conducted a risk and impact evaluation of the different aspects of a marine pest translocation. The results of this assessment are presented in Table 6-49.

Table 6-49: Credibility, consequence and likelihood of introducing invasive marine species

IMS Introduction Location	Credibility of Introduction	Consequence of Introduction	Likelihood
Introduced to Offshore Operational Area and establishment on the seafloor or subsea structures	Not Credible The deep offshore open waters of the PPA, away from shorelines and/or critical habitat, more than 50 km from a shoreline and in waters more than 100 m deep are not conducive to the settlement and establishment of IMS.		
Introduced to the FPU from Vessels	Credible There is potential that IMS could transfer between project or support vessels and the FPU or mooring lines. The most credible risk of establishment would be during hook-up and commissioning activities when the ASV and the highest number of Vessels will be in proximity to the FPU. However, given the controls implemented to manage IMS for Vessels, the likelihood is considered remote given that IMS must first be present and then be able to transfer through the water column to the FPU.		
Introduced to Trunkline Operational Area and establishment on the seafloor or subsea structures	Credible There is potential for IMS to be introduced and established in the shallower waters of the Trunkline Operational Area. The Trunkline Operational Area in shallower waters (30 – 40 m) present a slightly increased risk of IMS establishment, however, IMS require hard substrate/features on the seabed to attach to, none of which is present, except for the trunkline itself. Therefore, the risk of establishment, whilst credible, is remote given vessels must first have IMS present and then transfer IMS to the trunkline.		
Transfer between Vessels and from Vessels to other marine environments beyond the PAA.	Credible This risk is considered credible but remote. Vessels that spend significant time in close proximity such as the ASV and FPU have the potential to transfer IMS if present, however this is considered remote given the controls implemented for the purposes of the Petroleum Activities Program. For a marine pest to then establish into a mature spawning population on the new Project Vessel (which would have been managed through Woodside’s IMS process) and then transfer to another environment is credible but remote given these controls.		

Summary of Assessment Outcomes

Receptor	Impact	Receptor Sensitivity	Risk Consequence	Likelihood	Risk Rating
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Detailed Impact Assessment					
Epifauna and infauna	Change in ecosystem dynamics	Low value habitat (homogenous)	Negligible (F)	Remote	Low
Industry, shipping, defence	Changes to the functions, interests or activities of other users	Medium value	Slight (E)	Remote	Low
<p>Overall Risk Consequence: The overall risk rating for the accidental introduction of IMS is Low based on a Slight consequence to the most sensitive receptors (other marine users). The risk consequence/risk ratings for individual receptors are consistent with the levels rated in the OPP.</p>					

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Vessels including foreign vessels not party to the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (BWM Convention) will manage their ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management Requirements. This applies to all Vessels that will enter the Operational Area, including those carrying out activities outside of Australian Territorial Seas (>12nm).	F: Yes. CS: Minimal cost. Standard practice.	The use of an approved ballast water treatment system will reduce the likelihood of transfer of marine pests between Vessels within the PAA. No change in consequence would occur.	Controls based on legislative requirements under the <i>Biosecurity Act 2015</i> – must be adopted.	Yes C 23.1
Internationally sourced Vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements.	F: Yes. CS: Standard practice.	Reduces the likelihood of transfer of marine pests between vessels within the Operational Area. No change in consequence would occur.	Controls based on legislative requirements under the <i>Biosecurity Act 2015</i> – must be adopted.	Yes C 23.2
In relation to biosecurity management for the Scarborough FPU, Woodside will: <ul style="list-style-type: none"> Apply to the Department (DAFF Biosecurity) at least two months prior to arrival in the Operational Area, to have the FPU biosecurity risk status assessed; 	F: Yes. CS: Standard practice.	Reduces the likelihood of IMS being present on the FPU upon arrival to the Scarborough field. No change in consequence would occur.	Controls based on legislative requirements under the <i>Biosecurity Act 2015</i> – must be adopted.	Yes C23.3

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<ul style="list-style-type: none"> Complete pre-arrival reporting using the Maritime and Aircraft Reporting System (MARS) per the <i>Biosecurity Act 2015 (Cth)</i>. 				
Good Practice				
<p>Woodside's IMS risk assessment process will be applied to Vessels and immersible equipment that enter the Operational Area, unless exempt (Section 7.2.6).</p> <p>Based on the outcomes of each IMS risk assessment, management options commensurate with the risk will be implemented to minimise the likelihood of IMS being introduced.</p>	<p>F: Yes. CS: Minimal cost. Good practice implemented across all Woodside Operations.</p>	<p>Identifies potential risks and additional controls implemented accordingly. In doing so, the likelihood of transferring marine pests between Vessels within the PAA is reduced. No change in consequence would occur.</p>	<p>Benefits outweigh cost/sacrifice.</p>	<p>Yes C 23.4</p>
<p>Scarborough Floating Production Unit IMS Management Plan will be implemented including:</p> <ul style="list-style-type: none"> Antifouling Coat applied to FPU prior to arrival in PAA. Undertake independent IMS inspection and cleaning prior to FPU sail away to Scarborough field. Ballast water uptake per plan requirements. 	<p>F: Yes CS: Minimal cost. Good practice for Facilities originating from high-risk locations</p>	<p>Identified potential risks and controls to be implemented accordingly. In doing so, reducing the likelihood of IMS being present on the FPU upon arrival to the Scarborough field.</p>	<p>Benefits outweigh cost/sacrifice.</p>	<p>Yes C 23.5</p>
<p>Monitor the Scarborough FPU for IMS</p>	<p>F: Yes, implementation of a survey is considered feasible for the Scarborough FPU. CS: Significant. IMS inspection of in-water assets typically requires diver-based inspections to reliably detect IMS. This is a costly, time-consuming process that introduces a significant safety risk. Monetary cost of IMS surveys for the facility sized infrastructure</p>	<p>Potential for reduction of consequence. If detected, IMS can be managed.</p>	<p>Disproportionate. Significant mitigations to reduce the FPU to low risk prior to sail away from the construction yard to the Scarborough field through implementation of a FPU specific IMS inspection and cleaning (C 23.4) which provide Woodside with confidence of</p>	<p>No</p>

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	<p>surveys is significant based on Woodside's experience with other facilities. Costs including vessel hire, ROV to support survey and divers to check niche areas are significant.</p> <p>HS: Exposure of personnel while conducting survey is four days of two–three people (based on subsea ROV surveys of similar size).</p>		<p>verification of EPO 28.</p> <p>Consequently, any additional benefit gained by implementing this control is considered disproportionate, given the controls already adopted (and noting already incurred cost through implementation of IMSMP (i.e. inspections and cleaning where risk warrants)) and the unlikely likelihood of a translocation event.</p>	
Professional Judgement – Eliminate				
No discharge of ballast water during the Petroleum Activities Program.	<p>F: No. Ballast water discharges are critical for maintaining vessel stability. Given the nature of the Petroleum Activities Program, the use of ballast (including the potential discharge of ballast water) is considered to be a safety critical requirement.</p> <p>CS: Not assessed, control not feasible.</p>	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Eliminate use of vessels.	<p>F: No. Given that vessels must be used to implement project, there is no feasible means to eliminate the source of risk.</p> <p>CS: Loss of the project.</p>	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Professional Judgement – Substitute				
Source Vessels based in Australia only.	<p>F: Potentially. Limiting activities to only use local Vessels could potentially pose a significant risk in terms of time and duration of sourcing a vessel, as well as the ability of the local vessels to perform the required tasks. For example, there are limited installation</p>	Sourcing vessels from within Australian will reduce the likelihood of IMS from outside Australian waters, however, it does not reduce the likelihood of introduction of species native to Australia but alien to the PAA and NWMR, or of IMS that have established	Disproportionate. Sourcing vessels from Australian waters may result in a reduction in the likelihood of IMS introduction to the PAA; however, the potential cost of implementing this control is grossly disproportionate to	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	vessels based in Australian waters. While the project will attempt to source Vessels locally it is not always possible. Availability cannot always be guaranteed when considered competing Oil and Gas activities in the region. In addition, sourcing Australian based vessels only will cause increases in cost due to pressures of vessel availability. CS: Significant cost and schedule impacts due to restrictions of vessel hire opportunities.	elsewhere in Australia. The consequence is unchanged.	the minor environmental gain (or reducing an already remote likelihood of IMS introduction) potentially achieved by using only Australian based vessels, consequently this risk is considered not reasonably practicable.	
IMS inspection of all vessels.	F: Yes. Approach to inspect vessels could be a feasible option. CS: Significant cost and schedule impacts. In addition, Woodside's IMS risk assessment process (C 13.2) is seen to be more cost effective as this control allows Woodside to manage the introduction of marine pests through biofouling, while targeting its efforts to and resources to areas of greatest concern.	Inspection of all vessels for IMS would reduce the likelihood of IMS being introduced to the PAA. However, this reduction is unlikely to be significant given the other control measures implemented. No change in consequence would occur.	Disproportionate. The cost/sacrifice outweighs the benefit gained, as other controls to be implement achieve an ALARP position.	No
Professional Judgement – Engineered Solution				
None identified.				
ALARP Statement: On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the risks and consequences of IMS introduction. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

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Demonstration of Acceptability
Acceptability Criteria and Assessment
<p>Demonstration of acceptability for the sources of aspect and associated impacts assessed in this section are provided in Section 7.2.4.3 of the Scarborough OPP. The Petroleum Activities Program meets the acceptability criteria (Section 2.3.5):</p> <ul style="list-style-type: none"> • Overall risk consequence for individual receptors are less than the significant impact level defined in the OPP. • EPOs and controls in the OPP that are relevant to an unplanned introduction of IMS have been adopted. • There are no changes to internal/external context specific to this risk from the OPP, including issues raised during consultation. <p>Acceptability Statement:</p> <p>The impact assessment has determined that the accidental introduction and establishment of IMS represents a low current risk rating and is unlikely to result in a risk consequence greater than Slight. The adopted controls are considered consistent with industry legislation, codes and standards. Further opportunities to reduce the impacts have been investigated above. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Activities do not have a significant impact on MNES (Section 2.4.2) including those with an First Nations connection or with traditional use in nearshore areas as defined in Section 4.9. Therefore, Woodside considers the adopted controls appropriate to, manage the risks of invasive marine species to an acceptable level.</p>

Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
<p>EPO 28 No introduction and establishment of invasive marine species into the Operational Area(s) as a result of the Petroleum Activities Program.</p>	<p>C 23.1 Vessels (including foreign vessels not party to the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (BWM Convention)) will manage their ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management Requirements. This applies to all Vessels that will enter the Operational Area, including those carrying out activities outside of Australian Territorial Seas (>12nm).</p>	<p>PS 23.1.1 Prevent the translocation of IMS within the vessel's ballast water from high risk locations to the PAA.</p>	<p>MC 23.1.1 Ballast Water Records System maintained by vessels which verifies compliance against Australian Ballast Water Management Requirements.</p>
	<p>C 23.2 Internationally sourced Vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements.</p>	<p>PS 23.2.1 Compliance with Australian Biofouling Management Requirements.</p>	<p>MC 23.2.1 Records of implementation of biofouling management measures and pre-arrival reporting</p>
	<p>C 23.3 The Scarborough FPU will:</p> <ul style="list-style-type: none"> • Apply to the Department (DAFF Biosecurity) at least two months prior to arrival in the Operational Area, to have the FPU 	<p>PS 23.3.1 The Scarborough FPU will obtain all relevant approvals per C 23.3 prior to entering the operational area.</p>	<p>MC 23.3.1 Records confirm Scarborough FPU obtained relevant approvals per C 23.3.</p>

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Environmental Performance Outcomes, Standards and Measurement Criteria			
EPO	Adopted Control(s)	EPS	MC
	biosecurity risk status assessed; <ul style="list-style-type: none"> Complete pre-arrival reporting using the Maritime and Aircraft Reporting System (MARS) per the Biosecurity Act 2015 (Cth). 		
	<p>C 23.4 Woodside's IMS risk assessment process will be applied to Vessels and immersible equipment that enter the Operational Area, unless exempt (Section 7.2.6).</p> <p>Based on the outcomes, management options commensurate with the risk will be implemented to minimise the likelihood of IMS being introduced.</p>	<p>PS 23.4.1 Before entering the PAA, Vessels and relevant immersible equipment are determined to be low risk¹¹⁰ of introducing IMS of concern.</p> <p>PS 23.4.2 In accordance with Woodside's IMS risk assessment process, the IMS risk assessments will be undertaken by an authorised environment adviser who has completed relevant Woodside IMS training or by qualified and experienced IMS inspector.</p>	<p>MC 23.4.1 Records of IMS risk assessments maintained for all Vessels and relevant immersible equipment entering the PAA to undertake the Petroleum Activities Program.</p> <p>MC 23.4.2 Records confirm that the IMS risk assessments undertaken by an Environment Adviser or IMS inspector (as relevant).</p>
	<p>C 23.5 Scarborough Floating Production Unit IMS Management Plan will be implemented including:</p> <ul style="list-style-type: none"> Antifouling Coat applied to FPU prior to arrival in PAA. Undertake independent IMS inspection and cleaning prior to FPU sail away to Scarborough field. Ballast water uptake per plan requirements 	<p>PS 23.5.1 Implementation of the Scarborough Floating Production Unit IMS Management Plan.</p>	<p>MC 23.5.1 Records confirm FPU IMSMP was implemented (AFC certificate, IMS Inspection report, Ballast water records).</p>

¹¹⁰ Low risk of introducing IMS of concern is defined as either no additional management measures required or, management measures have been applied to reduce the risk.

6.9 Environment Protection and Biodiversity Conservation Act Assessment

6.9.1 Matters of National Environmental Significance Significant Impact Guidelines

As part of the evaluation of potential impacts and risks from planned and unplanned activities (Section 6.7 and 6.7.13) an assessment was undertaken to determine if any relevant significant impact criteria for EPBC Act listed Endangered or Vulnerable species were met.

The activity will not result in any population level effects on any populations of listed Endangered or Vulnerable species, nor will it “modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline”. Therefore, the Petroleum Activities Program will not have a significant impact on any MNES.

6.9.2 Principles of Ecologically Sustainable Development

For all impacts and risks assessed in Section 6, an assessment was conducted to determine if the Petroleum Activities Program was consistent with relevant principles of ESD, as described in Section 2.3.

This assessment determined that the activity is consistent with the principles of ESD as set out in sections 3A(a), (b), (c) and (d) of the EPBC Act. The principle set out in section 3A(E) of the EPBC Act (‘improved valuation, pricing and incentive mechanisms should be promoted’) is not relevant to the Petroleum Activities Program.

6.9.3 Recovery Plan and Threat Abatement Plan Assessment

As described in Section 2.4, an EP must not be inconsistent with a recovery plan or threat abatement plan for a listed threatened species or ecological community. This section describes the assessment that Woodside has undertaken to demonstrate that the Petroleum Activities Program is not inconsistent with any relevant recovery plans or threat abatement plans. For the purposes of this assessment, the relevant Part 13 statutory instruments (recovery plans and threat abatement plans are:

- Recovery Plan for Marine Turtles in Australia 2017–2027 (Commonwealth of Australia, 2017).
- Conservation Management Plan for the Blue Whale – A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025 (Commonwealth of Australia, 2015a).
- National Recovery Plan for the Southern Right Whale (DCCEEW, 2024b)
- Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) 2014 (Commonwealth of Australia, 2014b).
- Sawfishes and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015c).
- Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia’s coasts and oceans 2018 (DoEE, 2018).

Table 6-50 lists the objectives and (where relevant) the action areas of these plans, and also describes whether these objectives/action areas are applicable to government, the Titleholder and/or the Petroleum Activities Program. For those objectives/action areas applicable to the Petroleum Activities Program, the relevant actions of each plan have been identified, and an evaluation has been conducted as to whether impacts and risks resulting from the activity are clearly inconsistent with that action or not. The results of this assessment against relevant actions are presented in Table 6-51 to Table 6-56.

The assessment of potential impacts and risks to pygmy blue whales from underwater noise emissions in Section 6.7.4 has taken into account the definitions of terminology in the CMP, as

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described in the DAWE and NOPSEMA guidance released in September 2021. Similarly, the assessment against relevant actions in the CMP has been undertaken in the context of the definitions included in the guidance note.

Table 6-50: Identification of applicability of recovery plan and threat abatement plan objectives and action areas

EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Licence/ Titleholder	Petroleum Activities Program
Marine Turtle Recovery Plan			
Long-term Recovery Objective: Minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so they can be removed from the EPBC Act threatened species list	Y	Y	Y
Interim Recovery Objectives			
Current levels of legal and management protection for marine turtle species are maintained or improved, both domestically and throughout the migratory range of Australia's marine turtles	Y		
The management of marine turtles is supported	Y		
Anthropogenic threats are demonstrably minimised	Y	Y	Y
Trends in nesting numbers at index beaches and population demographics at important foraging grounds are described	Y	Y	
Action Areas			
A. Assessing and addressing threats			
A1. Maintain and improve efficacy of legal and management protection	Y		
A2. Adaptively manage turtle stocks to reduce risk and build resilience to climate change and variability	Y	Y	Y
A3. Reduce the impacts of marine debris	Y	Y	Y
A4. Minimise chemical and terrestrial discharge	Y	Y	Y
A5. Address international take within and outside Australia's jurisdiction	Y		
A6. Reduce impacts from terrestrial predation	Y		
A7. Reduce international and domestic fisheries bycatch	Y		
A8. Minimise light pollution	Y	Y	Y
A9. Address the impacts of coastal development/infrastructure and dredging and trawling	Y	Y	
A10. Maintain and improve sustainable Indigenous management of marine turtles	Y		
B. Enabling and measuring recovery			
B1. Determine trends in index beaches	Y	Y	Y
B2. Understand population demographics at key foraging grounds	Y		
B3. Address information gaps to better facilitate the recovery of marine turtle stocks	Y	Y	Y
Blue Whale Conservation Management Plan			
Long-term recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list	Y	Y	Y

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Licence/ Titleholder	Petroleum Activities Program
Interim Recovery Objectives			
The conservation status of blue whale populations is assessed using efficient and robust methodology	Y		
The spatial and temporal distribution, identification of BIAs, and population structure of blue whales in Australian waters is described	Y	Y	Y
Current levels of legal and management protection for blue whales are maintained or improved and an appropriate adaptive management regime is in place	Y		
Anthropogenic threats are demonstrably minimised	Y	Y	Y
Action Areas			
A. Assessing and addressing threats			
A.1: Maintain and improve existing legal and management protection	Y		
A.2: Assessing and addressing anthropogenic noise	Y	Y	Y
A.3: Understanding impacts of climate variability and change	Y	Y	Y
A.4: Minimising vessel collisions	Y	Y	Y
B. Enabling and Measuring Recovery			
B.1: Measuring and monitoring population recovery	Y		
B.2: Investigating population structure	Y		
B.3: Describing spatial and temporal distribution and defining biologically important habitat	Y	Y	Y
Southern Right Whale Recovery Plan			
Long-term vision: increase population to a level that the conservation status has improved and the species no longer qualifies for listing as threatened under any of the EPBC Act listing criteria.	Y	Y	Y
Interim Recovery Objectives			
Current levels of Commonwealth and State legislative and management protection for southern right whales are implemented, maintained, or improved, so threats continue to be managed and reduced over the life of the plan	Y		
Anthropogenic threats are managed consistent with ecologically sustainable principles to facilitate recovery of southern right whales	Y	Y	Y
Population dynamics, including demographics, distribution, residency, and coastal movement across the species range are monitored and quantified using robust, standardised, best-practice methodology to assess population recovery	Y		
The population structure in Australian waters is clearly characterised to evaluate the degree to which the western and eastern populations are separate populations and inform the degree of connectivity with other southern right whale populations	Y		
Capability of First Nation Australians, research, citizen science, and general community groups is improved to assist in addressing recovery actions of southern right whales in Australia.	Y		
Action Areas			

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Licence/ Titleholder	Petroleum Activities Program
A. Assessing and addressing threats			
A1: Maintain, implement and improve efficacy of current legislative and management protection for southern right whales.	Y		
A2: Address habitat degradation impacts from coastal and offshore marine infrastructure developments within the species' range.	Y	Y	Y
A3: Understand impacts of climate variability and anthropogenic climate change on the species biology and population recovery.	Y	Y	Y
A4: Manage and mitigate the threat of entanglements from commercial active or discarded fishing gear throughout the species' range in Australian waters.	Y		
A5: Assess, manage, and mitigate impacts from anthropogenic underwater noise.	Y	Y	Y
A6: Manage, minimise and mitigate the threat of vessel strike.	Y	Y	Y
B. Enabling and Measuring Recovery			
B1: Measure and monitor population demographic and recovery	Y		
B2: Characterise population structure	Y		
B3: Determine migratory paths and offshore distribution	Y		
B4: Improve capability of First Nation Australians, research, citizen science and general community groups to assist management of southern right whales	Y		
Grey Nurse Shark Recovery Plan			
Overarching Objective			
To assist the recovery of the grey nurse shark in the wild, throughout its range in Australian waters, with a view to: <ul style="list-style-type: none"> improving the population status, leading to future removal of the grey nurse shark from the threatened species list of the EPBC Act ensuring that anthropogenic activities do not hinder the recovery of the grey nurse shark in the near future, or impact on the conservation status of the species in the future. 	Y	Y	Y
Specific Objectives			
Develop and apply quantitative monitoring of the population status (distribution and abundance) and potential recovery of the grey nurse shark in Australian waters	Y		
Quantify and reduce the impact of commercial fishing on the grey nurse shark through incidental (accidental and/or illegal) take, throughout its range.	Y		
Quantify and reduce the impact of recreational fishing on the grey nurse shark through incidental (accidental and/or illegal) take, throughout its range	Y		
Where practicable, minimise the impact of shark control activities on the grey nurse shark	Y		
Investigate and manage the impact of ecotourism on the grey nurse shark	Y		
Manage the impact of aquarium collection on the grey nurse shark	Y		

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Licence/ Titleholder	Petroleum Activities Program
Improve understanding of the threat of pollution and disease to the grey nurse shark	Y	Y	Y
Continue to identify and protect habitat critical to the survival of the grey nurse shark and reduce the impact of threatening processes within these areas	Y	Y	
Continue to develop and implement research programs to support the conservation of the grey nurse shark	Y	Y	
Promote community education and awareness in relation to grey nurse shark conservation and management	Y		
Sawfish and River Sharks Recovery Plan			
Primary Objective			
To assist the recovery of sawfish and river sharks in Australian waters with a view to: <ul style="list-style-type: none"> improving the population status leading to the removal of the sawfish and river shark species from the threatened species list of the EPBC Act ensuring that anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future. 	Y	Y	
Specific Objectives			
Reduce and where possible, eliminate adverse impacts of commercial fishing on sawfish and river shark species.	Y		
Reduce and, where possible, eliminate adverse impacts of recreational fishing on sawfish and river shark species.	Y		
Reduce and, where possible, eliminate adverse impacts of Indigenous fishing on sawfish and river shark species.	Y		
Reduce and, where possible, eliminate the impacts of illegal, unregulated and unreported fishing (IUU) on sawfish and river shark species.	Y		
Reduce and, where possible, eliminate adverse impacts on habitat degradation and modification on sawfish and river shark species.	Y	Y	Y
Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species noting the linkages with the Threat Abatement Plan for the Impact of Marine Debris on Vertebrate Marine Life.	Y	Y	Y
Reduce and, where possible, eliminate any adverse impacts of collection for marine aquaria on sawfish and river shark species.	Y		
Improve the information base to allow the development of a quantitative framework to assess the recovery of, and inform management options for, sawfish and river shark species.	Y		
Develop research programs to assist conservation of sawfish and river shark species.	Y	Y	
Improve community understanding and awareness in relation to sawfish and river shark conservation and management.	Y		

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Licence/ Titleholder	Petroleum Activities Program
Marine Debris Threat Abatement Plan			
Objectives			
Contribute to long-term prevention of the incidence of marine debris	Y	Y	
Understand the scale of impacts from marine plastic and microplastic on key species, ecological communities and locations	Y	Y	Y
Remove existing marine debris	Y		
Monitor the quantities, origins, types and hazardous chemical contaminants of marine debris, and assess the effectiveness of management arrangements for reducing marine debris	Y		
Increase public understanding of the causes and impacts of harmful marine debris, including microplastic and hazardous chemical contaminants, to bring about behaviour change	Y		

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Table 6-51: Assessment against relevant actions of the Marine Turtle Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Marine Turtle Recovery Plan	<p>Action Area A3: Adaptively manage turtle stocks to reduce risk and build resilience to climate change and variability</p>	<p>Action: Continue to meet Australia’s international commitments to address the causes of climate change.</p>	<p>Refer Section 6.7.6 Not inconsistent assessment: This project contributes to Australia meeting international commitments to address the causes of climate change primarily via compliance with Marine Order 97, the National Greenhouse and Energy Reporting Scheme (NGERS) and National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.</p>	<p>EPO 3, 10, 11 C 6.1, 6.2, 6.3, 6.4, 6.5, 6.6 6.7, 6.11, 6.12, 6.13, 6.14, 6.15, EPS 6.1.1, 6.2.1, 6.3.1, 6.4.1, 6.5.1, 6.5.2, 6.6.1, 6.7.1, 6.11.1, 6.12.1, 6.13.1, 6.14.1, 6.15.1</p>
	<p>Action Area A3: Reduce the impacts from marine debris</p>	<p>Action: Support the implementation of the Marine Debris Threat Abatement Plan (TAP) <u>Priority actions at stock level:</u></p> <ul style="list-style-type: none"> • G-NWS – understand the threat posed to this stock by marine debris • LH-WA – determine the extent to which marine debris is impacting loggerhead turtles • F-Pil and H-WA – no relevant actions 	<p>Refer Section 6.8.8 Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to marine turtles.</p>	<p>EPO 15, 25 C 8.1, 20.1, 20.2, 20.3, 20.5 EPS 8.1.1, 20.1.1, 20.2.1, 20.3.1, 20.5.1</p>
	<p>Action Area A4: Minimise chemical and terrestrial discharge</p>	<p>Action: Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to ‘slow to recover habitats’, e.g. nesting habitat, seagrass meadows or coral reefs <u>Priority actions at stock level:</u></p> <ul style="list-style-type: none"> • G-NWS – ensure that spill risk strategies and response programs include management for turtles and their habitats • LH-WA, F-Pil – ensure that spill risk strategies and response programs include management for turtles and their habitats, particularly in reference to slow to recover habitats, e.g. seagrass meadows or corals 	<p>Refer Sections 6.7.13 Not inconsistent assessment: The assessment of accidental release of chemicals/hydrocarbons has considered the potential risks to marine turtles. Spill risk strategies and response program include management measures for turtles and their nesting habitats.</p>	<p>Refer Section 7.13. Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are presented in Appendix H: Oil Spill Preparedness and Response Mitigation Assessment</p>

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
		<ul style="list-style-type: none"> H-WA – no relevant actions 		
		<p>Action: Routine discharges from Vessels are managed such that marine turtles are not adversely affected by changes in water quality.</p> <p><u>Priority actions at stock level:</u></p> <ul style="list-style-type: none"> G-NWS – as above LH-WA, F-Pil – as above H-WA – no relevant actions 	<p>Refer Section 6.7.9</p> <p>Not inconsistent assessment: The assessment of routine discharges of chemicals, deck drainage, treated sewerage, putrescible wastes and grey water has considered the potential risks to marine turtles. Individuals transiting the localised area may come into contact with routine discharges, however these are sporadic and in small quantities, and are unlikely to pose a significant risk.</p>	<p>EPO 15</p> <p>C 8.1, 8.2, 8.3, 8.4</p> <p>EPS 8.1.1, 8.2.1, 8.3.1, 8.4.1</p>
	Action Area A8: Minimise light pollution	<p>Action: Artificial light within or adjacent to habitat critical to the survival of marine turtles will be managed such that marine turtles are not displaced from these habitats</p> <p><u>Priority actions at stock level:</u></p> <ul style="list-style-type: none"> G-NWS – as above LH-WA – no relevant actions F-Pil and H-WA – manage artificial light from onshore and offshore sources to ensure biologically important behaviours of nesting adults and emerging/dispersing hatchlings can continue 	<p>Refer Section 6.7.3</p> <p>Not inconsistent assessment: The assessment of light emissions has considered the potential impacts to marine turtles. Internesting, mating, foraging or migrating turtles are not impacted by light from offshore vessels. Vessel light emissions could cause localised and temporary behavioural disturbance to isolated transient individuals, which is unlikely to result in displacement of adult turtles from internesting or nesting habitat critical to the survival of marine turtles.</p>	<p>EPO 6, 7</p> <p>C 3.1</p> <p>EPS 3.1.1</p>
	Action Area B1: Determine trends at index beaches	<p>Action: Maintain or establish long-term monitoring programs at index beaches to collect standardised data critical for determining stock trends, including data on hatchling production</p> <p><u>Priority actions at stock level:</u></p>	<p>Not inconsistent assessment: Woodside contributes to Action Area B1 via its support of the Ningaloo Turtle Program¹¹¹. Given the offshore location of the PAA, impacts to turtle nesting beaches will not occur.</p>	N/A

¹¹¹ http://www.ningalooturtles.org.au/media_reports.html

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
		<ul style="list-style-type: none"> G-NWS – continue long-term monitoring of index beaches LH-WA – continue long-term monitoring of nesting and foraging populations F-Pil and H-WA – no relevant actions 		
	Action Area B3: Address information gaps to better facilitate the recovery of marine turtle stocks	Action: Understand the impacts of anthropogenic noise on marine turtle behaviour and biology <u>Priority actions at stock level:</u> <ul style="list-style-type: none"> G-NWS – given this is a relatively accessible stock that is likely to be exposed to anthropogenic noise – Investigate the impacts of anthropogenic noise on turtle behaviour and biology and extrapolate findings from the North West Shelf stock to other stocks LH-WA, F-Pil – no relevant actions H-WA – investigate mixed stock genetics at foraging grounds 	Refer Section 6.7.5 Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to flatback and olive ridley turtles. Vessel emissions could cause localised and short-term behavioural disturbance to isolated transient individuals, which is unlikely to result in displacement of adult turtles from internesting or nesting habitat critical to the survival of marine turtles.	EPO 8, 9 C 4.3 PS 4.1.1

Assessment Summary

The Marine Turtle Recovery Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.

Table 6-52: Blue Whale Conservation Management Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Blue Whale Conservation Management Plan	Action Area A.2: Assessing and addressing anthropogenic noise	Action 2: Assessing the effect of anthropogenic noise on blue whale behaviour Action 3: Anthropogenic noise in biologically important areas will be managed such that any blue	Refer Section 6.7.4, 6.7.5 Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to pygmy blue whales.	EPO 8, 9 C 4.1, 4.4, 4.5, 4.6, 4.7, 4.8 PS 4.1.1, 4.4.1, 4.5.1, 4.6.1, 4.7.1, 4.8.1

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
		whale continues to use the area without injury, and is not displaced from a foraging area		
	Action Area A.3: Understanding impacts of climate variability and change	Action 1: Continue to meet Australia's international commitments to reduce greenhouse gas emissions and regulate the krill fishery in Antarctica.	Refer Section 6.7.6 Not inconsistent assessment: This project contributes to Australia meeting international commitments to reducing greenhouse gas emissions primarily via compliance with Marine Order 97, the National Greenhouse and Energy Reporting Scheme (NGERS) and National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015. The regulation of the krill fishery in Antarctica is not applicable to Woodside or this EP.	EPO 3, 10, 11 C 6.1, 6.2, 6.3, 6.4, 6.5, 6.6 6.7, 6.11, 6.12, 6.13, 6.14, 6.15, EPS 6.1.1, 6.2.1, 6.3.1, 6.4.1, 6.5.1, 6.5.2, 6.6.1, 6.7.1, 6.11.1, 6.12.1, 6.13.1, 6.14.1, 6.15.1
	Action Area A.4: Minimising vessel collisions	Action 3: Ensure the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue whales occur and, if required, appropriate mitigation measures are implemented	Refer Section 6.8.10 Not inconsistent assessment: The assessment of vessel interaction with marine fauna has considered the potential risks to pygmy blue whales. If the Petroleum Activities Program overlaps with the northern migration, individuals may deviate slightly from migratory route, but will continue on their migration to possible breeding grounds in Indonesian waters. Vessel collisions with pygmy blue whales are highly unlikely to occur, given the very slow vessel speeds and presence of MFOs.	EPO 27 C 4.1, 4.8 PS 4.1.1, 4.8.1
	Action Area B.3: Describing spatial and temporal distribution and defining biologically important habitat	Action 2: Identify migratory pathways between breeding and feeding grounds Action 3: Assess timing and residency within Biologically Important Areas	Not inconsistent assessment: Woodside contributes to Action Area B3 via its support of targeted research initiatives (e.g.	N/A

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
			satellite tracking of pygmy blue whale migratory movements ¹¹²).	
<p>Assessment Summary The Blue Whale Conservation Management Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.</p>				

Table 6-53: Southern Right Whale Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
National Recovery Plan for the Southern Right Whale	<p>Action Area A.2: Address habitat degradation impacts from coastal and offshore marine infrastructure developments within the species' range.</p>	<p>Action 1: Coastal and offshore development actions are assessed according to principles of ecological sustainable development to ensure the risk of injury, auditory impairment and/or disturbance to southern right whales is maintained.</p> <p>Action 3: Current information on species' occurrence, particularly in HCTS, BIAs, and historic high use areas, are used to inform planning, assessment, and decision-making on marine infrastructure development actions.</p>	<p>Not inconsistent assessment: This EP assesses the potential impacts of the petroleum activity do not result in the risk of injury, auditory impairment and/or disturbance to southern right whales, particularly within the HCTS and BIAs that are located over 190 km from the Operational Areas.</p>	N/A
	<p>Action Area A.3: Understand impacts of climate variability and anthropogenic climate change on the species biology and population recovery.</p>	<p>Action 1: Continue to meet Australia's international commitments to address causes of climate change, including greenhouse gas emissions.</p>	<p>Refer Section 6.7.6</p> <p>Not inconsistent assessment: This project contributes to Australia meeting international commitments to address causes of climate change, including greenhouse gas emissions, primarily via compliance with Marine Order 97, the National Greenhouse and Energy</p>	<p>EPO 3, 10, 11 C 6.1, 6.2, 6.3, 6.4, 6.5, 6.6 6.7, 6.11, 6.12, 6.13, 6.14, 6.15, EPS 6.1.1, 6.2.1, 6.3.1, 6.4.1, 6.5.1, 6.5.2, 6.6.1,</p>

¹¹² Double, M.C., Andrews-Goff, V., Jenner, K.C.S., Jenner, M.-N., Laverick, S.M., Branch, T.A., Gales, N.J., 2014. Migratory movements of pygmy blue whales (*Balaenoptera musculus brevicauda*) between Australia and Indonesia as revealed by satellite telemetry. PLoS One 9, e93578

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
			Reporting Scheme (NGERS) and National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.	6.7.1, 6.11.1, 6.12.1, 6.13.1, 6.14.1, 6.15.1
	Action Area A.5: Assess, manage, and mitigate impacts from anthropogenic underwater noise.	<p>Action 2: Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment.</p> <p>Action 3: Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that the risk of behavioural disturbance is minimised.</p> <p>Action 4: Ensure environmental assessments associated with underwater noise generating activities include consideration of national policy (e.g., EPBC Act Policy Statement 2.1) and guidelines related to managing anthropogenic underwater noise and implement appropriate mitigation measures to reduce risks to southern right whales to the lowest possible level.</p> <p>Action 5: Quantify risks of anthropogenic underwater noise to southern right whales, including studies aimed to measure physiological effects, behavioural disturbance, and changes to acoustic communication (e.g., masking of vocalisations) to whales</p>	Refer Section 6.7.4 Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to southern right whales. The nearest BIAs and HCTS for the southern right whale being over 190 km from the Operational Areas therefore it is not expected that noise from the petroleum activity program will impact the southern right whales.	N/A
	Action Area A.6: Manage, minimise and mitigate the threat of vessel strike.	<p>Action 1: Assess risk of vessel strike to southern right whales in BIAs</p> <p>Action 3: Ensure environmental impact assessments and associated plans consider and quantify the risk of vessel strike and associated potential cumulative risks in BIAs and HCTS.</p>	Refer Section 6.8.10 Not inconsistent assessment: The assessment of vessel collision with marine fauna has considered the potential risks to southern right whales. The nearest BIAs and HCTS for the southern right whale being over 190 km from the Operational Areas therefore it is not expected that there is a risk of vessel strike.	N/A
Assessment Summary				

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
The National Recovery Plan for the Southern Right Whale has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan				

Table 6-54: Assessment against relevant actions of the Grey Nurse Shark Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Grey Nurse Shark Recovery Plan	Objective 7: Improve understanding of the threat of pollution and disease to the grey nurse shark	Action 7.1: Review and assess the potential threat of introduced species, pathogens and pollutants	Refer Section 6.8.8 Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to grey nurse sharks.	EPO 25 C 8.1, 20.1, 20.2, 20.3, 20.5 EPS 8.1.1, 20.1.1, 20.2.1, 20.3.1, 20.5.1
			Refer Sections 6.7.13 Not inconsistent assessment: The species was identified to potentially occur within the EMBA and therefore the assessment of accidental release of hydrocarbons has considered the potential risks to grey nurse sharks.	

Assessment Summary

The Grey Nurse Shark Recovery Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.

Table 6-55: Assessment against relevant actions of the Sawfish and River Shark Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Sawfish and River Shark Recovery Plan	<p>Objective 5: Reduce and, where possible, eliminate adverse impacts on habitat degradation and modification on sawfish and river shark species.</p>	<p>Action 5c: Identify risks to important sawfish and river shark habitat and measures needed to reduce those risks.</p>	<p>Refer to Section 6.7.13 Not inconsistent assessment: The species was identified to potentially occur within the EMBA and therefore the assessment of accidental release of hydrocarbons has considered the potential risks to sawfish and river shark.</p>	<p>Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are present in Appendix H: Oil Spill Preparedness and Response Mitigation Assessment</p>
	<p>Objective 6: Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species noting the linkages with the Threat Abatement Plan for the Impact of Marine Debris on Vertebrate Marine Life.</p>	<p>Action 6a: Assess the impacts of marine debris including ghost nets, fishing gear and plastics on sawfish and river shark species.</p>	<p>Refer Section 6.8.8 Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to sawfish and river sharks.</p>	<p>EPO 25 C 8.1, 20.1, 20.2, 20.3, 20.5 EPS 8.1.1, 20.1.1, 20.2.1, 20.3.1, 20.5.1</p>
<p>Assessment Summary The Sawfish and River Shark Recovery Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.</p>				

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Table 6-56: Assessment against relevant Marine Debris Threat Abatement Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Marine Debris TAP	Objective 1: Contribute to long-term prevention of marine debris.	Action 1.02: Limit the amount of single use plastic material lost to the environment in Australia.	Refer Section 6.8.8 Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to vertebrate wildlife.	EPO 25 C 20.1, 20.3, 20.5 EPS 20.1.1, 20.3.1, 20.5.1
<p>Assessment Summary The Marine Debris TAP has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.</p>				

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6.10 Cultural Features and Heritage Values Assessment

As described in Section 4, the identification of cultural features and heritage values of the environment as well as the social, economic and cultural features important to First Nations' people is integral to understanding the environment and any potential impacts and risks to the environment.

In line with Woodside's First Nations Communities Policy (Woodside 2022), Woodside seeks to avoid damage or disturbance to cultural heritage (including intangible heritage) and, if avoidance is not possible, minimise and mitigate the impacts, in consultation with First Nation communities and Traditional Custodians. Please note that the First Nations Communities Policy is reviewed regularly and is updated as required. The First Nations Communities Policy is made available on our website, along with the other Board policies: <https://www.woodside.com/who-we-are/corporate-governance-and-policies>. Mitigation can include any measure or control aimed at ensuring the viability of the intangible cultural heritage and its intergenerational transmission. This can include reducing impacts and risks to environmental features that are associated with intangible cultural heritage (UNESCO 2003; ICOMOS 2013).

It is important to note that not all topics raised by First Nations groups/individuals through consultation are considered values for the purpose of the cultural features and heritage values impact assessment below. Topics were raised in the context of a general interest in environmental management and ecosystem health (i.e., natural environment interest), where the group/individual was seeking further information about potential impacts and risks from the Petroleum Activities Program on a receptor. As these interests relate to the maintenance of the natural environment, these are adequately addressed through impact and risk assessments described in Sections 6.7 and 6.7.13 respectively and not further assessed below.

Aspect	Cultural Features and Heritage Values
Description of source impact/risk (key aspects)	<p>Physical presence of vessels</p> <p>Several vessel types will be required to complete the activities associated with the Petroleum Activities Program (refer to Section 3.11). The physical presence and movement of vessels within the Operational Area has the potential to displace other marine users.</p> <p>Vessel physical presence and movement closer to the Dampier Archipelago and the Pilbara Port Authority Management Area is limited to activities along the export trunkline route. These activities will be conducted intermittently as described in Section 6.7.1. Temporary exclusion zones will be established around operating vessels. Refer to Section 6.7.1 for more details.</p> <p>Light emission from vessels</p> <p>Vessels will have external lighting to support safe operations at night, as well as to communicate the presence and activities of Vessels to other marine users (i.e. navigational lights). This lighting typically consists of bright white (i.e. metal halide, halogen, fluorescent) lights, and is not dissimilar to lighting used for other offshore activities, including fishing and shipping. Lighting is required for the safe operation of the Vessels and cannot reasonably be eliminated.</p> <p>Vessel light emissions in any one area will be limited by the transient nature of the works along the export trunkline route. Refer to Section 6.7.3 for more details.</p> <p>Acoustic emissions from vessels</p> <p>There are various sources of underwater acoustic emissions during the Petroleum Activities Program primarily associated with infield vessel operations and support activities, such as geophysical surveys and other IMMR activities, with some sound will also be associated with the start-up and operation phase of the FPU and subsea facilities. Generally, sound associated with steady state operations will be limited, with periodic and short-term increases in sound associated with activities such as FPU installation, commissioning and start-up, and IMMR.</p> <p>The sound levels and frequencies generated by vessels varies with the size of the vessel, speed, engine type and the activity being undertaken. Large vessels typically produce higher sound levels at lower frequencies than small vessels, although significant variation may be found among vessels within the same group. Sound levels tend to be greatest when engaging the throttle or thrusters, such as use of DP or when vessels are operating under load, compared with slow moving or idling vessels.</p> <p>The greatest sound levels are likely to be associated with vessels using DP thrusters to maintain position on station. Refer to Sections 6.7.4 and 6.7.5 for more details.</p>

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	<p>Seabed disturbance</p> <p>Subsea infrastructure will be present on the seabed throughout the PAA over the operating life of the Scarborough field permanently altering the seabed for the duration of its presence. Gravimetry surveys, IMMR activities, ROV operations will be conducted at routine intervals, underwater acoustic positioning may be required and, flowline and/or export trunkline movement may occur, all resulting in seabed disturbance. Refer to Section 6.7.2 for more details.</p> <p>Unplanned hydrocarbon release from vessel (basis of EMBA)</p> <p>The temporary presence of the Vessels in the Operational Area may result in a navigational hazard for commercial shipping within the immediate area. This navigational hazard could result in a third-party vessel colliding with the Vessels which could result in a loss of containment. Vessels typically have multiple isolated tanks and the largest volume of a single tank for these types of vessels is in the order of 250 m³ (for survey and Support Vessels to 467 m³ (loss of FPU structural integrity).</p> <p>The EMBA is the largest spatial extent where unplanned events could have an environmental consequence on the surrounding environment. For this EP, the EMBA is the potential spatial extent of surface and in-water hydrocarbons at concentrations above ecological impact thresholds, in the highly unlikely event of the worst-case credible spill (467 m³) modelled at the FPU location and 250 m³ at two key locations. The EMBA therefore covers a larger area than the area that would be affected during any one single spill event. In the event of a spill the EMBA would be much smaller and is intermittent e.g., plume travels away from the release location based on prevailing currents and winds directions.</p> <p>The EMBA is driven by the distribution of entrained hydrocarbon above ecological thresholds and hence although Islands such as Barrow and Montebello Islands are within the EMBA, these are not expected to be affected unless there is shoreline contact above thresholds. No shoreline contact was predicted (Sections 6.8.2 and 6.8.3).</p> <p>Indirect impacts to rock art from downstream processing of LNG</p> <p>The presence of industry on the Burrup Peninsula has been the subject of topics and issues raised by some Relevant Persons during consultation. The topics and issues have centred around emissions associated with industrial activity leading to an accelerated weathering of rocks on which rock art is present which may reduce the visibility or destroy the rock art. This is based on a hypothesis that deposition of compounds such as NO_x, SO_x and ammonia (NH₃) from anthropogenic industrial sources have the potential to increase the acidity of the rock surface through chemical and/or biological processes and that acidic conditions may then accelerate the weathering of rock patina, eroding or affecting the contrast of the rock art. There have been several independent studies and rock art monitoring initiatives since the mid-2000s, which have not conclusively demonstrated a causal link between degradation of rock art and industrial activity. Refer to Section 6.7.7 for more details.</p>
<p>Receptor sensitivity</p>	<p>Cultural features and heritage values: High value</p> <p>Marine mammals: High value species</p> <p>Marine reptiles: High value species</p> <p>Fish: High value species</p> <p>Seabirds: High value species</p> <p>Coral: High value habitat</p> <p>Seagrass: High value habitat</p> <p>Mangroves: High value habitat</p>
<p>Planned Activity Aspect</p>	<p><i>The potential environmental impact from the Petroleum Activities Program to species that have a cultural feature or heritage value have been summarised below to provide the context related cumulative impact on the cultural feature or heritage value.</i></p>

Aspect	Impact Significance Level							
	Marine mammals	Marine reptiles	Fish	Seabirds	Coral	Seagrass	Mangroves	Rock art on Murujuga
6.7.2 Physical Presence – Seabed Disturbance (Presence of subsea infrastructure, seabed disturbance during hook-up, gravimetry surveys, IMMR activities, ROV operations, placement and retrieval of responders)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.7.3 Routine Light Emissions from Vessels	N/A	Slight (E)	Negligible (F)	Slight (E)	N/A	N/A	N/A	N/A
6.7.4 & 6.7.5 Routine Acoustic Emissions	Slight (E)	Slight (E)	Slight (E)	N/A	N/A	N/A	N/A	N/A
6.7.7 Routine Atmospheric Emissions: Offshore and Indirect Emissions from Gas Processing Onshore	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Consequence not assigned**
6.7.8 Interactions between diurnal migratory / foraging seabirds and shore birds and the FPU	N/A	N/A	N/A	Slight (E)	N/A	N/A	N/A	N/A
6.7.9 Routine and Non-Routine Discharges – Vessels	Slight (E)	Slight (E)	Slight (E)	Slight (E)	N/A	N/A	N/A	N/A
6.7.10 Routine and Non-Routine Discharges – FPU Operations (Wastewater streams)	Slight (E)	Slight (E)	Slight (E)	Slight (E)	N/A	N/A	N/A	N/A
6.7.11 Routine and Non-Routine Discharges – FPU Operations (Commingled	Slight (E)	Slight (E)	Slight (E)	N/A	N/A	N/A	N/A	N/A

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PW/Cooling Water Stream)								
6.7.12 Routine and Non-Routine Discharges – Subsea Operations and Activities	Slight (E)	Slight (E)	Slight (E)	N/A	N/A	N/A	N/A	N/A
6.7.13 Routine and Non-Routine Discharges – FPU and Subsea Commissioning	Slight (E)	Slight (E)	Slight (E)	N/A	N/A	N/A	N/A	N/A

Unplanned Activity Aspect	<i>The potential environmental risk from the Petroleum Activities Program to species that have a cultural feature or heritage value have been summarised below to provide the context related cumulative risk on the cultural feature or heritage value.</i>						
	Risk Rating						
Environmental risk assessment to marine species	Marine mammals	Marine reptiles	Fish	Seabirds	Coral	Seagrass	Mangroves
6.8.2 Unplanned Diesel Release – Vessel Collision	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
6.8.3 Unplanned Diesel Release – Loss of Structural Integrity/stability	Moderate	Moderate	Moderate	Moderate	N/A	N/A	N/A
6.8.6 Unplanned Diesel Release – FPU Topsides loss of containment including bunkering/refuelling	Low	Moderate	Moderate	Moderate	N/A	N/A	N/A
6.8.7 Unplanned Discharge: Chemical Release during Transfer, Storage and Use	Low	Low	Low	Low	N/A	N/A	N/A
6.8.8 Unplanned Discharge – Hazardous and Non-Hazardous Solid Waste/Equipment	Moderate	Moderate	Moderate	Moderate	N/A	N/A	N/A
6.8.9 Physical Presence (Unplanned): Seabed Disturbance	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.8.10 Physical Presence (Unplanned) – Interaction with Marine Fauna	Low	Low	Low	N/A	N/A	N/A	N/A

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6.8.11 Physical Presence (Unplanned): Introduction and Establishment of Invasive Marine Species	N/A						
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** No consequence has been assigned because there is no conclusive evidence of a causal link between industrial air emissions and potential anthropogenic change to rock art on Murujuga (as described in Section 6.7.7 and Section 4.9.6). Woodside will continue to monitor the outcomes of MRAMP (as per C 7.1), apply a precautionary approach through implementation of Controls listed in Section 6.7.7, and update or change manage the EP accordingly (Section 7.2.7)

Impact and Risk Assessment

The Petroleum Activities Program has the potential impact cultural features and heritage values through the following ways:

Archaeological heritage:

Places that are identified in the literature for their value as archaeological sites can be assumed to be impacted where there is an impact to the archaeological or scientific values of its tangible elements. This could include damage or disturbance of archaeological material or to the archaeological context.

Intangible cultural heritage:

Songlines: Songlines can become lost, fragmented, or broken when there is a loss of Country or forced removal from Country (Neale and Kelly 2020:30). Physical sites that have been identified as comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. It is noted that oil and gas infrastructure exists in many areas of the North West Shelf, and that songlines are still acknowledged and recognised. It is inferred that if there were to be any impacts to surviving songlines these would be significantly more likely to be described as qualitative (i.e. “weaken” a songline) rather than binary or absolute (i.e. destroy a songline).

Creation/dreaming sites; sacred sites; ancestral beings: Activities that physically alter landscape features may be assumed to potentially impact values of creation/dreaming sites, sacred sites or ancestral beings.

Ceremonial sites: Activities that prevent the performance of ceremony at these sites will directly impact its values.

Cultural obligations to care for Country: Environmental impacts may be assumed to impact rights and obligations to care for Sea Country. Exclusion of Traditional Custodians from Sea Country (e.g., by restricting access) or decision-making processes (e.g., by not conducting ongoing consultation) are other potential sources of impact.

Knowledge of Country/customary law and transfer of knowledge: Direct impact to communities practicing these skills will inherently occur when relevant aspects of the environment disappear, are displaced or suffer a reduction in population. Therefore, the transmission of these skills is expected to be impacted where there are impacts at the species/population level. Limitations on access to sites or disruption/relocation of First Nations communities may have implications for the preservation of First Nations knowledge.

Connection to Country: Where people are displaced or disrupted (e.g., during colonisation) or where there is a loss of technical skills or environmental knowledge this may damage connection to Country (McDonald and Phillips, 2021).

Access to Country: Impacts to access to Country may be classified as temporary (e.g. where exclusion zones exist around activities for safety reasons) or permanent (e.g. where infrastructure obstructs access or navigation). Impacts to access to Country can only occur in areas that were traditionally accessed by Traditional Custodians. As described in Section 4.9.4.5 this is anticipated to be focussed on areas adjacent to the coast.

Kinship systems and totemic species: It is assumed that marine species may have kinship/totemic relationships to Traditional Custodians, but it is understood that these relationships do not prohibit people outside of that “skin group” from hunting or eating that same species (Juluwarlu 2004). It is therefore inferred that the management of totemic or kinship species applies at the species/population level and not to individual plants and animals.

Resource collection: Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, marine species (as resources) will be impacted where there is an impact at the species/population level.

Marine ecosystems and species:

Marine ecosystems may hold both cultural and environmental value (see **Section 4.9**), with cultural and environmental values intrinsically linked (DCCEEW 2024a, MAC 2022 as cited in Woodside 2023a). It necessarily follows that an impact to marine ecosystems has the potential to impact cultural features where the impact is detectable within sea country—the seascape which Traditional Custodians view, interact with or hold knowledge of.

Archaeological Heritage

Onshore/intertidal archaeological sites

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No coastal areas or islands exist within the Operational Area. A review of the DPLH's Aboriginal Heritage Inquiry System identified 58 Registered Aboriginal Sites and 5 lodged Heritage Places in the EMBA. These were mainly comprised of sites at Barrow Island, Dampier Archipelago and the Ningaloo coast. These locations do exist within the EMBA boundary, however given the EMBA is driven by an unplanned marine diesel spill there is no anticipated impact pathway from this activity to onshore archaeological sites above highest astronomical tide (HAT).

Archaeological sites may exist in intertidal landscapes within the EMBA and may be exposed to marine diesel from an unplanned spill, however there is no anticipated impact pathway from the presence of marine diesel on archaeological values, as this is not expected to impact the fabric or context of sites on an exposed shoreline site. Impacts to the heritage value of fish traps from marine diesel in an unplanned spill may occur indirectly through impacts to fish. However, it is expected that continued use of fish traps beyond their archaeological value will be preserved where fish species and distribution are maintained at a population level. With regard to fish, refer to species specific assessment below for further information, in addition to the impact and risk assessment in Sections 6.7 and 6.7.13 respectively.

Onshore processing of LNG from the Petroleum Activities Program will occur onshore on Murujuga, which has a high concentration of rock art sites (estimated to exceed a million examples (DBCA & MAC 2024)) with significant local cultural and spiritual values in addition to their inclusion on Australia's National Heritage List and Tentative World Heritage List. PLP's publicly available Air Quality Management Plan has been reviewed and approved by the Western Australian Environment Protection Authority as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant as described in Section 6.7.7.

Woodside onshore operations at Pluto LNG facility and KGP are managed via Cultural Heritage Management Plans as implementation conditions required by EPA Act (Pt IV) Ministerial Conditions.

- Ministerial Statement 757 – for the Pluto LNG Development includes Condition 10 for Indigenous Heritage management to develop and implement a CHMP prepared in liaison with the Department of Indigenous Affairs. The Pluto LNG Aboriginal Cultural Heritage Management Plan - Commissioning and Operations Phase (2012) is implemented at the facility.
- Ministerial Statement 1233 (North West Shelf Project Extension Proposal) Conditions section 4 set out Cultural Heritage Outcomes and Objectives to be achieved:
 - allowing traditional owner and custodian access to enable traditional activities and connection to culturally significant heritage areas within the development envelopes
 - avoid where possible, and otherwise minimise direct impacts to social, cultural, heritage and archaeological values within the development envelopes

Conditions require implementation of the North West Shelf Project Extension Cultural Heritage Management Plan (2021), including further revision in consultation with Murujuga Key Stakeholders. The plan is required to include elements (not limited to); a framework for ongoing consultation, and operational environmental management activities, monitoring, targets, management actions and reporting relevant to cultural heritage. Related air quality management conditions in MS1233 are outlined in Section 6.7.7.

These conditions support the management and recognition of Murujuga Cultural Values related to the NWS Operations. The NWS CHMP (2021) provides management provisions and actions including provide access for Traditional Owners to Aboriginal cultural heritage sites within the Proposal development envelope when requested [MA2], the adoption of technologies to prevent impacts to terrestrial and nearshore vegetation of heritage and conservation value [MA4] and support the implementation of, and participate in, the DWER Murujuga Rock Art Strategy [MA6] (see Section 6.7.7).

Submerged archaeological sites

No archaeological sites have been identified beyond terrestrial or intertidal areas, with the exception of two sites at Murujuga in Cape Bruguieres channel and Flying Foam Passage (Benjamin et al. 2020; Benjamin et al 2023), which are outside of the EMBA. Nevertheless, there is the potential for submerged archaeological sites on the Ancient Landscape. Assessments of the Operational Area, detailed in Section 4.9, have not identified any archaeological sites on the Ancient Landscape. Additionally, volcanic rock which may contain petroglyphs do not occur within the Operational Area.

Submerged archaeological sites (locations undefined) may exist on the Ancient Landscape within the broader EMBA. However, given the EMBA is driven by an unplanned marine diesel spill, it is not expected to impact the seabed or archaeological material on or within it. Therefore, there is no anticipated impact pathway to submerged archaeological sites in the broader EMBA from the Petroleum Activities Program.

Rivers, waterholes, tidal channels and seeps

Assessments detailed in Section 4.9.4.2 have not identified any active or former freshwater sources within the Operational Area. There are no known significant freshwater systems within the EMBA. Oceanographic studies indicate that both the open ocean and coastal zone off Western Australia are well-mixed and saline. Submerged former water sources (e.g. river beds) may exist within the EMBA which are archaeologically prospective or culturally significant.

It has been asserted that locations where saltwater and freshwater meet “are where the biggest energy lines are”. Energy lines are understood by Woodside to be the same as songlines which are addressed below. The EMBA is driven by an unplanned marine diesel spill, which is not expected to impact the seabed or features on it. As such, there is no

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anticipated impact pathway from this activity to submerged water sources in the broader EMBA. In the highly unlikely and unmitigated worst case, unplanned marine diesel release may contact shorelines and receptors such as mangroves, and shoreline habitats. These habitats may contain brackish or fresh water due to runoff from land. Given hydrocarbon characteristics, rapid weathering, the low predicted volume ashore (Section 6.8.2), an unplanned release is expected to have no lasting effect on any freshwater sources along the shoreline.

Submerged calcarenite ridges/paleo beach barrier systems

Calcarenite ridges have been identified within the Operational Area, as detailed in Section 4.9.4.2. These features on the “mid shelf” identified in UWA (2021) are considered to predate human occupation of the Australian continent and therefore are not expected to contain archaeological material within it. Features on the “outer shelf” may contain archaeological material, but it was determined that “landforms and features that were identified on the seabed as having a higher probability of hosting indigenous UCH [underwater cultural heritage] ... have not been identified within the proposed export trunkline route.” There is also no planned dredging or large-scale seabed disturbance of calcarenite features that may expose archaeological material within the Operational Area. Further there is no anticipated impact pathway to calcarenite ridges in the broader EMBA from the Petroleum Activities Program.

Submerged hills

Assessments detailed in Section 4.9.4.2 have not identified submerged hills within the Operational Area, however submerged hills have been identified in the broader EMBA. These features on the “mid shelf” identified in UWA (2021) may be archaeologically prospective or culturally significant. The EMBA is driven by an unplanned marine diesel spill, which is not expected to impact the seabed or features on it. There is no anticipated impact pathway to submerged hills in the broader EMBA from the Petroleum Activities Program.

Madeleine Shoals

Madeleine Shoals is a potentially archaeologically prospective location found outside the Operational Area. While Madeleine Shoals is within the EMBA, this is driven by an unplanned marine diesel spill, and as such is not expected to impact the seabed or archaeological features on it. Therefore, there is no anticipated impact pathway to potentially archaeologically prospective sites at Madeleine Shoals from the Petroleum Activities Program.

Karst depressions/ravines and valleys between submerged ridges

Assessments detailed in Section 4.9.4.2 have not identified Karst depressions or other “catch points” within the Operational Area. Catch points have the potential to contain artefacts displaced by erosion during inundation which may be impacted by seabed disturbance. No planned seabed disturbance will occur outside the Operational Area.

General Intangible Values

Songlines

Management of intangible cultural heritage can include reducing impacts and risks to environmental features that are associated with intangible cultural heritage (UNESCO 2003). Impacts to marine plants, animals and other cultural features associated with songlines might impact the intergenerational transmission of knowledge of songlines when individuals can no longer witness or interact with the cultural features tied to songlines on Country. Therefore, managing songlines may require environmental controls protecting species at a population level, including migratory routes. Refer to species specific assessment below for further information, in addition to the impact and risk assessment in **Section 6.7** and **6.7.13** respectively.

Physical features comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. Songlines can become lost, fragmented, or broken when there is a loss of Country or impact to culturally important physical features (Neale and Kelly 2020:30). No specific details of songlines within the EMBA have been provided by relevant persons during consultation for this Activity, and no landforms typical of songlines (e.g. mountains, rivers, caves and hills (Higgins 2021)) are anticipated to be impacted by the Activity.

In publicly available literature, Murujuga is acknowledged as a starting point for songlines, including the flying fox songline (MAC 2023a). Precise location of this songline, and features of this songline that might be impacted, are not clearly articulated in the reviewed sources, but it is stated that “the sea is a source of creation for flying foxes” (DEC 2013). Although this does not provide the specificity required to determine the location of the flying fox songline or associated sites, Murujuga is located outside of the EMBA. Ethnographic survey (Section 4.9.4.2) also noted that “Dreamtime narratives... that commence at Murujuga and may also arrive from the sea including the... Bat (Flying Fox)” (McDonald and Phillips 2021). The ethnographic survey did not identify any sites within the EMBA related to songlines or make recommendations that any mitigations were required to manage songlines. Consultation with MAC and other Traditional custodians has not identified the flying fox songline as overlapping the EMBA, and flying foxes do not occur within the EMBA.

An ethnographic survey also noted “Dreamtime narratives... that commence at Murujuga and may also arrive from the sea including the *Marlu* (Plains Kangaroo)” (McDonald and Phillips 2021). Kearney et al (2023) notes a connection between the Kangaroo songline and a pair of submerged waterholes identified through seabed mapping by the Deep History of Sea Country project, which later found submerged artefacts in Flying Foam passage. Assessments detailed in Section 4.9.4.2 have not identified any active or former freshwater sources within the Operational Area that may connect to the Kangaroo or other songlines. Other terrestrial species with narratives originating or potentially originating from the sea at Murujuga noted by McDonald and Phillips (2021) include *Tarnguna* (Emu) and *Jugurru* (Dingo). The

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ethnographic survey did not identify any sites within the EMBA related to any songlines, or make recommendations that any mitigations were required to manage songlines. Consultation with MAC and other Traditional custodians has not identified these songlines as overlapping the EMBA, and these species do not occur within the EMBA.

In publicly available literature, Murujuga is acknowledged as the starting point for the seven sisters songline (Bainger 2021). Precise location of this songline, and features of this songline that might be impacted, are not clearly articulated in the reviewed sources, however Murujuga is located outside of the EMBA. Ethnographic survey (Section 4.9.4.2) also noted that “a number of Dreamtime narratives... extend from the waters around Murujuga on to country, including the KurriKurri (Seven Sisters)” (McDonald and Phillips 2021). The seven sisters story is associated with Whitnell [sic] Bay, Murujuga, Depuch Island and Port Hedland, all being outside of the EMBA (McDonald and Phillips 2021). The ethnographic survey did not identify any sites within the EMBA related to songlines or make recommendations that any mitigations were required to manage songlines. Consultation with MAC and other Traditional custodians has not identified the seven sisters songline as overlapping the EMBA.

The existence of a whale songline potentially intersecting the EMBA has also been asserted by members of Save Our Songlines. Consultation with this group and associated individuals has not provided detail on the presence, features or route of this songline. It is assumed (from information provided by this group) that whales as an environmental receptor are a feature of this songline; the environmental impacts and risk on whales are assessed in Sections 6.7 and 6.7.13. The most detailed description available to Woodside is asserted in the Concise Statement and Affidavit filed by Raelene Cooper in the context of Scarborough seismic activities. Specifically, “whales carry important songlines, the whale dreaming, and connection between land and sea.” Specific details regarding the whale dreaming story are provided in Table 4-22. In summary, the whale dreaming story relates to transmission of knowledge and connection between environment and people, the women’s lore and connection to whales through their heart centre and obligation to care for country. It is stated that “because each animal uses songlines for migration, breeding and feeding, the disruption or distortion to the songlines causes the animals to become disoriented, confused or lost.” Further, that the whale’s songline creates a path for other fauna to follow.

It is therefore expected that the whale songline has the potential to be affected by the Petroleum Activities Program where there are impacts to whales at a population level, including disruption of migration routes, permanent displacement of whales and population decline, that result in discontinuation of story/transmission of knowledge, interruption of caring for Country activities, interruption of whale caretaker/midwife behaviour and interruption to performance of song/ceremony onshore. Given potential impacts to whales are limited to behavioural disturbance to transient individuals, which are not considered to be ecologically significant at a population level, the whale songline and associated whale dreaming story is not anticipated to be affected by the Petroleum Activities Program. Note further assessment of intangible values and marine mammals are provided below, in addition to the impact and risk assessment in Section 6.7 and 6.7.13 respectively.

Creation/dreaming sites; sacred sites; ancestral beings

Woodside has undertaken all reasonable steps to identify creation and dreaming sites, and places associated with ancestral beings within the EMBA. No such sites have been identified. A review of relevant literature has been undertaken which has identified creation, dreaming and ancestral narratives related to the sea more broadly without confirming where (if anywhere) these overlap the EMBA. These references are of a general nature, and do not identify any features or values requiring specific protection or management from the proposed activities.

Sea serpents or water serpents are common in Aboriginal creation narratives, and several references were identified in the reviewed literature. The majority of these refer to serpents residing within inland rivers or pools outside of the EMBA (Barber and Jackson 2011, Dury v Western Australia [2018] FCA 1849, Hayes v Western Australia [2008] FCA 1487, Juluwarlu 2004, Kalbarri Visitor Centre (2024) Water Corporation 2019). In some versions, the serpent originates from the sea or coast and creates the rivers as it heads inland. Barber and Jackson (2011) also recount a story where a freshwater serpent pushes a sea serpent back into the ocean where it presumably continues to reside. This does not provide the specificity required to determine the location of sea serpents within the sea, and it is possible that the ocean as a whole (out to and beyond other continents) should be viewed generally as housing the sea serpent(s). Consultation with Traditional Custodians and ethnographic surveys have not identified activities of this Petroleum Activities Program as having an impact on sea serpents. However, by analogy to other water serpent narratives across Australia, possible impact pathways may include interruption of its path by blocking or reducing flows of water, damaging sacred sites such as thalu or rock art sites or depleting water sources.

No impacts to water flows (either tidal movement or ocean currents) or depletion of water sources are anticipated from this Petroleum Activities Program. Features of the landscape with the potential for connection to creation/dreaming stories and ancestral beings were noted within the EMBA—notably nearshore submerged waterways and hills in the “mid shelf” identified by UWA (2021). However, there are no anticipated impact pathways to submerged landscape features within the broader EMBA from the Petroleum Activities Program.

Ceremonial sites

All mentions of active ceremonial sites were confined to onshore locations and no direct impacts to onshore ceremonial sites are anticipated from the Petroleum Activities Program. However, indirect impacts may occur where ceremonies cannot be performed due to limitations on access, loss of knowledge or impacts to the environment, which are further described below.

Cultural obligations to care for Country

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Caring for Country collectively refers to the cultural obligations of individuals and groups, as well as rituals and ceremonies required for the physical and spiritual health of the environment. Lack of access to coastally located cultural sites that carry songlines or remain ceremonially important can impact First Nations people's livelihoods and impact their ability to carry out cultural obligations on Country. While there is potential for shoreline accumulation of hydrocarbons within the EMBA, relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Appendix I: Oil Pollution First Strike Plan, Table 1-1.

Knowledge of Country/customary law and transfer of knowledge

Cultural knowledge about Sea Country/customary law and the intergenerational transmission of knowledge are important values identified through consultation, assessments and the literature review.

Transfer of knowledge includes continuing traditional practices to pass on practical skills. No traditional practices conducted within the EMBA have been identified.

Direct impact to communities practicing these skills will inherently occur when relevant aspects of the environment disappear, are displaced or suffer a reduction in population—for example traditional fishing methods require the survival of traditional fish resources. Therefore, ensuring the transmission of cultural knowledge may require environmental controls protecting species and migratory pathways at a population level. Refer to species specific assessment below for further information, in addition to the impact and risk assessment in **Section 6.7** and **6.7.13** respectively.

Connection to Country

Connection to Country describes the multi-faceted relationship between First Nations people and the landscape, which is envisioned as having personhood and spirit. Connection to Country may be damaged where people are displaced or disrupted (e.g. during colonisation) or where there is a loss of technical skills or environmental knowledge (McDonald and Phillips, 2021). No impacts of this nature are considered to arise from this Petroleum Activities Program. Access to Country is discussed below.

Access to Country

Access to Country, including Sea Country, is necessary for the continuation of other values including caring for Country and the transfer of traditional knowledge. Access is also a value in its own right, as a continuation of traditional Sea Country access and use.

Access to areas within the Operational Area may be limited where exclusion zones are established around vessels for safety purposes. Exclusion zones around IMMR activities are temporary, and the presence of subsea infrastructure are not anticipated to affect navigation, particularly given the water depth within the Operational Area. Access to country within the EMBA would be limited to temporary exclusion in areas where there are hydrocarbons present, including shoreline accumulation. However relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Appendix I: Oil Pollution First Strike Plan, Table 1-1.

Kinship systems and totemic species

Individuals may have kinship to specific species (Smyth 2008, Juluwarlu 2004) and/or a responsibility to care for species (Muller 2008). These relationships are understood to impose obligations on Traditional Custodians. It is understood that these obligations do not impose restrictions on other people generally, but it is considered that impacts to species at a population level may inhibit Traditional Custodians with kinship relationships' ability to perform their obligations where this results in reduced or displaced populations. It is therefore considered that the management of totemic or kinship species applies at the species/population level and not to individual plants and animals. As such, impacts to individual marine fauna is not expected to impact on the totemic or kinship cultural connection.

Totemic species identified during consultation include whales, fish, stingrays and octopuses. Refer to species specific assessment below for further information, in addition to the impact and risk assessment in Sections 6.7 and 6.7.13 respectively. In the highly unlikely event of a marine diesel spill relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Appendix I: Oil Pollution First Strike Plan, Table 1-1.

Resource collection

A suite of marine species have been identified through consultation and literature as important resources, particularly as food sources. For example, Sea Country resources of noted relevance to Thalanyji people which may be present in the vicinity of the Montebello Islands include dugongs, majun (marine turtles), turtle eggs, fish and shellfish. Other resource species include marine mammals, fish, shellfish, crustaceans, seabirds, gastropods, sea urchins and mangrove seeds.

In addition to their immediate value as sustenance, the gathering and preparation of these resources are informed by cultural knowledge, and an inability to use these resources may result in a loss of ability to transfer that knowledge to future generations. Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, these communities may be impacted where there is an impact at the species/population level.

As assessed in Section 6.7, impacts from planned activities on the marine environment, including resources important to First Nations people, is expected to be limited to negligible or slight and therefore impacts that result in population effects (e.g., population decline, changes in migration routes, etc) are not expected. Impacts to potential resources within the EMBA, in the highly unlikely event of marine diesel spill, are described and risk assessed in Section 6.8.2 and are not expected to result in species/population level impacts. There may be potential impacts to resource collection

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along the coastlines where there is shoreline contact with the marine diesel oil. In the highly unlikely event of a marine diesel spill relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Appendix I: Oil Pollution First Strike Plan, Table 1-1.

Marine Species

Marine mammals (whale, dolphins, dugongs)

There are increase ceremonies/rituals for species of animals and plants important to First Nations, to enhance or maintain populations. Thalu are places where these increase ceremonies are performed. All mentions of active ceremonial sites in the reviewed literature were confined to onshore locations, though the values may extend offshore where, for example, the thalu relates to marine species populations. As thalu ceremonies are performed to maintain and increase populations of marine species, it is inferred that management applies at the species/population level and not to individuals—for example the thalu site on Murujuga which “brings in whales to beach” will continue to serve its purpose so long as whales continue to migrate through Mermaid Sound. Reviewed literature (DBCA 2020) also includes information that is marked as information that cannot be copied, reproduced or used without consent. The values described in the literature are environmental in nature, apply to marine mammal behaviours at a population level and are managed through existing environmental controls in Sections 6.7 and 6.7.13.

Related intangible cultural heritage may include the transmission of cultural knowledge about whales and whale behaviour, including birthing areas, whale communication and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn 2021). Whale symbology expressed through stories, music, and dance can reflect a group’s connections with the sea, as well as marine fauna, which then comprise a group’s cultural values (Ardler 2021; Bursill et al. 2007; Cressey 1998). Whales also speak to a broader connection that exists between First Nation people and their surrounding environment. Beyond mythology and symbolism, whales can be connected with various economic and social functions associated with everyday life. Cultural knowledge of whales, whale migration, behaviour and the related marine environment may all be important in ensuring the continuation of these socio-economic functions and other related activities that remain valuable to First Nations people (Fijn 2021). No impacts to communities’ ability to perform or transmit stories, music or dance are anticipated from the Petroleum Activities Program. Where timing or performance is linked to sighting or engaging with these species, impacts may occur where numbers or migration behaviours are impacted at a population level.

First Nations groups have expressed interest about whale migratory routes and studies. Inter-generational transmission of cultural knowledge (including songlines) relating to marine mammals may be impacted where changes to population or behaviour at a population level results in reduced sightings (e.g. through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group’s intangible cultural heritage (UNESCO 2003).

As described in the relevant environmental impact and risk assessments in Sections 6.7 and 6.7.13 respectively, potential impacts to cetaceans from planned activities are limited to behavioural impact, which may include temporary and localised deviations from migratory pathways for cetaceans. However, no permanent impacts preventing cetaceans from entering or occupying the areas have been identified. These impacts and risks are not considered to be ecologically significant at a population level, and hence are not expected to impact the value of marine mammals, including the transmission of cultural knowledge. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Marine reptiles (turtles, sea snakes)

Turtles and their eggs have been identified through consultation and existing literature as an important resource, particularly as food sources. Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, these species (as resources) will be impacted where there is an impact at the species/population level.

Intangible cultural heritage may also include the transmission of cultural knowledge about marine reptiles, such as nesting areas, hunting areas and migratory patterns. Cultural knowledge may also be conveyed through stories, such as the turtle being trapped in the sea as a result of its greed for berries as recounted by Capewell (2020). Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn 2021). First Nations groups have expressed an interest regarding turtle monitoring programs and migration patterns. Activities that impact turtle populations and their marine environment may have an indirect impact on some Aboriginal communities as this can limit access to cultural sites or deplete hunting areas that would threaten local food security (Delisle et al. 2018:251). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes to population or behaviour results in reduced sightings (e.g. through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group’s intangible cultural heritage (UNESCO 2003).

As described in the relevant environmental impact and risk assessments in Sections 6.7 and 6.7.13 respectively, potential impacts to marine reptiles are likely to be restricted to temporary behavioural changes, which are not considered to be ecologically significant at a population level, and hence not expected to impact the value of marine reptiles, including the transmission of cultural knowledge or use as a resource. Further, impacts to turtle foraging habitat from dredging activities in Commonwealth waters will be limited to direct removal of sparse epifauna habitat, as modelling of the suspended sediment plumes from dredging is predicted to cause a detectable change to water quality

with no impact to benthic communities and habitats. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Fish and Cephalopods

Fish and squid have been identified through consultation and existing literature as an important resource, particularly as food sources. Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore these species (as resources) will be impacted where there is an impact at the species/population level.

Through consultation, fish were identified as important agents in the management of the broader ecosystem. It may be assumed that inter-generational transmission of cultural knowledge relating to fish may be impacted where changes to population or behaviour results in reduced sightings (e.g. through population decline). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO 2003). Intangible cultural heritage associated with fish, including inter-generational knowledge regarding fishing techniques and migratory patterns, can be managed by reducing impacts to fish in nearshore marine environments to which this cultural knowledge is intrinsically connected.

The octopus is an important totem to Ngarla People and features in the creation story of Solitary Island. There are increase ceremonies/rituals for species of squid and octopus to enhance or maintain populations. Thalu are places where these increase ceremonies are performed. All mentions of active ceremonial sites in the reviewed literature were confined to onshore locations, though the values may extend offshore where, for example, the thalu relates to marine species populations. As thalu ceremonies are performed to maintain and increase populations of marine species, it is inferred that management applies at the species/population level and not to individuals.

As described in the relevant environmental impact and risk assessments in Sections 6.7 and 6.7.13 respectively, the potential impacts from the Petroleum Activities Program on fish¹¹³ are considered to be localised and with slight, short-term (<1-year) impact potential on species (or lower), but not affecting ecosystem function, physical or biological attributes. Impact potential is not considered to be ecologically significant at a population level. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Seabirds

Seabirds, specifically shags, have been identified through literature as a culturally significant species (Malgana Aboriginal Corporation 2021), as well as a resource (seabird eggs; Smyth 2007). Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, these species (as resources) will be impacted where there is an impact at the species/population level. Intangible cultural heritage may also include the transmission of cultural knowledge about seabirds, such as nesting areas, hunting areas and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn 2021) Inter-generational transmission of cultural knowledge relating to seabirds may be impacted where changes to population or behaviour results in reduced sightings (e.g. through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO 2003).

As described in the relevant environmental impact assessments in Sections 6.7 and 6.7.13 the potential impacts from the Petroleum Activities Program on seabirds is assessed to be Negligible (F). The potential for temporary behavioural disturbance localised around vessels from light is not expected to result in a substantial adverse effect on species' population, and light emissions will not seriously disrupt the lifecycle of an ecologically significant proportion any migratory bird species. In terms of risk, as described in Section 6.8.2, a change in marine fauna behaviour or injury/mortality to seabirds and migratory shorebirds may occur due to a change in water or sediment quality following an unplanned hydrocarbon release. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, and the mobile transient nature of individuals, unplanned hydrocarbon releases are not expected to substantially modify, destroy or isolate an area of important habitat for migratory species. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Benthic habitats (coral, seagrass)

Through consultation, First Nations groups identified benthic habitats as valuable for their ecological values, including corals attracting fish and seagrass providing shelters for fauna, as well as an important habitat for dugongs. Additionally, coral is valued by Murujuga Aboriginal Corporation (MAC) for its aesthetic values.

In terms of risk, as described in Section 6.8.2, a change in habitat may occur due to a change in water or sediment quality following an unplanned hydrocarbon release. Given hydrocarbon characteristics, rapid weathering, short-term exposure, as well as the response strategies planned to be deployed, an unplanned release is not expected to result in a level of exposure to coral and seagrass that would cause an adverse impact on marine ecosystem functioning or integrity results. As such, cultural values and intangible cultural heritage associated with benthic habitats are expected to be maintained.

Shoreline habitats (mangroves)

¹¹³ Squid and octopus are considered to be impacted through similar impact pathways as fish, and hence the conclusion represented here are considered appropriate for cephalopods.

Through consultation, First Nations groups identified shoreline habitats as valuable for their ecological values, including mangroves for providing shelter to marine invertebrates, which are identified resources, and potential nursery for turtles. Literature also notes that mangroves are also valued for the flora and fauna they are associated with and support (Commonwealth of Australia 2002) and Smyth (2007) reports that mangrove seeds are used as a resource by Ngarda-Ngarli (the collective term for the Traditional Custodians who look after Murujuga Country).

There is no overlap between the Operational Area and mangrove habitat, and no planned impacts to mangroves from the Petroleum Activities Program. In terms of risk, as described in Section 6.8.2, a change in habitat may occur due to a change in water or sediment quality following an unplanned hydrocarbon release however no shoreline accumulation is expected. As such, cultural values and intangible cultural heritage associated with shoreline habitats are expected to be maintained.

Conclusion

The impact and risk assessment for cultural features and heritage values has determined that the planned activities are unlikely to result in an impact greater than negligible (F) and unplanned activities are assessed to have a residual risk rating of moderate (or lower). Woodside will continue to consider new heritage information as it becomes available (See C 24.1).

Demonstration of ALARP

As marine ecosystems may hold both cultural and environmental value (see Section 4.9), with cultural and environmental values intrinsically linked, in addition to the specific controls for cultural features and heritage values, the controls and performance standards in **section 6.7** and **6.7.13** will reduce impacts to cultural features and heritage values, including marine species and habitats.

Control Considered	Feasibility (F) & Cost/Sacrifice (CS)	Benefit in Impact/Risk Reduction	Proportionality	Adopted
Apply a 'living heritage' ¹¹⁴ management approach. Woodside seeks advice and incorporates Traditional Custodian cultural knowledges across our activities. Cultural safety considerations are factored for our workforce and the Traditional Custodian community.	F: Yes CS: Minimal	Implementation of the 'living heritage' approach pays acknowledgement and respect to Traditional Custodian communities. It supports the transfer of cultural knowledges and is an effective strategy to manage intangible cultural values.	Benefits outweigh cost/sacrifice.	Yes C 24.1
The environmental impacts and risks of the activity will continue to be managed to as low as reasonably practicable and an acceptable level for cultural features and heritage values.	F: Yes CS: Substantial costs	Implementation of activities and associated controls to ALARP and acceptable levels supports the maintenance of cultural features and heritage values	Benefits outweigh cost/sacrifice	Yes C 24.2
Use of cultural heritage monitors on vessels to oversee implementation of controls protecting cultural values	F: No CS: Not feasible	Primary Installation Vessels are POB constrained with no ability to facilitate additional personnel	Not considered – control not feasible.	No

¹¹⁴ Living heritage supports community and individual identity. Intangible cultural heritage is 'living heritage' that is inherited from ancestors and passed on to their descendants. It is comprised of many influences, including oral traditions, art, social practices, rituals and ceremonies, cultural knowledge and practices. It is transmitted from generation to generation and evolves in response to the environment. Woodside applies a 'living heritage' approach to its cultural heritage management. This includes ensuring that Traditional Custodians are given voice to identify interests, transmit information and express concerns. Woodside works with Traditional Custodians to support and follow appropriate cultural protocols, including calling to Country, conducting smoking ceremonies (in areas where this custom is appropriate) and undertaking cultural awareness. Woodside will collaborate and provide relevant information it holds to groups such as Heritage Management Committees where they are established.

Demonstration of ALARP				
Project inductions to all relevant marine crew, prior to the individual commencing the activity, will include information on cultural features and heritage values, including tangible and intangible cultural heritage.	F: Yes CS: Minimal	Ensures workforce is suitably aware of cultural features and heritage values in the area they are operating.	Benefits outweigh cost/sacrifice.	Yes C 24.3
New information from further archaeological or ethnographic studies relevant to MAC will be forwarded to MAC for their consideration and feedback.	F: Yes CS: Sitting fees of Traditional Custodians and additional costs of independent experts	Allows effective response to new heritage information, ensuring appropriate management and prioritising Traditional Custodian input, including through MAC Circle of Elders or relevant experts when identified as necessary by MAC.	Benefits outweigh cost/sacrifice.	Yes C 24.5
Activities under the Petroleum Activities Program will be carried out in accordance with any protection declarations relevant to the Operational Area, under Sections 9,10,12 of the ATSIHP Act	F: Yes CS: Costs associated with the implementation	Implementation of the control ensures any impacts to significant Aboriginal areas and significant Aboriginal objects protected by Ministerial declaration, are acceptable under the standards of the ATSIHP Act.	Control based on legislative requirements – must be adopted.	Yes C 24.6
Unexpected finds of potential Underwater Cultural Heritage ¹¹⁵ sites/features, including first nations UCH are managed in accordance with the Unexpected Finds Procedure set out in Section 7.87.7	F: Yes CS: Costs of implementation	Allows management of new finds in accordance with legislative requirements, expert advice and community expectations.	Benefits outweigh cost/sacrifice.	Yes C 2.2
Report any potential UCH finds to relevant stakeholders and authorities in accordance with the Unexpected Finds Procedure, Underwater Cultural Heritage Act 2018 and the ATSIHP Act.	F: Yes CS: Minimal	Meets legislative requirements and community expectations.	Benefits outweigh cost/sacrifice.	Yes C 2.4
Manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the Trunkline Operational Area.	F: Yes. It is possible to carry out for vessels transiting within the Operational Area CS: will impact with longer transit times for vessels.	There is mounting evidence that reduction of vessel speeds can reduce vessel underwater noise emissions and increase the likelihood that fauna will be seen by vessels (and have more time to react) thereby	Benefits outweigh cost/sacrifice	Yes C 4.8

¹¹⁵ Underwater Cultural Heritage is defined as any trace of human existence that has a cultural, historical or archaeological character and is located under water, in accordance with the UCH Act.

Demonstration of ALARP				
		<p>reducing possibility of vessel strike.</p> <p>The Pilbara Port boundaries have been excluded As the Pilbara Port Authority sets speed limits for within the Port boundaries.</p> <p>Where this control prevents impacts to humpback and pygmy blue whales at a population level, it maintains a culturally significant resource to a level that results in no observable change to coastal communities (migratory pathways maintained).</p>		
Should it be identified that relevant cultural authorities may be affected in the unlikely event of a spill, Woodside will engage with those parties as appropriate and in alignment with the FSP.	F: Yes CS: Minimal	Engaging with relevant cultural authorities that may be impacted by a spill will allow the Traditional Custodians to identify areas of concern.	Benefits outweigh cost/sacrifice	Yes Adopted, see Appendix I: Oil Pollution First Strike Plan (Notifications Table 1-1)
The Murujuga Rock Art Strategy and Monitoring Program (MRAS/MRAMP), run by DWER and MAC, is in place to protect the Aboriginal rock art by providing a long-term framework that builds on previous work to deliver an improved approach to monitoring, analysis and management. Woodside will maintain its support of the MRAS/MRAMP, and monitor the outcomes as part of the implementation strategy of this EP	F: Yes CS: Minimal	<p>Benefit as defined in sections detailed in Section 6.7.7</p> <ul style="list-style-type: none"> • -Program: Murujuga Rock Art (Western Australian Government) • -Murujuga Rock Art Monitoring Program <p>Further studies by DWER/Murujuga Aboriginal Corporation are required to provide scientific certainty and allay stakeholder concerns.</p>	Benefits outweigh cost/sacrifice	Yes C 7.1
Onshore processing facilities (i.e. Pluto LNG, NWS Karratha Gas Plant and Perdaman Urea) are subject to regulatory assessment and compliance under the Environmental Protection Act 1986 (WA) This includes implementation of potential EQMF developed as an outcome of MRAS; and measures such as NOx concentration limits at emissions point sources under EP Act Part V licenses,	F: Yes CS: Minimal	<p>Ensures application of precautionary principle to potential emissions risks relating to rock art.</p> <p>Ensures technical solutions to emissions management are considered and employed to keep potential impacts ALARP.</p> <p>Ensures adaptive management to evolving scientific evidence and that downstream emissions are maintained at a level that is acceptable with regards to</p>	Benefits outweigh cost/sacrifice	Yes C 7.2

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Demonstration of ALARP				
and implementation of Part IV conditions Further detail on this control is described in Section 6.7.7.		the management of cultural heritage values.		
Implement the PAP in a manner that is not inconsistent with the objectives of the Murujuga National Park Management Plan 78, through execution of the Conservation Agreement and Deep Gorge Joint Statement.	F: Yes CS: Significant potential cost. Legal requirement.	Legal requirement to carry out activities not inconsistent with the Murujuga National Park Management Plan.	Control based on legislative requirements – must be adopted.	Yes. C 7.3
<p>ALARP Statement:</p> <p>On the basis of the impact and risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, Section 2.3.3), Woodside considers the adopted controls appropriate to manage the potential impacts and risks to cultural features and heritage values. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.</p>				

Demonstration of Acceptability
<p>The impact and risk assessment has determined that, given the adopted controls, planned activities are unlikely to result in an impact greater than negligible (F)¹¹⁶ and unplanned activities are assessed to have a residual risk rating of moderate (or lower).</p> <p>The Petroleum Activities Program and the EMBA are not expected to have a significant impact (e.g. changes in population levels) on MNES including marine fauna with a First Nations connection with, or traditional use in nearshore areas as defined in Section 4.9. While the activity will occur on the Ancient Landscape Woodside has:</p> <ul style="list-style-type: none"> • Consulted with MAC to identify any concerns associated with activities of this EP in Commonwealth waters. To address relevant concerns (see Appendix F: Consultation, Table 2) additional controls (C 24.4) have been included in the EP. • Undertaken desktop assessments by qualified professionals, using remote sensing techniques, to identify known or potential underwater cultural heritage (refer to Section 4.9) and an unexpected finds procedure will be implemented (C 2.2). Therefore, the activity is not inconsistent with Underwater Cultural Heritage Guidance for Offshore Developments (DoEE 2019b) and the Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters Guidelines on the application of the <i>Underwater Cultural Heritage Act 2018</i> (DCCEE 2024a). <p>In addition, Woodside has engaged with Traditional Custodians adjacent to the EMBA to understand the cultural features and heritage values that may occur and potential impacts from the activity.</p> <p>Appendix G: Program of Ongoing Engagement with Traditional Custodians and the 'living heritage' management approach (C 24.1) have been developed to enable Woodside to manage cultural values which may be identified at any time during Woodside's activities via ongoing dialogue with Traditional Custodians.</p> <p>Woodside supports the ongoing management of heritage values under listings; Murujuga Cultural Landscape, Murujuga National Park and Dampier Archipelago (Including Burrup Peninsula) National Heritage Place. Planned activities under the PAP are not inconsistent with relevant heritage legislation, management plans and agreements under which these values are protected.</p> <p>Further opportunities to reduce the impacts have been investigated above. The potential impacts and risks are considered acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks to cultural features and heritage values to a level that is acceptable, if ALARP.</p>

¹¹⁶ Noting that as the receptor sensitivity is high the impact significance level is Slight (E).

Key Environmental Performance Outcomes, Standards and Measurement Criteria related to Cultural Features and Heritage Values¹¹⁷			
EPO	Adopted Control(s)	EPS	MC
<p>EPO 4 No adverse impact to unexpected finds of Underwater Cultural Heritage without a permit¹¹⁸.</p> <p>EPO 5 Prevent injury or mortality to seabirds as a result of the Petroleum Activities Program.</p> <p>EPO 6 No impacts to marine fauna greater than that caused by minimum required light emissions for safe work / navigation.</p> <p>EPO 7 No displacement of marine turtles from habitat critical during nesting and internesting periods and marine turtles' biologically important behaviour can continue in biologically important areas.</p> <p>EPO 8 No injury of, or mortality to, EPBC Act 1999 and WA Biodiversity Conservation Act 2016 listed marine fauna as a result of noise generated by the Petroleum Activities Program.</p> <p>EPO 9</p>	<p>C 24.1 Apply a 'living heritage' management approach. Woodside seeks advice and incorporates Traditional Custodian cultural knowledge across our activities. Cultural safety considerations are factored for our workforce and the Traditional Custodian community.</p>	<p>PS 24.1.1 Woodside will continue to give voice to Traditional Custodians to identify interests, transmit information and express concern through ongoing consultation as identified in Section 7.10.5.</p>	<p>MC 24.1.1 Records demonstrate Change Management and Management of Knowledge processes have been followed where new controls or management measures identified</p>
		<p>PS 24.1.2 Woodside will assess and where deemed practicable implement appropriate cultural protocols where requested by Traditional Custodians</p>	<p>MC 24.1.2 Records demonstrate Woodside implemented cultural protocols as requested</p>
	<p>C 24.2 The environmental impacts and risks of the activity will continue to be managed to as low as reasonably practicable and an acceptable level for cultural features and heritage values.</p>	<p>PS 24.2.1 Consideration of cultural values/new information, through the life of the EP, and the development of avoidance or mitigation strategies in collaboration with Traditional Custodians if impacts to cultural values are identified. Where avoidance is not possible, impact minimisation will be prioritised and demonstrated through a written options analysis/ALARP to ensure an acceptable level of impact. This will be documented through Woodside's Management of Change and Management of Knowledge processes.</p>	<p>MC 24.2.1 Records demonstrate Change Management and Management of Knowledge processes have been followed where new controls or management measures identified</p>
	<p>C 24.3 Project inductions to all relevant marine crew, prior to the individual commencing the activity, will include information on cultural features and heritage values, including tangible and intangible cultural heritage.</p>	<p>PS 24.3.1 All relevant marine crew have completed Project inductions that include information on cultural values, including tangible and intangible cultural heritage for awareness</p>	<p>MC 24.3.1 Records demonstrate all relevant marine crew have completed inductions that include cultural material</p>
	<p>C 24.5</p>	<p>PS 24.5.1</p>	<p>MC 24.5.1</p>

¹¹⁷ As marine ecosystems may hold both cultural and environmental value (see Section 4.9.1), with cultural and environmental values intrinsically linked, in addition to the specific controls for cultural features and heritage values, the controls and performance standards in section 6.7 and 6.8 will reduce impacts to cultural features and heritage values including marine species and habitats.

¹¹⁸ Permit for Entry into a Protected Zone or to Impact Underwater Cultural Heritage would be acquired under the UCH Act.

Key Environmental Performance Outcomes, Standards and Measurement Criteria related to Cultural Features and Heritage Values¹¹⁷			
EPO	Adopted Control(s)	EPS	MC
<p>No displacement of marine turtles or pygmy blue whales from habitat critical during nesting/breeding (inc. interesting periods for turtles) and ensure biologically important behaviour can continue in biologically important areas.</p> <p>EPO 14 Prevent accelerated weathering of Murujuga rock art or impact to human health from air emissions that result from onshore processing of Scarborough gas.</p>	<p>New information from further archaeological or ethnographic studies relevant to MAC will be forwarded to MAC for their consideration.</p>	<p>Any new information from archaeological or ethnographic studies relevant to MAC is forwarded to MAC for their consideration.</p>	<p>Evidence that any new information from archaeological or ethnographic studies relevant to MAC has been forwarded to MAC.</p>
	<p>C 24.6 Activities under the Petroleum Activities Program will be carried out in accordance with any protection declarations relevant to the Operational Area, under Sections 9,10,12 of the ATSIHP Act</p>	<p>PS 24.6.1 Where an object or Significant Aboriginal Area is protected by a declaration under Section 12 or Sections 9/10 respectively of the ATSIHP Act, no work inconsistent with that declaration will be conducted for the duration of that declaration.</p>	<p>MC 24.6.1 No non-compliances with any protection declarations relevant to the Operational Area, under Sections 9,10,12 of the ATSIHP Act</p>
	<p>C 2.2 Unexpected finds of potential Underwater Cultural Heritage sites/features, including first nations UCH are managed in accordance with the Unexpected Finds Procedure set out in Section 7.8.</p>	<p>PS 2.2.1 Refer to Section 6.7.2</p>	<p>MC 2.2.1 Refer to Section 6.7.2</p>
	<p>C 2.3 Relevant IMMR vessel crew and ROV operators will be advised in an induction of the potential to encounter UCH, and of their requirement to follow the Unexpected Finds Procedure (Section 7.8)</p>	<p>PS 2.3.1 Refer to Section 6.7.2</p>	<p>MC 2.3.1 Refer to Section 6.7.2</p>
	<p>C 2.4 Report any potential UCH finds to relevant persons and authorities in accordance with the Unexpected Finds Procedure, <i>Underwater Cultural Heritage Act 2018</i> and the ATSIHP Act.</p>	<p>PS 2.4.1 Refer to Section 6.7.2</p>	<p>MC 2.4.1 Refer to Section 6.7.2</p>
	<p>C 4.8 Manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the Trunkline Operational Area.</p>	<p>PS 4.8.1 Refer to Section 6.7.4</p>	<p>MC 4.8.1 Refer to Section 6.7.4</p>
	<p>C 7.1</p>	<p>PS 7.1.1</p>	<p>MC 7.1.1</p>

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Key Environmental Performance Outcomes, Standards and Measurement Criteria related to Cultural Features and Heritage Values¹¹⁷			
EPO	Adopted Control(s)	EPS	MC
	<p>The Murujuga Rock Art Strategy and Monitoring Program (MRAS/MRAMP), run by DWER and MAC, is in place to protect the Aboriginal rock art by providing a long-term framework that builds on previous work to deliver an improved approach to monitoring, analysis and management.</p> <p>Woodside will maintain its support of the MRAS/MRAMP, and monitor the outcomes as part of the implementation strategy of this EP.</p>	Refer to Section 6.7.7	Refer to Section 6.7.7
	<p>C 7.2</p> <p>Onshore processing facilities (i.e. Pluto LNG, NWS Karratha Gas Plant and Perdaman Urea) are subject to assessment and compliance under the Environmental Protection Act 1986 (WA), including:</p> <ul style="list-style-type: none"> • Existence of applicable Ministerial Statement(s) • Implementation of potential EQMF if developed as an outcome of MRAS • NOx concentration limits at emission point sources (via. EP Act Part V Licencing) • Implementation of Part IV conditions. Requirement to assess and implement NOx reduction measures, (e.g. Pluto Best Practice Report, NWS AQMP MA4) <p>This includes implementation of potential EQMF developed as an outcome of MRAS; and measures such as NOx</p>	<p>PS 7.2.1</p> <p>Refer to Section 6.7.7</p>	<p>MC 7.2.1</p> <p>Refer to Section 6.7.7</p>

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Key Environmental Performance Outcomes, Standards and Measurement Criteria related to Cultural Features and Heritage Values¹¹⁷			
EPO	Adopted Control(s)	EPS	MC
	concentration limits at emissions point sources under EP Act Part V licences, and implementation of Part IV conditions. The NWS AQMP also requires MA5 development of an adaptive management plan to address the potential impact to rock art from industrial emissions.		
	C 7.3 Implement the PAP in a manner that is not inconsistent with the objectives of the Murujuga National Park Management Plan 78, through execution of the Conservation Agreement and Deep Gorge Joint Statement.	PS 7.3.1 Refer to Section 6.7.7	MC 7.3.1 Refer to Section 6.7.7
		PS 7.3.2 Ensure implementation of the Onshore Processing Facilities comply with relevant facility Cultural Heritage Management Plan(s)	MC 7.3.2 Refer to Section 6.7.7

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7 IMPLEMENTATION STRATEGY

7.1 Overview

Regulation 22 of the Environment Regulations requires an EP to contain an implementation strategy for the activity. The implementation strategy for the Petroleum Activities Program confirms fit for purpose systems, practices and procedures are in place to direct, review and manage the activities so environmental risks and impacts are continually being reduced to ALARP and are acceptable, and that EPOs and EPSs outlined in this EP are achieved.

Woodside, as Operator, is responsible for ensuring the Petroleum Activities Program is managed in accordance with this Implementation Strategy and the WMS (see Section 1.9).

7.2 Systems, Practice and Procedures

All operational activities are planned and carried out in accordance with relevant legislation and internal environment standards, management measures (i.e. controls) identified in this EP and internal environment standards and procedures (Section 6).

The systems, practices and procedures that will be implemented are listed in the Performance Standards (PS) contained in this EP. Document names and reference numbers may be subject to change during the statutory duration of this EP and is managed through a Change Register and update process.

7.2.1 Woodside Management System Operate Processes

Under the WMS Operate Activity (see Section 1.9 for an overview of the WMS), there are four overarching processes; those directly relevant to the implementation of this EP and environmental management during the Petroleum Activities Program are described below (Operate Plant Process and the Maintain Assets Process). These processes apply only to the Operations phase (i.e. after Initial Start-up), and do not apply to one off activities such as Hook-up and Commissioning.

7.2.1.1 Operate Plant

The objective of the Operate Plant Process is to ensure production is carried out in a safe, efficient, reliable and economic manner, and that all required process variables are within allowable limits. This ensures the potential for unplanned (accident/incident) events that may impact the environment are minimised.

The Operate Plant Process develops key activities to support ongoing production activities to ensure the facility is operated within the Basis of Design. The process also identifies required production routines, routine execution, recording of data gathered and formulation of remedial activities. The Operate Plant Process includes the Integrated Safe System of Work (ISSoW) system (described below).

In addition, the Operating Practice MSPS (M02) is in place to assure operating practices are in place, such that:

- integrity critical operating procedures are available, accurate, up to date, understood and used
- safe operating and technical integrity limits are defined, understood and the process is managed within these limits.

7.2.1.2 Integrated Safe System of Work

The ISSoW Procedure outlines the key activities required to achieve effective management of permit-controlled work on the facility. The ISSoW process is a management system for all work and

is a key element in ensuring the safety of personnel, protection of the environment and technical integrity of the facility.

Work within the facility 500 m PSZ and operations within the vicinity of the connected flowlines is controlled in accordance with ISSoW.

The ISSoW system takes a risk-based approach to activities, thus tasks with higher levels of risk are subjected to greater scrutiny and control. The ISSoW system also allows for low-risk routine tasks to be carried out with adequate but minimal administration. The prime objective of ISSoW is to ensure work other than normal operations is properly planned, risk assessed, controlled, coordinated, and safely executed. It provides a methodical approach to identifying hazards, assessing risks, and creating and supporting permits to work and associated certificates.

In keeping with ALARP principles, this system is critical to ensuring the appropriate level of hazard identification and risk assessment is carried out for activities performed on the facility.

In addition, the Safe Work Control MSPS (M04) is in place to assure effective safe work control, permit to work and task risk management arrangements are in place and followed to control the risks arising from work activities.

7.2.1.3 Maintain Assets

The Maintain Assets Process aims to improve the reliability and availability of plant and equipment (which includes that required for safe operation) through well managed and planned execution of maintenance that promotes a proactive maintenance culture.

Maintenance, inspection and testing systems and procedures are in place to safeguard the integrity of the facility. The maintenance strategy for the facility is based on optimising safety, minimising environmental impact and maximising production. Maintenance practices used to establish well managed maintenances strategies, planned execution and improvement are described in the Maintenance of Assets Procedure.

A risk-based approach is used as the basis for establishing and prioritising inspection, maintenance and testing requirements at the facility. Equipment is assessed to establish equipment criticality with respect to the consequences and likelihood of equipment failure. This informs determination of appropriate maintenance and inspection activities. Maintenance activities are allocated risk rankings according to the criticality of equipment, to ensure high risk maintenance work orders are completed as a priority.

A computerised maintenance management system provides a database called SAP-PM that contains facility registers, equipment details, spare parts data and associated planned maintenance tasks. This system is used to plan, monitor and record maintenance activities. The system provides a variety of reports that enable monitoring and assessment of maintenance activities.

SCE Technical Performance Standards identify SCEs and associated assurance activities. These activities are identified in the CMMS and given the appropriate priority. Refer to Sections 6.8.1.9 and 7.2.8 for more detail on SCE Technical Performance Standards and how they differ from EPSs required by the Environment Regulations. SCE Technical Performance Standards form a key component in the processes and systems implemented by Woodside to maintain safety and environment critical plant and equipment.

In addition, the Maintenance and Inspection MSPS (M03) is in place to assure that the necessary inspection and maintenance requirements are identified and carried out to maintain the integrity of SCEs and SCCs.

7.2.2 Process Safety Management

To ensure that Woodside protects the safety, security and health of its employees, contractors, the environment and assets, Woodside has adopted the Energy Institute's Process Safety Management

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Controlled Ref No: SA0006AF0000022

Revision: 3

Woodside ID: 1401801827

Page 630 of 752

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(PSM) framework within its Process Safety Management Procedure which sets out a disciplined framework for managing the integrity of systems and processes that handle hazardous substances over the production (and exploration) lifecycle. It deals with the prevention and control of events that have potential to release hazardous materials and energy.

PSM consists of four main focus areas. Each focus area contains a number of PSM requirements that define key aspects required to ensure that PSM is integrated through the organisation. There are 20 PSM requirements. The focus areas and requirements are shown in Figure 7-1.

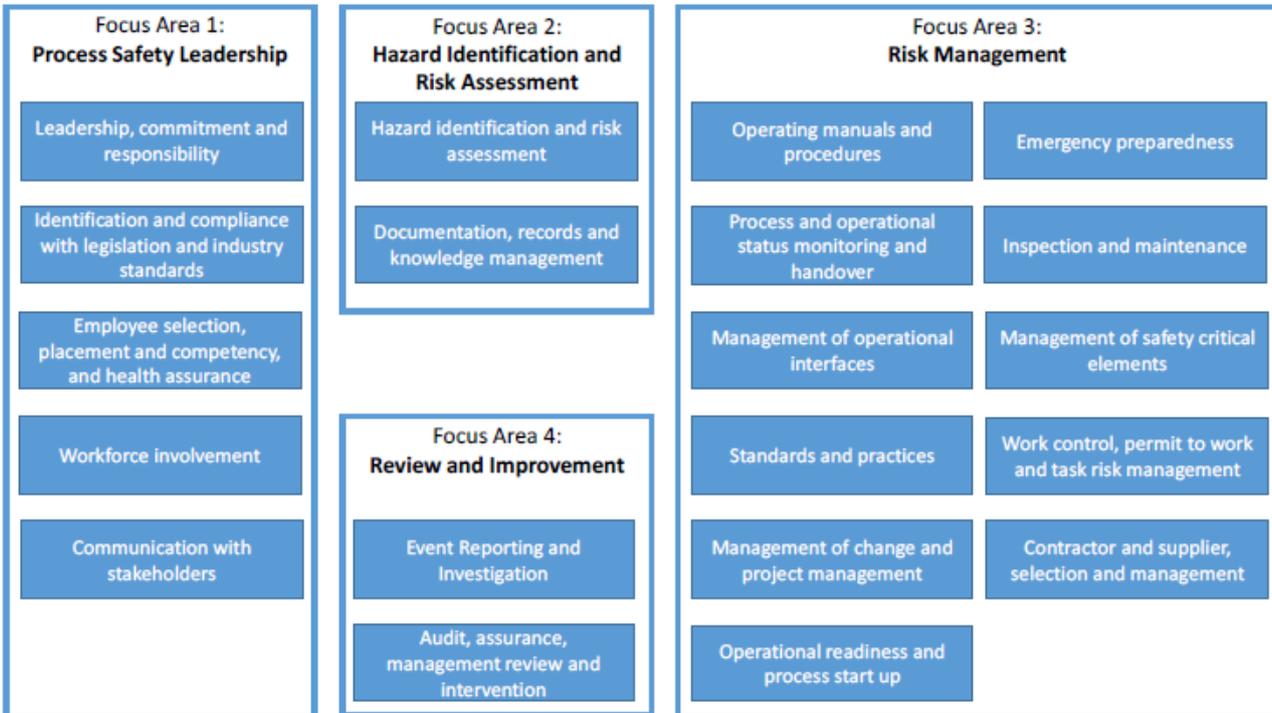


Figure 7-1: Process safety management focus area

7.2.2.1 Woodside Safety Culture Framework

Woodside's 'Our Safety Culture' framework (shown in Figure 7-2) promotes a strong HSE culture and is a key enabler for effective process safety management. This framework outlines the expected behaviours for everyone including supervisors and managers/executives, and is openly discussed as part of inductions, training and development.

Theme	Everyone	Supervisors	Managers/Executives
Standards	Follow rules	Ensure compliance	Set high standards
Communication	Speak up	Encourage the team	Communicate openly
Risk management	Be mindful	Promote risk awareness	Confront risk
Involvement	Get involved	Involve the team	Involve the workforce

Figure 7-2: Woodside ‘Our Safety Culture’ framework

7.2.3 Risk Management

Risk management processes and practices are applied on an ongoing basis to design, production and maintenance activities at the FPU to manage risks to personnel, assets and the environment.

Potential environmental consequences and impacts from the FPU are risk assessed and controlled in accordance with the Woodside risk management processes described in Section 2 of this EP (Environmental Risk Management Methodology).

The results of the Scarborough Operations ENVID are described in Section 6 and in the Operations Environmental Impacts and Risk Register. This register, in conjunction with the EP, provides a demonstration that environmental risks have been identified, and that appropriate controls are in place to manage those risks to a level that is acceptable and ALARP throughout the life of the facility.

A number of other risk management tools and techniques are used to manage environmental and other risks on a routine basis during operational, maintenance and inspection tasks. Examples include:

- the processes outlined in Section 2.2
- risk management tools including: ISSoW tools, e.g. Hazard Identification and Risk Assessments, Level 2 Risk Assessments, Operational Risk Assessments, the technical Management of Change (MoC) system (Section 7.2.7), and Step back 5 x 5
- integrity review studies, HAZIDs and Hazard Operability studies.

These tools, risk and integrity management practices are described further in the Scarborough Safety Case, WOMP, and the Control of Operational Risk Procedure.

In addition, other risk sub-processes and practices are also applied within Woodside on an ongoing basis to manage different types of risk. A summary of those relevant to the Petroleum Activities Program is provided below. Woodside’s risk management processes (refer to Section 2.2), along with the supporting risk sub-processes and practices discussed in this section, ensure the environmental impacts and risks of the activity continue to be identified and reduced to a level that is ALARP.

7.2.3.1 Management of Risks – Contracting and Procurement (Operations)

Suppliers and contractors play a significant role in meeting the resource needs of Woodside’s operations, including the facility operations. Effective management of environmental risks in contracts is achieved by setting clear expectations and managing environmental risks throughout

the duration of the contract. Environmental risks in contracts are managed under the Contracting and Procurement Procedure supported by the Health, Safety and Environment in Contracting Guideline. The guideline provides a risk-based approach to contractor selection and management and is aligned with 'HSE Management – Guidelines for Working Together in a Contract Environment' (International Association of Oil and Gas Producers, Report No. 423).

The Engineering Standard: Quality Requirements for Supply of Products and Services defines specific quality requirements for engineering contracts and purchase orders. The specified quality control requirements in the Standard are required to be complied with as applicable to the scope of supply.

7.2.3.2 Management of Risks – Subsea Activities (Operations)

Subsea activities are managed in line with the Subsea and Pipelines Integrity Management Procedure which defines the practices and technical requirements that must be applied to deliver and safeguard integrity of the subsea equipment and pipelines during the facility lifecycle. It provides the relationship between the PSM Framework (including management of change) and Subsea and Pipelines Group services processes.

IMMR activities are managed under the Manage IMMR Work Procedure. Risk assessments are conducted as required under this procedure.

These requirements are supported by implementation of the Subsea Construction and Inspection, Maintenance and Repair Environment Screening Questionnaire tool. The screening questionnaire is used to understand the scope of the activity, potential environmental impact and if additional regulatory approvals are required. To achieve this, the questionnaire captures key project information such as seabed disturbance, chemical use and waste. This information is used by an environment focal point to determine if further assessment is required. For projects that have the potential for environmental impact, an assessment is undertaken against this EP and other Woodside environmental requirements. If determined by the Subsea and Pipeline Environment Screening Questionnaire process, an EP MoC review (as per Section 7.2.7.2) is undertaken to confirm if the level of environmental risk warrants revision and resubmission of an EP. Environmental questionnaires are maintained in the Subsea and Pipeline (SSPL) Environment Project Register.

Key environmental requirements and regulatory commitments are communicated to project teams and incorporated into key project documentation where applicable and required (i.e. not addressed via existing Woodside practices).

7.2.3.3 Management of Risks – Major Projects

Major projects are required to follow the Appraise and Develop Management Procedure and the Opportunity Management Framework. This procedure defines the requirements to deliver a commercially valuable production facility or modify to an existing facility. The process workflow requires integration of work from various functions utilising their people and processes, including Environment, for example HSE philosophy and regulatory approval requirements.

These requirements are supported by implementation of the Brownfields Environment Screening Questionnaire tool. The screening tool is used to determine if a project has the potential for environmental impact or requires additional regulatory approvals. For projects that have the potential for environmental impact, an environmental focal point is assigned, and the risks and impacts assessed against the facility EP and other Woodside environmental requirements.

Key environmental requirements and regulatory commitments are communicated to project teams and incorporated into key project documentation where applicable and required (i.e. not addressed via existing Woodside practices). Where it is identified that the project scope has the potential to result in modification or change to the facility description provided in the EP, or where potential new environmental risks or impacts or increases in an existing environmental risk or impact are identified,

an EP MoC review (as per Section 7.2.7) is undertaken to confirm if the level of environmental risk warrants revision and resubmission of an EP.

7.2.3.4 Management of Risks – Well Integrity

Wells are managed throughout their lifecycle in line with the Well Lifecycle Management Procedure. This procedure provides the basis for ensuring well integrity in accordance with the Process Safety Management Procedure.

In addition, wells are required to have a regulator accepted Well Operations Management Plan to demonstrate that well integrity risks are managed to ALARP levels. Wells tied back to the facility are managed under a WOMP.

7.2.3.5 Management of Risks – Marine Services

Woodside's Marine Services provides a platform for the conduct of safe and efficient Marine Operations across Woodside through the Marine Services Management. A set of procedures that Support Vessel assurance and management (including HSE and quality (HSEQ) management) are in place to ensure marine operations are conducted in a safe and efficient manner, and in accordance with regulatory requirements.

More details on vessel assurance and the communication of environment requirements to vessels are provided in **Section 7.9**.

Vessel masters are required to request clearance from the facility OIM delegate prior to entering the 500 m PSZ around the FPU.

7.2.3.6 Management of Human Factor Related Risks

The term 'human factors' is used to describe the consideration of people as part of complex systems. Woodside defines 'human factors' as follows: 'human factors uses what we know about people, organisation and work design to influence performance'.

Human factors can contribute to unplanned events or result in failure or degradation of the controls in place to protect against unplanned events. The WMS includes a number of procedures designed to manage human factors related risks and prevent incident causation, which includes:

- information management
- integrity limits defined and communicated
- standardised operational work management practices
- Our Safety Culture framework and Golden Safety Rules
- competency management frameworks, organisation change management
- Safe Work Controls (permit systems)
- Step Back 5x5
- HSE, medical, fatigue management and alcohol and other drugs procedures
- HSE Event reporting and investigation.

7.2.4 Emissions and Energy Management

Emissions generation and energy use are managed consistently with the Energy Management System elements of ISO 50001. Table 7-1 sets out the EP sections which correspond to key ISO elements of Scarborough Facility's Energy Management Plan.

Table 7-1: Scarborough Facility Energy Management Plan

ISO 50001 Energy Management System element		Scarborough alignment
Leadership	Top management shall demonstrate commitment to continual improvement in energy performance and effectiveness of the Energy Management System, establish an energy policy, and ensure that the responsibilities for relevant roles are assigned and communicated within the organisation.	7.6 - Organisation Structure Appendix A: Woodside Policies- (Climate Policy) 7.2.4.1 - GHG Emissions and Energy Management Procedure 7.2.4.2 - Production Optimisation and Opportunity Management
Planning	The organisation shall establish objectives and energy targets, and plan actions to address risks and opportunities. The organisation shall conduct energy reviews to analyse energy use and consumption; key characteristics of its operations affecting energy performance shall be identified, measured, monitored and analysed at planned intervals; energy performance indicators shall be tracked to measure and monitor performance, and an energy baseline shall be established based on energy reviews.	7.2.4.1 - GHG Emissions and Energy Management Procedure (including facility Decarbonisation Plan) 7.2.4.2 - Production Optimisation and Opportunity Management 7.2.4.3 - Greenhouse Gas, Energy and Flare Target Setting - Operations 7.2.4.5 Methane Management
Support	The organisation shall provide the resources needed for the establishment, implementation, maintenance and continual improvement of energy performance and the Energy Management System, including competency of personnel, communications, and required documentation.	7.6 - Organisation Structure 7.2.4.2 - Production Optimisation and Opportunity Management
Operation	The organisation shall plan, implement and control the processes related to its significant energy uses, needed to meet its requirements. The organisation shall consider energy performance improvement opportunities in the design of new, modified and renovated facilities, equipment, systems and processes that can have a significant impact on its energy performance.	7.2.4.1 - GHG Emissions and Energy Management Procedure (including Environmental Performance Procedure) 7.2.4.2 - Production Optimisation and Opportunity Management 7.2.4.3 - Greenhouse Gas, Energy and Flare Target Setting - Operations 7.2.4.5 Methane Management
Performance evaluation	The organisation shall implement appropriate monitoring, measurement, analysis and evaluation of energy performance, conduct internal audits and management reviews of the Energy Management System to understand its implementation and effectiveness.	7.2.4.2 - Production Optimisation and Opportunity Management 7.2.4.3 - Greenhouse Gas, Energy and Flare Target Setting - Operations 7.2.4.5 Methane Management 7.10 - Monitoring, Auditing, Management of Non-conformance and Review 6.7.6 – Controls C 6.5 & C 6.6
Improvement	Nonconformities shall be responded to with appropriate corrective actions, and the organisation shall continually improve the suitability, adequacy and effectiveness of its Energy Management System, and demonstrate continual energy performance improvement.	7.2.4.2 - Production Optimisation and Opportunity Management 7.2.4.3 - Greenhouse Gas, Energy and Flare Target Setting - Operations 7.10 - Monitoring, Auditing, Management of Non-conformance and Review 6.7.6 – Control C 6.5

7.2.4.1 GHG Emissions and Energy Management Procedure

Emissions generation and energy use is managed in line with the GHG Emissions and Energy Management Procedure which defines the minimum mandatory requirements to manage and deliver continuous improvement in energy efficiency and reduction in GHG emissions. The procedure

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supports the implementation of the Climate Policy and aligns with the requirements of the Environmental Performance Procedure, applicable to assets in Operate phase. It supports the “operate out” component of limiting net emissions, as shown in the Woodside Climate Policy.

Implementation of the GHG Emissions and Energy Management Procedure assists in meeting external expectations, such as Woodside’s net equity Scope 1 and 2 greenhouse gas emissions reduction targets of 15% by 2025 and 30% by 2030, and our aspiration for net zero equity Scope 1 and 2 greenhouse gas emissions by 2050 or sooner¹¹⁹. (See Section 7.5). These targets apply across Woodside’s portfolio and progress against targets are reported in annual corporate disclosures. No specific reduction targets are set for individual assets as part of the corporate target. It also maintains consistency with the principles of current corporate initiatives, such as the Zero Routine Flaring Initiative for oil assets, the OGMP 2.0, OGI Near-Zero, and Methane Guiding Principles. These initiatives aim to improve methane emissions inventorisation, methane materiality assessments, evaluation, reduction implementation and increased transparency through reporting. The Woodside Flare Framework is an optional WMS tool that seeks to improve awareness of flaring-related issues and influence for reduced flaring.

The GHG Emissions and Energy Management Procedure links to the annual review of opportunities to improve energy performance through identification and evaluation as described in the Production Optimisation and Opportunity Management Procedure. It also requires measurement, analysis and communication of energy performance across the Operations Division and consideration of actual or potential impacts to energy efficiency in Woodside decision making, such as management of change, operational decisions, issue resolution options analysis and facility optimisation plans.

The facility Decarbonisation Plan supports implementation of the GHG Emissions and Energy Management Procedure. This is used for prioritising facility-specific emissions reduction opportunities consistent with company and facility targets, requirements and strategies, combining information from operations and design/execute phases, via various processes including the POOMP (Section 7.2.4.2) and Methane Action Plan (7.2.4.5). It articulates the emissions forecast and how GHG emissions are intended to reduce through design and operational opportunities.

The Environmental Performance Procedure requires that assets measure, monitor or estimate direct air and GHG emissions, and that such emissions and energy intensities are minimised to ALARP in design. The requirement to set, measure and track emissions targets for assets, help to manage the emissions to meet the EPS requirements in Section 6.7.6.

7.2.4.2 Production Optimisation and Opportunity Management

Woodside’s Production Optimisation and Opportunity Management Procedure (POOMP) outlines the process for identification, prioritisation and management of production opportunities that reduce emissions intensity across Woodside operated assets. Opportunities are identified throughout the year in various forums and teams, including individual recommendations, development planning, well reviews and production optimisation meetings. This organic approach encourages continual improvement by all roles across the assets, and formal workshops are held occasionally to supplement this. Opportunities are prioritised and managed according to the workflow shown in Figure 7-3.

¹¹⁹ Targets and aspiration are for net equity Scope 1 and 2 greenhouse gas emissions relative to a starting base of 6.32 Mt CO₂-e which is representative of the gross annual average equity Scope 1 and 2 greenhouse gas emissions over 2016-2020 and which may be adjusted (up or down) for potential equity changes in producing or sanctioned assets with a final investment decision prior to 2021. Net equity emissions include the utilisation of carbon credits as offsets.

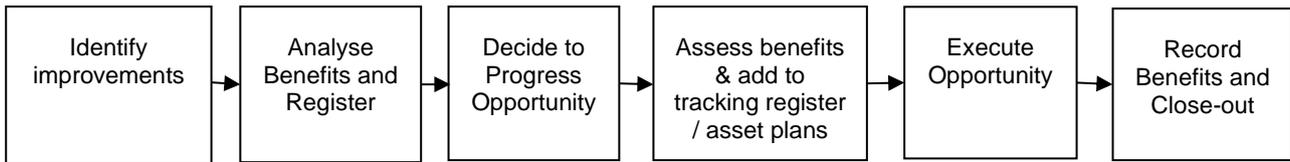


Figure 7-3: Opportunity Management Workflow

Opportunities are added to a formal tracking register where they are evaluated, prioritised within the constraints of technical feasibility, cost, resource availability and other factors. Roles and responsibilities are flexible within the POOMP process, but are broadly defined as follows:

- Everyone (e.g. operators, engineers, optimisation lead, managers): Opportunity identification, add to a formal tracking register.
- Optimisation lead/team: Opportunity analysis, prioritisation and tracking, update and maintain tracking register oversight.
- Engineering team: relevant engineering analysis and execution planning in consultation with planning team, update tracking register.
- Planning team: Incorporation of opportunity into relevant asset plans.
- Asset execute team: execute delivery of opportunity (team varies depending on opportunity).
- Asset managers/leaders: Decision maker on opportunities requiring significant budget, downtime, resources, etc. (as required).

Following delivery, opportunities are validated prior to closeout. Close out timeframes vary on a case-by-case basis, as opportunities are prioritised based on the above constraints. The POOMP process varies between assets, based on organisational structure, production lifecycle and age of technology, decarbonisation plans and general ways of working. For Scarborough, opportunities identified via the Carbon Opportunity register in Design/Execute phases, which remain applicable during Operations phase, will be captured in POOMP processes. Additionally, a post-start-up workshop will be held within the first 18 months of Scarborough facility operations (marked by Final Acceptance) for formal opportunity identification, once the facility is well understood and areas for long-term emissions intensity improvement become evident.

7.2.4.3 Greenhouse Gas, Energy and Flare Target Setting - Operations

In demonstrating the risks and impacts relating to flaring have been reduced to ALARP, flare and energy efficiency targets for the facility are set annually, concurrent with annual forecasting practices, in accordance with Woodside’s *Greenhouse Gas, Energy and Flare Target Setting Guideline*. Targets are estimated based on operating experience and forecast activities, e.g. shutdowns. Consideration is also given to the estimates contained within this EP.

The flare target is tracked against flare performance through the year. If achieving a flare target is projected to be at risk in question, an internal flare target deviation is developed, which requires an ALARP justification. A flare target deviation considers EP flare estimates. If estimate is likely to be exceeded, an EP management of change assessment (see Section 7.2.7) is undertaken to determine if a revision and resubmission is required.

A baseline facility “energy efficiency” will be established after the first year of operation and will be reset annually. Efficiency improvements will be targeted through a continuous feedback loop during operations (via the POOMP, see Section 7.2.4.2).

Fuel use can vary diurnally and seasonally depending on operational power requirements, and is also dependent on facility production and activity plans, reservoir outcomes, availability, utilisation and reliability across systems. Monthly emissions tracking of flare and efficiency metrics via asset governance reports is reviewed in this context to support identification of potential excursions and opportunities.

Values are finalised for financial-year annual regulatory reporting (such as NGERS and NPI submissions), and calendar year tracking.

7.2.4.4 Fuel and Flare Target Setting - Initial Start-Up

Fuel and flare targets are developed for flaring during initial start-up of the facility, in accordance with Woodside's Greenhouse Gas, Energy and Flare Target Setting Guideline. The targets are based on the planned Start-Up Strategy and sequence, prioritising the reduction of flaring to ALARP through opportunities identified in the Carbon Opportunity Register.

Progress against the targets will be monitored throughout the initial start-up phase, with appropriate oversight from key environment and start-up managers. Management of initial start-up fuel use/flaring is a key factor within the start-up process, and is identified as a control in overarching start-up MOC. See Section 7.2.4.4 for the process for fuel and flare target setting, tracking and management. If exceedances are foreseen, based on daily tracking or changes to the start-up strategy, measures will be proactively implemented to minimise the risk of exceedance via the MOC process (Section 7.2.7). This daily "tracking" considers activities undertaken and their actual flaring/fuel use, against planned activities/flaring/fuel use, in order to provide a forecast for potential future target exceedances. The following factors and management measures will be considered when managing potential fuel/flare exceedances:

- Minimising flared volumes
- Net benefit of using diesel vs fuel gas
- Turndown of flow from wells to minimum or below, considering flow assurance implications
- Maintaining stability of subsea and topsides process systems
- Maintaining well and completions integrity
- Good safety outcomes
- Implementation timeframes

The targets are aligned with the estimates risk assessed in Section 6.7.6, hence deemed to be ALARP and acceptable. As per the Guideline, targets are based on planned activities and expected flaring rates, and are set to drive positive environmental decision making to remain below them.

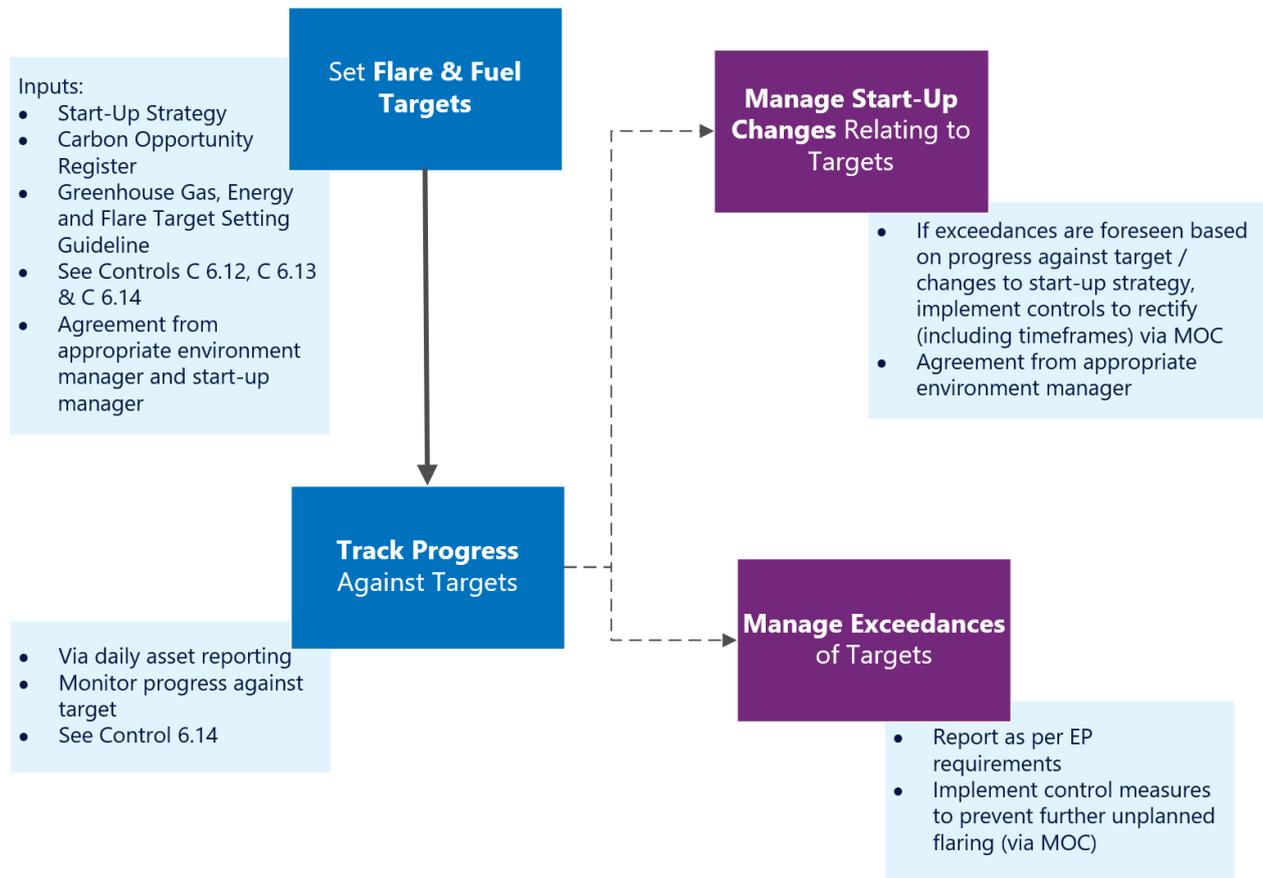


Figure 7-4: Fuel and flare target management during initial start-up

7.2.4.5 Methane Management

Woodside’s methane management strategy aligns with the principles of OGMP 2.0 and Oil and Gas Climate Initiative Aiming for Zero Methane Emissions (OGCI Near-Zero), in order to:

- Deliver appropriate and proportional identification and reduction efforts of methane based on facility nature and scale;
- Align with recommended reporting framework levels and timelines;
- Achieve corporate targets for methane emissions intensity; and
- Assess the suitability of best practice proven techniques, technologies, and operational practices.

The methane management strategy is implemented via execution of asset specific Methane Action Plans. Scarborough’s Methane Action Plan details the discreet activities to be conducted at the facility, encompassing:

- Measurement activities;
- Maintenance of an inventory of methane sources;
- Identification and implementation of suitable methane mitigation projects;
- Minimisation of unmitigated sources with reasonable controls (appropriate to nature and scale).

See Section 6.7.6 for facility-specific activities. Implementation of methane mitigation opportunities is prioritised based on size of source and relative cost, managed via the POOMP process (Section 7.2.4.2). Screening of methane projects is prioritised through use of the 20-year Global Warming

Potential (GWP) of 84 and a carbon price of US\$80/tCO₂-e (i.e. \$6720/tCO₂-e). Sources that are not mitigated through this process will be minimised via controls consistent with OGCI.

As per OGMP 2.0, companies are encouraged to measure at least 70% of their methane emissions, with a target of reaching 90%. These targets are considered when planning facility measurement activities and maintaining the facility's inventory of methane sources, i.e. priority focus is given to the largest sources, with potential to have the biggest impact in mitigation. For example, re-measurement and estimate of methane emissions from the flare (via drone) may only be triggered if the baseline measurement and ongoing visual verification suggested that flare performance was a potentially significant methane source.

As per OGCI's Initiative, companies are to put in place all reasonable means to avoid methane venting and flaring, and to repair detected leaks, while preserving the safety of people and the integrity of operations. In practice, for example, this could mean delaying the repair of a leak until a planned shutdown, rather than creating additional emissions from an extra shutdown, only to repair the leak. In other words, leaks will be rectified as soon as practicable.

Methane measurement technologies are continually advancing, and Woodside has tested and deployed a variety of these across its facilities (see Woodside's 2024 Climate Transition Action Plan (CTAP)). Such activities are ongoing and will be utilised where practicable to aid in achieving the aims of the methane management strategy.

Methane emissions will be reported through the National Greenhouse and Energy Reporting (NGER) system, in accordance with the Safeguard Mechanism rule (starting FY24). This rule mandates the transparent disclosure of emissions by species at the asset level, ensuring greater accountability and clarity in environmental reporting.

Woodside's methane targets are planned to be set in 2025 as part of OGMP 2.0 implementation. In 2024, Woodside reported methane emissions around 0.1% of production by volume (CTAP), which is below the industry benchmark of 0.2% from the Oil and Gas Climate Initiative for 2025.

Further detail on Woodside's participation in global methane reduction initiatives (Methane Guiding Principles, ASEAN Methane Leadership Programme, and OGMP 2.0) and industry collaboration can be seen in Section 6.7.6 under subheading *Reduce*. Additionally, this methane management strategy is aligned with the Future Gas Strategy's action to reduce emissions associated with gas supply (including venting, flaring and methane leak mitigation).

7.2.5 Offshore Marine Discharge Adaptive Management Plan

7.2.5.1 Overview

The Offshore Marine Discharges Adaptive Management Plan (OMDAMP) has been developed to manage routine discharges to the marine environment from applicable offshore production facilities.

The objectives of the OMDAMP are to:

- Manage marine discharges in a way that reduces the environmental risks and potential environmental impacts to As Low As Reasonably Practicable (ALARP) and of an acceptable level.
- Define monitoring measures to determine whether routine marine discharges comply with regulatory requirements and Woodside's Environmental Performance Procedure.
- Detail verification assessment and non-routine monitoring to be undertaken when routine monitoring identifies a change in discharge characteristics which have the potential to alter existing compliance with the Environmental Performance Procedure or relevant facility Operations Environment Plans (EPs).

The OMDAMP defines a process and rational for management of routine discharges such as produced water (PW), cooling water, and brine to the marine environment. The OMDAMP considers

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Controlled Ref No: SA0006AF0000022

Revision: 3

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Page 640 of 752

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applicable technical guidance (including the Commonwealth ANZG for fresh and marine water quality, National Water Quality Management Strategy and Technical Guidance: Protecting the quality of Western Australia's marine environment (EPA, 2016)) as well as relevant internal procedures and asset specific EP commitments. In addition, the OMDAMP is based on Woodside's experience managing PW at multiple northwest shelf offshore facilities and considers monitoring data collected over 20-30 years (Table 6-31); allowing the application of appropriate controls and any lessons learnt to ensure impacts are acceptable and reduced to ALARP.

7.2.5.2 Routine Monitoring and Management

Monitoring changes in water quality as well as investigating potential toxicity via whole effluent toxicity (WET) testing and implementing management to maintain acceptable levels of changes is standard industry practice in Commonwealth and State waters. By limiting the changes to water quality and therefore pathway to impact sediment quality and biota there is high confidence no environmental impact has occurred outside the approved mixing zone boundary.

The OMDAMP details trigger values, routine monitoring assessment against trigger values, analytical methods and actions when a trigger value is exceeded. The trigger values are applied through a risk-based approach that is intended to capture uncertainty around the level of impact by staging monitoring and management responses according to the degree of risk of environmental impact. This approach provides a level of confidence that management responses are not triggered too early (i.e. when there is no actual impact) or too late after significant or irreversible damage to the surrounding ecosystem (EPA 2016). Changes in discharge contaminants and PW toxicity can be detected early and can indicate the potential for an impact prior to an impact occurring allowing for timely management. WET testing confirms if there is a potential for impact.

PW samples should be representative of normal operations, hence timing of sampling coincides with a period of normal operating circumstances for a facility, as well as also considering when wells have begun to cut water, which formation water producing wells are online and chemicals that may be present in the discharge stream. Ensuring samples are representative of normal operations may require deferring sampling within the calendar year if required. Samples are analysed by a NATA accredited laboratory (where applicable) for key physio-chemical parameters and chemical analytes.

WET tests are undertaken on a broad range of taxa of ecological relevance for which accepted standard test protocols are well established. WET tests mainly focus on the early life stages of test organisms, when organisms are typically most sensitive to contaminants; the tests are designed to represent local trophic level receptors. For WET testing, a range of tropical and temperate Australian marine species were selected based on their ecological relevance, known sensitivity to contaminants, availability of robust test protocols, and known reproducibility and sensitivity as test species. The dilutions required to protect 99% and 95% of species are calculated using the Warne et al. (2018) methodology. If a trigger value is not met, it indicates uncertainty around whether the environmental value is being protected and further investigation is required (Figure 7-5).

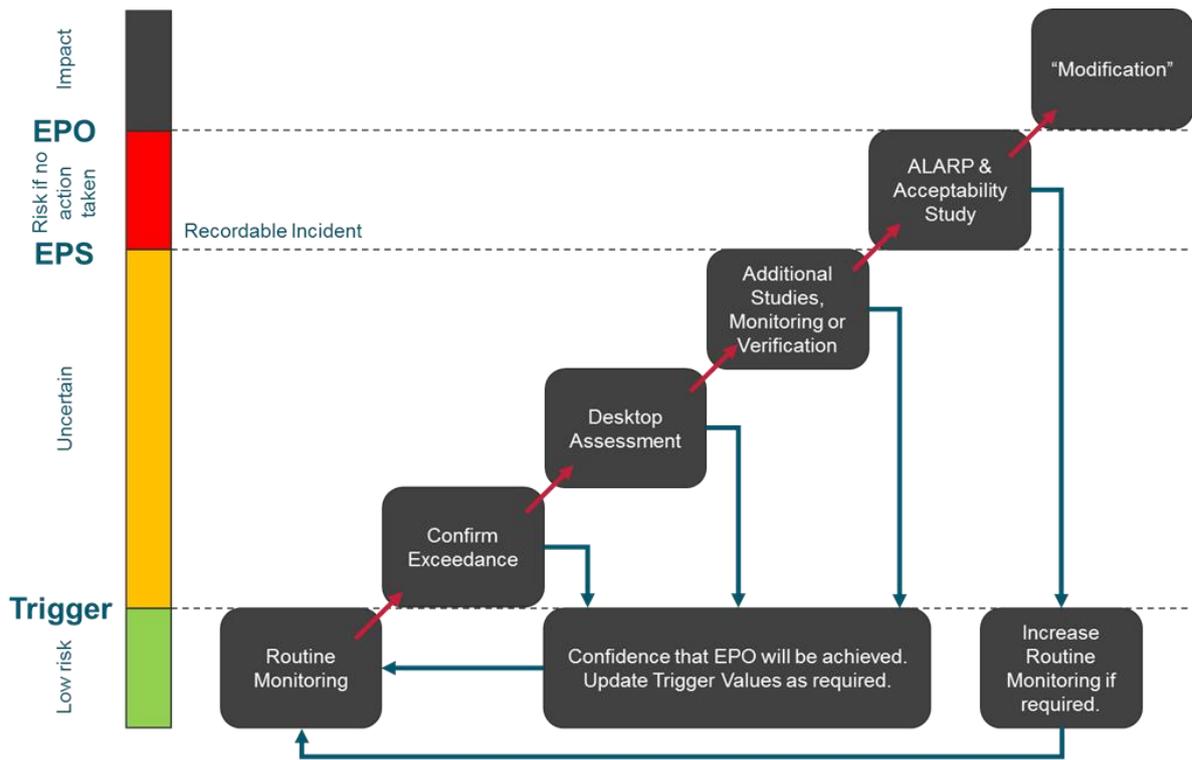


Figure 7-5: Routine monitoring and adaptive management framework for produced water

7.2.5.3 Further Investigations

Detectable exceedances in trigger values may occur without impacting the environment. To provide confidence that environmental impact has not occurred outside the approved mixing zone boundary, further investigation would be required (Figure 7-5) in the form of a desktop study to initially assess the exceedance in context of available data and confirm if there is potential for impact to the environment. A desktop assessment is necessary before undertaking additional in-field monitoring. This ensures monitoring programs are designed and implemented to provide robust findings based on good survey design.

A range of methods can be used to detect trigger value exceedances (e.g. relative percentage difference, control charts, multivariate analysis, etc.) depending on the dataset available. An appropriate method is selected as described in the OMDAMP due to the variable nature of environmental data. If critical data are not available, the desktop study identifies potential data gaps and may recommend additional non-routine studies and/or monitoring to ensure the assessment is appropriately undertaken. The purpose of the ‘further investigations’ step is to provide certainty that the EPO has been achieved, if a trigger value has been exceeded. The key investigation steps are described below:

- **Confirm the trigger value has been exceeded** – Review quality assurance and quality control, methodology and possible sources of contamination to determine if the results are reliable, or if any factors have occurred that may compromise the integrity of the monitoring or data. If necessary repeat monitoring.
- **Desktop assessment to understand whether the EPO is at risk** – If a trigger value is confirmed to be exceeded, multiple lines of evidence are considered including historical and current data from routine and non-routine monitoring and studies. This assessment shall consider whether there is adequate evidence to demonstrate that acceptability criteria have been met and (EPO not breached). If the desktop assessment determines that the existing body of evidence is insufficient, it shall outline what additional monitoring or studies are required. Potential additional monitoring/studies may include but is not limited to:

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- single species test (collected annually in parallel with routine chemical characterisation should further investigation be required)
- dilution modelling and or studies
- flocculation, sedimentation, settling velocity and/or dispersion analysis
- metal bioavailability
- scanning electron microscopy and particle size distribution analyses
- in-situ monitoring (water quality and/or sediments).

Routine monitoring activities may be required ahead of schedule and additional monitoring not listed may be undertaken as appropriate. Field monitoring is undertaken in accordance with a plan that details timing, locations and objectives of monitoring.

- Conduct additional studies to confirm the EPO is not at risk – Monitoring results provide additional lines of evidence to determine whether there is a risk of environmental impact at the mixing zone boundary due to unacceptable changes in water quality resulting in changes to sediment, or biological indicators. Given the significant health, safety and technical risks, logistics and planning required, monitoring of the receiving environment is typically only considered when all other sources of evidence are insufficient to demonstrate that the EPO is not at risk. The OMDAMP provides detailed guidance on the steps and actions required to be undertaken if a trigger value is exceeded and this may include additional non-routine monitoring to verify that environmental impacts have not occurred outside the boundary of the mixing zone.

If triggers are being exceeded but no impact to the environment is predicted to occur the desktop assessment may consider development of site-specific trigger values in line with ANZG. For example, if chemical characterisation identified copper as exceeding trigger - ANZG 99% DGV but further investigations concluded levels observed were consistent with baseline and naturally occurring in the region. If potential impacts to environment are identified, an ALARP/Acceptability Study is required to determine what additional controls can be implemented to ensure the impacts are not realised.

7.2.5.4 ALARP/Acceptability Study

An ALARP/Acceptability study is conducted once it has been determined, as a result of further investigations, that there is potential for an impact that exceeds the acceptable limits of change. The ALARP/Acceptability study shall be conducted in accordance with the ALARP Demonstration Procedure, to determine additional controls that may be necessary to reduce the potential impacts. Additional management measures (controls) may include technology, process upgrades or reservoir management. Woodside will implement the additional controls identified in the ALARP/Acceptability study that are required to give confidence that the acceptable limits of impact can be achieved.

In the event sampling of MEG salts indicates that there is a potentially significant pathway for mercury to enter the marine environment, the study would need to consider as a minimum volumes, duration, source, speciation and potential for settlement. The ALARP study may implement measures such as:

- well management,
- inboarding,
- collection of MEG salts for onshore disposal,
- increased non routine monitoring,
- insitu monitoring,
- remediation,
- technology or process upgrades.

In the event WET testing identifies a higher-than-expected effluent toxicity the study would need to consider discharge volumes, duration, well line up, potential drivers of toxicity. The ALARP study may recommend the following:

- non routine WET testing,
- operational discharge limits,
- change out of process chemicals if appropriate or reduce dosing rates, implement
- well management,
- inboarding,
- insitu monitoring,
- technology or process upgrades.

In the event in-situ plume measurement and analysis of plume dilution indicates that the EPO may not be met the study would need to consider discharge volumes, discharge toxicity, well line up, process chemicals and baseline data. The ALARP study may recommend:

- implement discharge limits,
- well management
- insitu monitoring,
- technology or process upgrades
- inboarding,
- change out of process chemicals if appropriate or reduce dosing rates

7.2.5.5 Review and revision

This OMDAMP is typically reviewed annually to incorporate the following:

- Completion of the annual OMDAMP compliance review – incorporating any recommendations for further assessment and/or updates to the monitoring framework
- Recently accepted EPs - incorporating any new/amended monitoring commitments/triggers
- Regulatory inspections – incorporating any relevant findings or recommendations
- Updates to key guidelines, guideline values or changes to recommended sampling/ methodologies.

7.2.6 Woodside Invasive Marine Species Risk Assessment Process

7.2.6.1 Objective and Scope

To minimise the risk of introducing IMS as a result of the Petroleum Activities Program, all applicable vessels and immersible equipment will be subject to Woodside's IMS risk assessment process (unless exempt as outlined below).

The objective of the risk assessment process is to identify the level of threat a contracted vessel, or immersible equipment poses if no additional risk reduction management measures are implemented. This allows Woodside (and its contractors) to apply management options that are commensurate to the identified level of risk.

In context of the activities specified in Section 3, the IMS risk assessment process does not apply to:

- vessels or immersible equipment that do not plan to enter the IMS Management Area (IMSMA)¹²⁰ or operational areas defined in environmental approvals
- ‘new build’ vessels launched less than 14 days prior to mobilisation
- vessels or immersible equipment which have been inspected by a suitably qualified IMS inspector who has classified the vessels or immersible equipment as acceptably low risk no more than 14 days prior to mobilisation
- locally sourced vessels or immersible equipment from within the Pilbara locally sourced zone¹²¹. Vessels, or immersible equipment are defined as Locally Sourced when the same supply facilities/port have been used since their last IMS inspection, full hull clean in dry dock or application of antifouling coating (AFC)¹²².

The FPU will be subject to a separate IMS risk management under a specific FPU IMS Management Plan prior to entering the offshore operational area.

7.2.6.2 Risk Assessment Process

Woodside’s IMS risk assessment process was developed with regard to the national biofouling management guidelines for the petroleum production and exploration industry and guidelines for the control and management of a ships’ biofouling to minimise the transfer of invasive aquatic species (IMO Guidelines, 2011).

In order to effectively evaluate the potential for vessels and immersible equipment to introduce IMS, a risk assessment process has been developed to score and evaluate the risk posed by each Vessel, or immersible equipment planning to undertake activities within the IMSMA/Operational Area. The risk assessment process considers a range of factors, as listed in Table 7-2 and Table 7-3.

The IMS risk assessments will be undertaken by a trained environment adviser who has completed relevant Woodside IMS training or by a qualified and experienced IMS inspector. A QA/QC process is implemented for all Woodside conducted IMS risk assessments where a secondary trained environment adviser verifies the assessment to minimise the risk of misapplication and errors within the risk assessment process.

Table 7-2: Key factors considered as a part of the risk assessment process for vessels

Factors	Details
Vessel type	The risk of IMS infection varies depending on the type of vessel undertaking the activity. A higher risk rating is applied for more complex, slow-moving vessels (e.g., dredges) in comparison to simple vessels (e.g., crew transfer vessel).
Recent IMS inspection and cleaning history, including for internal niches	In the case of biofouling on external hull niches, different risk ratings are applied dependant on whether out-of-water or in-water IMS inspections by qualified IMS inspectors and cleaning (if required) have been undertaken prior to contract commencement. If an IMS inspection (and clean if required) has not been undertaken in the past six months (from the time of

¹²⁰ IMSMA is based on current legal framework and includes all nearshore waters around Australia, extending from the lowest astronomical tide mark to 12 nm from land (including Australian territorial islands). The IMSMA also includes all waters within 12 nm from the 50-metre depth contour outside of the 12 nm boundary (i.e. Submerged reefs and atolls).

¹²¹ The Pilbara Locally Sourced Zone includes Port, nearshore and offshore movements between Exmouth and Port Headland (excluding high environmental value areas, World Heritage Areas, Commonwealth Marine Reserve Sanctuary Zones and State Marine Management Areas and Marine Parks).

¹²² Vessels and immersible equipment can still be classified as locally sourced even if the AFC application occurred in a different port provided the amount of time between AFC application and departure to the locally sourced area (i.e. period of time in waters <12nm/50m water depth) did not exceed consecutive 7 days or the period of time the vessel or immersible equipment has spent within the locally sourced zone exceeds 1 year (i.e. the risk of introducing a species from a different location has already passed).

Factors	Details
	contract commencement), the highest risk factor is applied. The risk factor then lessens for vessels as the time between inspection and mobilisation reduces.
Out-of-water period before mobilisation	A risk reduction factor can be applied for vessels that are hauled out and then mobilised as deck cargo or by road during mobilisation, therefore becoming air dried over an extended period. Risk reduction factor increases with exposure time out of water.
Age and suitability of AFC at mobilisation date	AFC manufacturers provide a range of coatings, each designed to avoid premature coating failure if it is correctly applied and matched to the vessel's normal speeds and activity profile (i.e., proportion of time spent stationary or below three knots), and its main operational region (i.e., tropical, sub-tropical temperate). If the AFC type is deemed to be unknown, unsuited or absent, the highest risk value is applied. If the AFC type is suitable the risk factor applied reduces with age since application.
Internal treatment systems	A risk reduction factor applied if the vessel has an internal biological fouling control system in place at the time of assessment, or evidence of manual dosing.
Vessel origin and proposed area of operation	Differing risk ratings are assigned in relation to the climatic relationship between the vessel's origin and the proposed climatic region of the proposed area of operation. Highest risk rating is applied to similar climatic regions.
Number of stationary/slow speed periods >7 days	A risk factor is calculated based on the number of 7 day periods that the vessel has operated at stationary or at low speed (less than three knots) in port or coastal waters which is any waters less than 50 metres deep outside 12 nautical miles from land or any waters within 12 nautical miles of land. The greater the number of periods the higher the risk factor applied.
Region of stationary or slow periods	A further multiplier is applied depending on the location of the stationary/slow speed periods. The highest risk rating applied if the stationary or slow speed periods occurred within ports or coastal waters of the same climatic region,
Type of activity – contact with seafloor.	The potential for the introduction of IMS varies on the planned vessel activity taking place. Those activities that come in contact with sediments and thus have the potential to accumulate and harbour IMS in areas such as hoppers (dredges) and spud cans (drilling rigs) are considered to have a greater risk of infection.

Table 7-3: Key factors considered as a part of the risk assessment process for immersible equipment

Factors	Details
Region of deployment since last thorough clean, particularly coastal locations	Climatic region of use since last overhaul, thorough cleaning or prolonged period out of water (>28 day). Highest risk rating is applied to similar climatic regions. Activities occurring in nearshore areas (less than 50 meters deep and/or within 12 nautical miles from land) are given the highest risk rating.
Duration of deployments	Maximum duration of deployment (maximum time in water) since last overhaul or thorough cleaning. The longer the period of immersion the higher the risk rating applied.
Duration of time out of water since last deployment	A further risk reduction factor can be applied for immersible equipment that has been out of the water for an extended period.
Transport conditions during mobilisation	If the equipment is stored in damp conditions, then a high-risk factor is applied, while if equipment is stored in dry and well ventilated (low humidity) conditions then a low risk factor is applied.
Post-retrieval maintenance regime.	A risk reduction factor is applied if the equipment/item of interest is routinely washed, cleaned, checked and/or disassembled between project sites. While a higher risk rating is applied where no routine cleaning occurs.

Following implementation of the risk assessment process, vessels and/or immersible equipment are classified as one of three risk categories:

- 'Low'– Low risk of introducing IMS of concern and hence no additional management required, or management options have been applied to reduce the risk.
- 'Uncertain'– Risk of introducing IMS is not apparent and as such the precautionary approach is adopted, and additional management options may be required.

- ‘High’– High risk of introducing IMS means additional management options are required prior to this vessel mobilising to the Operational Area.

Following the allocation of a ‘low’ risk rating for a vessel or immersible equipment, the information provided by the vessel operator for the purposes of risk assessment must be confirmed prior to mobilisation. For vessels or equipment classified as posing an ‘uncertain’ or ‘high’ theoretical risk, a range of management options are presented to reduce this theoretical risk to acceptable levels and achieve a low-risk status. These management options have been developed with the intention of reducing IMS risk to levels that are as low as reasonably practicable (i.e., ALARP). It is a flexible approach that allows for a range of management actions to be tailored for a specific vessel movement. These will be assessed on a case-by-case basis and may include, but not limited to, the following:

- Inspection (desktop, in-water or dry dock) by a suitably qualified and experienced IMS inspector to verify risk status. Where practicable, the inspection shall occur within seven days (but not more than 14 days) prior to final departure to the Operational Area.
- In-water or dry dock cleaning of the hull and other niche areas. This is typically applied where the risk assessment outcome is High risk driven by the age of the AFC on the vessel and its time spent in similar climatic region ports.
- Treatment of vessels internal seawater systems. This is typically applied in isolation for vessels with AFC applied to their hull within the last twelve months and where subsequent assessment through the process achieves a low-risk rating.
- Limiting the duration that the vessel spends within the IMSMA to a maximum of 48 hours (cumulative entries). This is applicable for Uncertain risk vessels only.
- Reject the vessel.

Vessels and immersible equipment are required to be a low risk of introducing IMS prior to entering the Operational Area.

7.2.6.3 Scarborough FPU Invasive Marine Species Management Plan

A separate IMS Management Plan has been written for the FPU, to minimise/reduce the likelihood of IMS being introduced into Australian waters. This plan compliments the core Woodside IMS Management Plan, with long term management strategies to ensure risk reduction through FPU construction, float-over, ballast intake and transport to the project area.

The FPU IMS Management Plan covers:

- Understanding of National, State and Company requirements;
- Understanding IMS pathways;
- Understanding IMS Likelihood;
- Selection of appropriate Anti Fouling Coatings (AFC) to prevent IMS recruitment;
- Proactive measures considered for vulnerable areas of FPU e.g. risers, sacrificial anodes.
- Final cleaning and inspections by qualified IMS Inspector.

Compliance with the FPU IMS Management Plan will be tracked as per C 23.5 (refer to 6.8.11).

7.2.7 Change Management

Woodside’s Change Management Procedure describes Woodside’s requirements for change management at Woodside owned or controlled operations/sites.

Change management is used where there is no existing approved business baseline, such as a process, procedure or accepted practice, or where conformance with an approved baseline is not possible or intended; for example, due to equipment fault or failure or a recently discovered issue

which will take time to rectify. Change management is also used when the baseline is changed (e.g. the process is modified). It applies to management of temporary, permanent, planned or unplanned change encompassing one or more of the following:

- plant (equipment, plant, technology, facilities, operations or materials)
- projects (budget, schedule)
- people (organisation structure, performance, roles)
- process (WMS content, processes, procedures, standards, legislation, information).

Woodside’s change management process hierarchy is depicted in Figure 7-6. The hierarchy has been developed with sub-processes to address the different types of change performed at Woodside.



Figure 7-6: Change management hierarchy

To help manage the day-to-day operation of the facility, Woodside has developed a Golden Safety Rules Booklet, which provides a summary of mandatory requirements for safety in the workplace and includes guidance for managing changes that have a Health, Safety, Integrity and/or Environment impact.

7.2.7.1 Technical Change Management

Technical changes within the Operations Division are managed using the Management of Change – Assets Procedure. The objective of the procedure is to ensure HSE risks associated with both realised and potential changes. Assessed changes must be recommended, agreed and decided upon based on the assessed current level of risk, as defined by Woodside’s Technical Decision Authority matrices.

Changes as a result of abnormal conditions, e.g. failure to meet the facility SCE Technical Performance Standards, are identified, assessed and reduced to ALARP through the Operational Risk Assessment (ORA) Procedure Section 7.2.8 provides further information on management of SCE Technical Performance Standards.

The management of change requirements contained in the Process Safety Management Procedure and Management System Performance Standard M05 Management of Change are considered when conducting any changes with the potential to impact process safety.

The Engineering Management Procedure specifies key requirements of engineering related changes, and requires that engineering Technical Decisions are agreed, recommended and decided at the appropriate engineering authority level according to the risk. Change management and risk assessment include consideration of applicable legislation/regulation.

Change is also managed under management system requirements set out as part of major projects (Brownfields), wells integrity, subsea and pipelines integrity management and marine management system. Change management includes consideration of regulatory requirements, managed in accordance with the Regulatory Compliance Management Procedure.

In addition, the Management of Change MSPS (M05) is in place to assure process safety risks arising from change (temporary and permanent) are systematically identified, assessed and managed.

7.2.7.2 Environment Plan Management of Change and Revision

Management of changes relevant to this EP concerning the scope of the activity description (Section 3) will be managed in accordance with Regulations 38 and 39 of the Environment Regulations, including the following changes:

- review of advances in technology at stages where new equipment may be selected such as vessel contracting
- changes in understanding of the environment, DAWE EPBC Act listed threatened and migratory species status, Part 13 statutory instruments (recovery plans, threat abatement plans, conservation advice, wildlife conservation plans) and current requirements for AMPs
- potential new advice from external stakeholders (Section 5).
- changes in assumptions or estimation techniques leading to a material change in indirect emissions (GHG or atmospheric) estimates

Risk will be assessed in accordance with the environmental risk management methodology (Section 2.3) to determine the significance of any potential new environmental impacts or risks not provided for in this EP. Risk assessment outcomes are reviewed in compliance with Regulations 38 and 39 of the Environment Regulations.

Minor changes where a review of the activity and the environmental risks and impacts of the activity do not trigger a requirement for a formal revision under Regulations 38 and 39 of the Environment Regulations, will be considered a 'minor revision'. Minor administrative changes to this EP, where an assessment of the environmental risks and impacts is not required (e.g. document references, phone numbers, etc.) will also be considered a 'minor revision'. Minor revisions as defined above will be made to this EP using Woodside's document control process. Minor revisions will be tracked in an MOC Register to ensure visibility of cumulative risk changes, as well as enable internal EP updates/reissuing as required. This document will be made available to NOPSEMA during regulator environment inspections.

7.2.7.3 Oil Pollution Emergency Plan Management of Change

Relevant documents from the OPEP will be reviewed in the following circumstances:

- implementation of improved preparedness measures
- a change in the availability of equipment stockpiles
- a change in the availability of personnel that reduces or improves preparedness and the capacity to respond
- the introduction of a new or improved technology that may be considered in a response for this activity
- to incorporate, where relevant, lessons learned from exercises or events
- if national or state response frameworks and Woodside's integration with these frameworks changes.

Where changes are required to the OPEP, based on the outcomes of the reviews described above, they will be assessed against Regulations 38 and 39 of the Environment Regulations to determine if resubmission of the EP, including OPEP, is required (see Section 7.2.7.2). Changes with potential to influence minor or technical changes to the OPEP are tracked in management of change records, project records and incorporated during internal updates of the OPEP or revisions to the EP.

7.2.8 Management of Safety and Environment Critical Element Technical Performance Standards and Management System Performance Standards (Operations)

7.2.8.1 Management System Performance Standards

Woodside applies Management System Performance Standards (MSPS) to confirm that safety critical management processes function as required. MSPS are developed and owned at non-facility specific level (i.e. across Woodside) and include assurance checks for the key requirements of the applicable management system.

Individual facilities demonstrate conformance against the MSPS through the conduct of reviews. Non-conformances against an MSPS are internally managed in accordance with the Woodside Management System.

7.2.8.2 Safety and Environment Critical Element Technical Performance Standards

An SCE is defined by Woodside as a hardware barrier, the failure of which could cause or contribute substantially to, or the purpose of which is to prevent or limit the effect of, a MAE/MEE or process safety event.

Woodside identifies/develops, implements, monitors/assures and verifies/optimises SCEs by applying SCE technical Performance Standards as described in the Safety and Environment Critical Element (SCE) Management Procedure. Key elements of the procedure are summarised in Table 7-4.

Table 7-4: Safety and Environment Critical Element Management Procedure summary

Identify/Develop	<p>Identify SCE – SCEs must be identified from the facilities PSRAs (e.g. Formal Safety Assessments) (Section 2.2). The identification of SCEs for which Performance Standards are required are part of the formal safety and environmental risk assessment processes. Woodside’s Global Performance Standards (based on industry and Woodside Standards) should be used for preliminary selection of SCEs.</p> <p>Complete Engineering Design Studies – Engineering design studies must be completed to demonstrate that SCE Performance Criteria specified in the global Performance Standard and/or determined by PSRA will be met by the facility design, allowing for normal SCE degradation in operation. The studies must establish the testing and inspection tasks required to assess performance against the criteria. The scope and frequency of SCE Assurance Tasks are guided by the Global Performance Standard and may require designated Engineering Design Studies. Studies should include Reliability Centred Maintenance, Risk Based Inspection and Safety Instrumented Function studies to determine the Assurance Task scope and frequencies, RBI plans, and classification and implementation requirements for instrumented safeguarding.</p> <p>Develop Performance Standards – Facilities must develop Performance Standards for all SCEs by:</p> <ul style="list-style-type: none"> • selecting the applicable Global Performance Standard (including Assurance Tasks) • considering facility specific requirements and applicable regulatory requirements • adding the specific data from the facility Engineering Design Studies and PSRA to compile scope and frequency of SCE assurance activities.
Implement	<p>Identify SCE in Asset Register – SCEs must be uniquely identified on the asset register and assigned Performance Standard flags.</p> <p>Develop Testing, Inspection and Maintenance Programs – SCE assurance tasks are developed into maintenance procedures.</p> <p>Implement Testing, Inspection and Maintenance Programs – SCE testing, inspection and maintenance requirements must be implemented in the CMMS (Section 7.2.1.3).</p>

Maintain/Assure	<p>Execute Testing, Inspection and Maintenance Programs – On completion of SCE assurance tasks, results must be recorded with all relevant detail, assessed for conformance with the Performance Criteria and any follow-on correction work identified.</p> <p>Conduct Fitness for Service (FFS) Assessment – In some instances, an engineering FFS assessment may be required to determine whether equipment has failed its performance standard requirements, e.g. assessment of corrosion defects following inspection of piping. Detailed results of FFS assessment may be recorded out of CMMS.</p> <p>Response to SCE Failure – SCE failure (technical Performance Standard non-conformance) is a failure to achieve the given Performance Criteria. SCE failures must be managed in accordance with a structured review process. This process may require the application of the facility Manual of Permitted Operation (MOPO) which provides prescriptive guidelines to be followed in the event of a reduction in the performance of an SCE, or managed in accordance with the Operational Risk Assessment Procedure (Section 7.2.7).</p> <p>Internal Reporting – SCE failure/damage and SCE demands must be reported in accordance with the Health Safety and Environment Event Reporting and Investigation Procedure (Section 7.12.3).</p> <p>External Reporting – External notification obligations for SCE failure/damage must be understood (i.e. based on local regulatory requirements). External communications must be in accordance with the health safety and environment event reporting and investigation procedure (Section 7.12.4).</p> <p>Manage and Analyse Results – The results from assurance tasks must be accurately recorded to support data analysis. Analysis will enable appropriate action to be taken to minimise future failure recurrences and enable assessment of overall system performance and reliability to verify SCE effectiveness in revealing failures and to allow predictive maintenance.</p>
Verify/Optimise	<p>Review SCE Performance – SCE performance reviews must be conducted to ensure requirements for maintaining SCE performance are being met.</p> <p>Manage Change – Any change to the Performance Standards must be conducted in accordance with the Change Management Procedure (Section 7.2.7).</p>

SCE Technical Performance Standards are a statement of the performance required of an SCE (e.g. functionality, availability, reliability, survivability), which is used as the basis for establishing agreed assurance tasks and managing the hazard. An assurance task is an activity carried out by the operator to confirm that the SCE meets, or will meet, its SCE Technical Performance Standard. Examples of assurance tasks include inspection routines, maintenance activities, test routines, instrumentation calibration and reliability monitoring.

These assurance tasks are identified in the CMMS, flagged against their associated technical Performance Standard, and given the appropriate priority. Management systems are in place to manage the completion of maintenance including that required for Technical Integrity assurance.

Events where the SCC/SCE have not met their specified performance criteria must be managed in accordance with a structured review process. This process may require the application of the facility Manual of Permitted Operation (MOPO) which provides prescriptive guidelines to be followed in the event of a reduction in the performance of an SCE in specific defined circumstances; or, if the MOPO does not cover the event, according to procedures for the assessment and management of operational risk.

Internal notification of SCC failures must be made in accordance with maintenance management workflows. Failures to meet a Facility Performance Standard occur where SCC events lead to the functional objectives (goal and/or key requirement statements) of the facility Performance Standard for the SCE not being met (i.e. lost or unavailable), taking into account any redundancy inherent within the SCE. These events are reported in the Event Reporting Database as potential SCE Failure to Meet Facility Performance Standard Events.

These are internally reported as Hazard Events. Where ‘Failure to meet a Facility Performance Standard’ leads to a loss of hydrocarbon containment, or a release of energy, it is internally reported (and externally where relevant) as a Loss of Primary Containment or Environmental Spill event, depending on the nature of the release.

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There may also be planned changes/deviations from SCE Technical Performance Standards. These are managed via procedures for the assessment and management of operational risk and endorsed in accordance with the change management (Section 7.2.7). This management process ensures risks (including environment) are managed so that the planned change/deviation does not result in unacceptable impact or risk, remains ALARP and regulatory requirements are met.

An additional class of SCE exists to capture environment critical emissions monitoring and control equipment and is also managed under this process. The 'P31 technical Performance Standard – Environmental Emissions Monitoring and Controls' includes equipment required to comply with environmental legislation, regulations, approval conditions or requirements which apply to the facility although not specifically required under the MEE bowtie analysis and SCE groupings.

The scope of P31 includes equipment such as that to maintain and monitor flare ignition, flow metering, and discharge quality of PW. P31 sets out key performance requirements for applicable equipment to meet regulatory requirements as appropriate to the reporting methods (e.g. NGERs Determination and NPI), and the meet the functional intent of the system that the equipment supports (e.g. ensuring flare systems can be ignited, with monitoring in place to ensure the flare/pilots are lit). P31 also defines maintenance/assurance tasks for associated equipment (SCC), and is used to support change management, prioritisation and governance.

7.3 Woodside Decommissioning Framework

Decommissioning is a planned activity for the offshore oil and gas industry. Current best practice is for decommissioning to include:

- designing for decommissioning during the development phase of projects/facilities
- maintaining and removing property, equipment and infrastructure, such as a facility or a pipeline, and plugging wells associated with a petroleum activity
- assessing decommissioning options and opportunities during the operational life of the facility leading up to cessation of production
- selecting, developing and planning the selected decommissioning option
- executing decommissioning plans; and
- restoring the marine environment.

This assists with consideration of section 572(3) of the OPGGS Act, under which, a titleholder must remove from the title area all structures that are, and all equipment and other property that is, neither used nor to be used in connection with the operations. Under section 572(7) of the OPGGS Act, the property removal requirements under section 572(3) of the OPGGS Act have effect subject to any other provision of the OPGGS Act, the regulations, directions given by NOPSEMA or the responsible Commonwealth Minister, and any other law. Under section 270(3) of the OPGGS Act, before title surrender, all property brought into the surrender area must be removed to the satisfaction of NOPSEMA, or arrangements that are satisfactory to NOPSEMA must be made in relation to the property. Sections 572(7) and 270(3) of the OPGGS Act provide scope for in-situ decommissioning and other arrangements to be made where it can be demonstrated that the risks and impacts are ALARP and acceptable as well as comply with all other Acts and legislation.

7.3.1 Decommissioning in Operations

Asset specific decommissioning plans are typically developed prior to cessation of production. Planning includes redundant infrastructure as well as structures coming to the end of production and decommissioning critical systems to enable, as a base case, full removal.

7.3.2 Facility Decommissioning Planning

Decommissioning planning generally commences 2–10 years prior to Cessation of Production (CoP) (Figure 7-7). The timeframe selected for decommissioning planning depends on the complexity of the infrastructure requiring decommissioning.

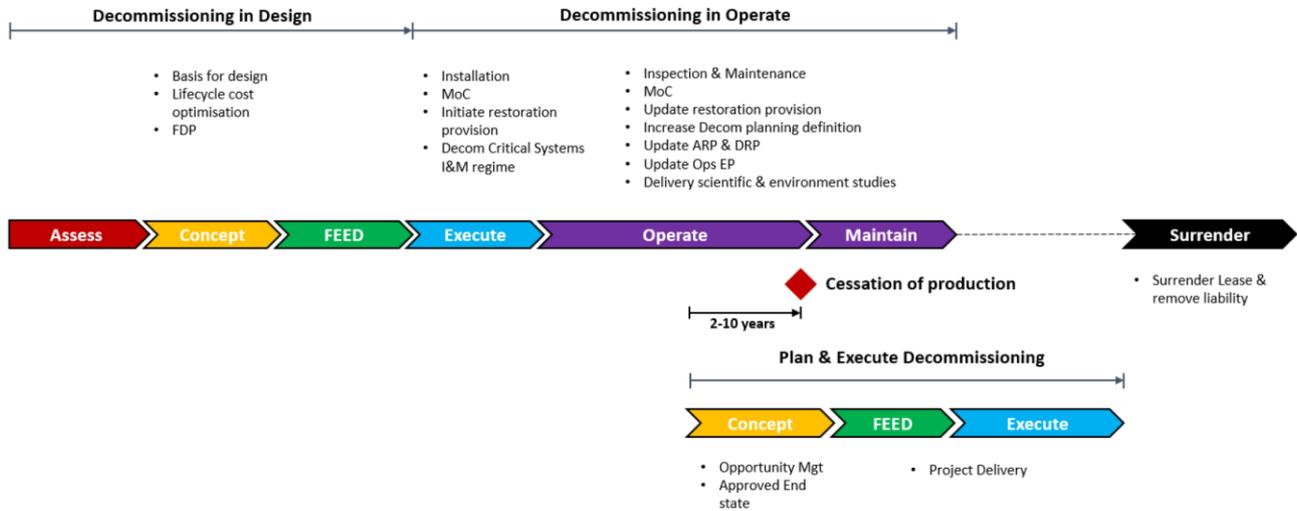


Figure 7-7: Woodside’s process for decommissioning planning

7.3.2.1 Scarborough Decommissioning Planning

In proactively planning for decommissioning, information has been collated within a Scarborough Decommissioning Strategy, for all major and ancillary infrastructure, specifically:

- specifications
- compositions
- decommissioning critical systems
- IMMR management plans
- feasibility of infrastructure removal options.

This information will be reviewed for accuracy and regulatory compliance prior to start-up, before being captured in Maintenance Builds/Plans and handed over to Production for continual management throughout field life. Ancillary equipment will be tracked and inventoried in the same way, and removal options will be subject to future decommissioning planning, as per Figure 7-7.

The identified decommissioning critical systems are asset systems that are designed to facilitate the flushing, cleaning and decommissioning of infrastructure. These systems were identified through consultation with package leads and will be appropriately maintained. The standard IMMR requirements will ensure that the systems remain in functional condition, in connection with operations until End of Field Life. These requirements will be integrated within suitable operational documents, ensuring the system, used in connection with operations, is appropriately maintained throughout field life.

7.3.2.2 Subsea Infrastructure Decommissioning

To satisfy future decommissioning obligations, including the requirements of the OPGGS Act, all equipment has been designed to be feasible to remove. More detailed preparation for decommissioning execution, including relevant plans and procedures, will be developed as per the

timeline in Figure 7-7, with due consideration of best environmental outcome and technological advances available at the time.

For example, for the production flowlines, the information contained within the Decommissioning Strategy is:

- flowline materials composition, expected contaminants at EOFL, expected embedment at EOFL
- IMMR plans
- Basis of Design functional and design requirements (e.g., “Subsea equipment must be able to be cleaned of hydrocarbons and contaminants, in situ, to a level based on ALARP assessment”)
- decommissioning critical systems (e.g., “Manual ROV valve operability is required to enable Flowline pigging for hydrocarbon removal to FPU and riser isolation”)
- typical sequence of events for subsea system decommissioning, including system preparation and subsea hardware recovery (e.g., Subject to Technical feasibility and Safety analysis, the most efficient method of flowline recovery could be via reverse installation to a dedicated Reel Lay Vessel (RLV).

All property has been designed and will be installed and operated so that it can be removed when it is neither used, nor to be used in connection with the operations, as per Section 572 of the OPGGS Act. Design features and maintenance plans for major infrastructure, which allow removal to occur at the end of field life, are detailed in Table 7-5. Decommissioning critical systems have also been identified; these are asset systems that will be required to facilitate the decommissioning of infrastructure. If no such system is identified, there are no specific features critical for the future removal of the infrastructure. It should be noted that in this case all infrastructure is critical to the operation of the facility, as well as the decommissioning, so will be maintained for full functionality and integrity so that it can be removed at EOFL.

Table 7-5: Design features and maintenance plans to enable removal of infrastructure at decommissioning

Infrastructure	Design and maintenance to enable removal
3 x flowlines 8 x flexible jumpers 6 x risers 1 x trunkline spool and support	Decommissioning critical systems: Operability of subsea control system, manual valves, and 32” RBM valve and 16” Upstream FLET valves Design: Cathodic protection for 25+ years; pad eyes on descent/recovery clamp for lifting Maintenance: Risk based inspections to monitor/maintain system integrity and operability Removal: Pigging/cleaning of system to remove hydrocarbons and contaminants; isolations as required; water jetting of sediment if embedded/buried; disconnect and recover to surface via re-reeling or cutting and recovering in sections; lift using pad eyes on descent/recovery clamp or use of alternate rigging
7 x umbilicals 1 x dynamic umbilicals	Decommissioning critical systems: None Design: Cathodic protection for 25+ years; pad eyes on descent/recovery clamp for lifting Maintenance: Risk based inspections to monitor system integrity and operability; no maintenance required to facilitate removal Removal: Local disconnections of equipment; water jetting of sediment if embedded/buried; recover to surface via re-reeling or cutting and recovering in sections; lift using pad eyes on descent/recovery clamp or use of alternate rigging
1 x riser base manifold (RBM) 8 x flowline sleepers	Decommissioning critical systems: None

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Infrastructure	Design and maintenance to enable removal
7 x in-line structures (in-line T) 6 x flowline end terminations (FLETS) 7 x umbilical termination assemblies Multiple flying leads 7 x umbilical termination heads 2 x subsea distribution units 1 x subsea distribution assembly 13 x mud mats 12 x mud mats (contingency)	Design: Cathodic protection for 25+ years; pad eyes for lifting Maintenance: Risk based inspections to monitor system integrity and operability; no maintenance expected to be required to facilitate removal Removal: Local disconnections of equipment; water jetting of sediment if embedded/buried; recovery using existing pad eyes or use of alternate rigging
1 x riser base manifold foundation (RBMF)	Decommissioning critical systems: None Design: Cathodic protection for 25+ years; trunnions for lifting Maintenance: Risk based inspections to monitor system integrity and operability; no maintenance required to facilitate removal Removal: Water jetting of sediment if embedded/buried; installation process is reversible for removal, via use of existing suction port to connect ROV mounted pressure pump, or use of intervention points on individually piles not requiring valve operability; lifting via existing trunnions or use of alternate rigging.
20 x mooring legs	Decommissioning critical systems: Fairleads Design: Cathodic protection for 25+ years Maintenance: Inspections based on class requirement; no maintenance required to facilitate removal Removal: Release of mooring legs from FPU via top of column pull-in equipment (temporary) and fairlead controls; Mooring systems to be removed from subsea/seabed using AHTs or similar
20 x suction piles	Decommissioning critical systems: None Design: Cathodic protection for 25+ years; suction/pressure ports existing and able to be retrofitted Maintenance: Inspections based on class requirement; no maintenance required to facilitate removal Removal: Installation process is reversible for removal, via use of existing suction ports to connect ROV mounted pressure pump, retro install of pressure ports, or relief of pressure by other means (e.g. drilling holes in the pile and connecting lift rigging to a vessel and slowly easing the pile out)
Up to 265 x concrete pads	Decommissioning critical systems: None Design: 50-year design life; elimination of corrosion sources Maintenance: Periodic inspections during gravimetry surveys to monitor condition; no maintenance required to facilitate removal Removal: Water jetting of sediment if embedded/buried; lifting with subsea grab to subsea basket for recovery to vessel deck
Up to 8 x production wells (Phase 1), including wellheads and xmas trees; Up to 5x production wells (Phase 2), including wellheads and xmas trees; Abandoned wells including wellheads.	Decommissioning critical systems: None Design: 25+ year design life, cathodic protection to limit corrosion. Maintenance: In accordance with the well lifecycle management procedure (Section 7.2.3.4). Removal: Typically removed by deploying a cutting device on drill pipe which then cuts through the conductor, allowing the wellhead to be retrieved to the surface. Another technique may use an ROV to activate the cutter. The conductor cutting equipment is usually reliable with a high success rate of cutting wellheads. Wellheads lifted to MODU.

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7.3.2.3 Scarborough Trunkline Decommissioning

To comply with future decommissioning obligations, including the requirements of the OPGGS Act, the following design and functional requirements of the export trunkline have been implemented:

- The export trunkline system has been designed to allow for sweeping with sea water or other environmentally acceptable fluid, with capability to return to hydrocarbon separation facilities on the FPU or onshore for treatment.
- Adequate isolations will be provided so that subsea system hydrocarbon removal operations can be performed in accordance with relevant safety procedures and engineering standards.
- The trunkline will be able to be cleaned of hydrocarbons and contaminants, in situ, to a level based on an ALARP assessment.
- The export trunkline is designed to be feasible to remove from the seabed. A technical decommissioning assessment was undertaken and a Decommissioning Plan developed. The plan may be used at the time of decommissioning, with due consideration of best environmental outcome and technological advances available at the time, noting detailed plans and justification will be subject of a future EP. It considers various removal options:
 - dredging/jetting and removal of rock cover to expose trunkline if sections are buried/embedded
 - pigging and cleaning techniques
 - removal by reverse S-lay and cutting into sections onboard a PLV
 - removal by cutting subsea and retrieval by crane in some shallower water sections
 - isolation and retrieval of structures by lifting.

Although the trunkline contains no decommissioning critical systems, essential for the feasibility of decommissioning, there are several items that de-risk the decommissioning activity. The standard Inspection, Maintenance, Monitoring and Repair are designed to ensure that the following items remain in functional condition for use in connection with the operations until EOFL. Although functionality of these items does not impact overall decommissioning feasibility, it is intended to minimise the complexity of future decommissioning activities for:

- PLET 32" connection system
- PLET 32" valve
- ILTA 16" connection system
- ILTA 16" valves (two of).

The Trunkline Decommissioning Plan will be integrated within suitable operational documents, ensuring the system, used in connection with operations, is appropriately maintained throughout field life. More detailed preparation for decommissioning execution, including relevant plans and procedures, will be developed as per the timeline in Figure 7-7.

7.3.2.4 Floating Production Unit Decommissioning

To comply with future decommissioning obligations, including the requirements of the OPGGS act, the following design and functional requirements of the FPU System have been implemented:

- The FPU will be capable of being towed to a point of ownership transfer or disposal at end of field life, and the condition will be maintained in a condition suitable for towage as accepted by Class Society.
- The FPU topsides will be cleaned to as hydrocarbon free as reasonably practicable.
- FPU systems that have been identified as decommissioning critical are:

- FPU Riser pull in platform needs to be maintained to accommodate the riser Pull in System for riser removal activities. Same loads as installation.
- FPU process system for pig receiving with liquid/contaminants removal and handling.
- Hull and Topside Systems required for Flag are defined in the Class and Flag Boundary Report. These systems are required to be functional for tow down and will be maintained as per the facility performance standards. Some equipment (i.e. telecom equipment) may be removed after start-up, but the FPU will be fitted to accommodate the equipment at the time of tow down.
- The ballast system will be maintained to facility performance standards and will be required for emergency response and intermittent operations.
- Tow points will be maintained in line with the Hull performance standards.

7.4 Frontline Offshore Seabird Management Plan

The FPU and all vessels will implement Woodside's Frontline Offshore Seabird Management Plan (SBMP), which aligns with recommendations in the National Light Pollution Guidelines for Wildlife (Commonwealth of Australia, 2023). When implemented, the SBMP addresses seabird interaction reporting and management for offshore/inshore activities within the NWMR, specifically where the activity is located within a nocturnal seabird species BIA.

The purpose of the SBMP is to manage interactions with seabirds offshore to ensure any impacts and risks are reduced to ALARP and an acceptable level. The plan also provides frontline workers with guidance to manage seabird interactions and potential impacts resulting from these interactions identified as occurring as a result of Woodside's activities.

The SBMP adaptive management framework has been established to manage the uncertainty of the potential impacts of artificial light at night on nocturnal seabirds. Where interactions¹²³ with nocturnal seabirds are identified, adaptive management controls under the SBMP may be triggered in a tiered approach.

This may include an initial assessment of:

- seabird species important habitat proximity, life cycle seasonality and periods of heightened sensitivity such as fledgling exodus
- overlap of seabird interactions and inclement weather (for example, post-cyclonic metocean conditions associated with reported seabird groundings)
- the possible consideration of controls and mitigation actions, for example:
- extinguish outdoor/deck lights not necessary for safety and navigation at night
- use block-out-blinds on portholes and windows not necessary for safety and/or navigation.

7.5 Woodside Corporate GHG Emission Targets

As described in Section 6.7.6 *Routine and Non-routine Greenhouse Gas Emissions*, Woodside has committed to voluntary Scope 1, and 3 GHG emission reduction targets. Scope 2 GHG emissions are also considered, however there are no Scope 2 emissions associated with the project.

7.5.1 Scope 1 GHG Emission Targets

Woodside is targeting a reduction of net equity Scope 1 and 2 GHG emissions of 15% by 2025 and 30% by 2030, with an aspiration of net zero by 2050 or sooner. The net equity Scope 1 and 2

¹²³ Interaction is defined as a death, injury, entanglement or impact to seabird; or a grounding of a nocturnal seabird.

emissions reduction targets are relative to a starting base of 6.32 MtCO₂-e which is representative of the gross annual average equity Scope 1 and 2 GHG emissions over 2016-2020¹²⁴.

There are obligations for Scope 1 emissions reductions regulated through measures such as the Federal SGM and State regulatory obligations that Woodside must meet related to onshore processing of Scarborough gas.

The relevance of these corporate level targets to the activity is described in Section 6.7.6, under subheading *Woodside Climate Targets*.

As described in Section 6.7.6 *Routine and Non-Routine Greenhouse Gas Emissions*, subheading *Management and Abatement*, Woodside's approach to decarbonisation includes:

- Avoiding emissions in the way we design facilities
- Reducing emissions in the way we operate
- Both buying and originating carbon credits to utilise as offsets for the remainder

Woodside's priority is to avoid and reduce emissions, however the use of offsets is expected to be required to meet both regulated and voluntary emissions abatement requirements.

Woodside does not set project specific reduction targets, but instead manages these on a global portfolio level. Abatement of these emissions may come from other facilities with more cost-effective or impactful abatement opportunities. Progress to date, against these corporate targets are reported annually in Woodside's [full year report]. For specific initiatives implemented during design of the Scarborough facilities, see Table 6-23.

7.5.2 Scope 3 GHG Emission Targets

Woodside's Scope 3 targets includes the introduction of new products and services into our portfolio, like hydrogen, ammonia, and carbon capture, utilisation and storage (CCUS). These products and services can help our customers avoid or reduce their Scope 1 or 2 emissions and therefore reduce the life cycle (Scopes 1, 2 and 3) emissions intensity of Woodside's portfolio.

Woodside's initial Scope 3 target was an investment target, to invest \$5 billion in new energy products and lower carbon services by 2030¹²⁵¹²⁶. In 2023, Woodside reviewed our approach to Scope 3 targets in response to investor feedback and supplemented the existing investment target with a new complementary emissions abatement target, to take final investment decisions on new energy products and lower carbon services by 2030, with total abatement capacity of 5 Mtpa CO₂-e¹²⁵¹²⁷.

The investment target tracks Woodside's work at a corporate level to develop these projects and bring them to market. The emissions abatement target will track the potential impact of these projects on customer emissions. The customers for these products and services may be the same as the customers of our oil and gas business, directly substituting their energy for new products or directly

¹²⁴ The starting base may be adjusted (up or down) for potential equity changes in producing or sanctioned assets with a final investment decision prior to 2021. Net equity emissions include the utilisation of carbon credits as offsets.

¹²⁵ Scope 3 targets are subject to commercial arrangements, commercial feasibility, regulatory and Joint Venture approvals, and third party activities (which may or may not proceed). Individual investment decisions are subject to Woodside's investment targets. Not guidance. Potentially includes both organic and inorganic investment. Timing refers to financial investment decision, not start-up/operations.

¹²⁶ Includes pre-RFSU spend on new energy products and lower carbon services that can help our customers decarbonise by using these products and services. It is not used to fund reductions of Woodside's net equity Scope 1 and 2 emissions which are managed separately through asset decarbonisation plans.

¹²⁷ Includes binding and non-binding opportunities in the portfolio, subject to commercial arrangements, commercial feasibility, regulatory and Joint Venture approvals, and third party activities (which may or may not proceed). Individual investment decisions are subject to Woodside's investment targets. Not guidance.

abating the associated emissions. They may also be customers of the new products and services, without also being customers of oil and gas. Progress against these targets is reported annually in Woodsides annual disclosures. Targets are not set for individual projects, including Scarborough, but are assessed corporately.

7.6 Organisation Structure

The organisational structure described in the EP can be split into two separate areas depending on the phase of the activities. Activities including hook-up, commissioning and start-up are managed by the Scarborough Project Management Team, whilst ongoing Operation of the FPU is managed by Woodsides Australian Operations Division. Significant overlap will occur between these teams during transition from project activities to operational activities. This overlap ensures environmental performance is met throughout all phases of the activities described in this EP.

The following Woodside organisational structure provides leadership and direction for project activities and environmental performance:

- The Scarborough Project Manager reports to the Vice President (VP) Scarborough Project.
- The FPU Manager and Operations Readiness Manager report to the Scarborough Project Manager.
- Various scope specific Managers and Advisers report to the FPU Manager and Operations Readiness Manager.
- The Environment Manager Projects reports to the VP HSE Projects.
- A team of environmental professionals report to the Environment Manager Projects.
- The project activities are supported by a range of other Woodside functional teams including Subsea, Aviation and Marine.

The following Woodside organisational structure provides leadership and direction for operation of the FPU and environmental performance:

- The Executive Vice President Australian Operations (EVP) reports to the Chief Executive Officer.
- The Scarborough Vice President (VP) reports to the EVP Australian Operations.
- The VP HSE reports to the EVP Australian Operations.
- The Australian Operations Environment Manager reports to the VP HSE.
- The Asset Manager reports to the Scarborough VP.
- All Production facilities are supported by a team of environmental professionals who report to the Australian Operations Environment Manager.
- All facilities are supported by other Woodside functional teams including:
 - **HSE** – provides specific guidance and access to specialist HSE resources including assistance for governance and training, as well as guidance on Woodside HSE standards
 - **Operations Support/Subsea** – responsible for the installation and IMMR activities on subsea infrastructure including facility structures, flowlines, manifolds and subsea isolation valves to ensure integrity
 - **Aviation Group** – provides personnel transport, material transport, emergency evacuation and search and rescue capabilities.
 - **Marine Group** – responsible for chartering vessels to support Woodside's offshore production facilities including vessels to aid emergency response.

7.6.1 Roles and Responsibilities

Key roles and responsibilities for Woodside and contractor personnel relating to implementing, managing and reviewing this EP are described in Table 7-6. Individuals fulfilling these roles will differ between each activity. Roles and responsibilities for oil spill preparation and response are outlined in Appendix H and the *Woodside Oil Pollution Emergency Arrangements (Australia)*.

It is the responsibility of all Woodside employees and contractors to implement the Woodside *Environment and Biodiversity Policy* (Appendix A: Woodside Policies) and *Health and Safety Policy* in their areas of responsibility and that the personnel are suitably trained and competent in their respective roles.

Table 7-6: Roles and responsibilities

Title (role)	Environmental Responsibilities
All Personnel	
All offshore based personnel and onshore support personnel	<ul style="list-style-type: none"> • Understand the Woodside standards and procedures that apply to their area of work • Understand the environmental risks and control measures that apply to their area of work • Carry out assigned activities in accordance with approved procedures and the EP • Follow instructions from relevant supervisor with respect to environmental protection • Cease operations which are deemed to present an unacceptable risk to the environment • Participate in environmental assurance activities and inspections as required • Prompt reporting of environmental hazards/incidents to their supervisor and assist in event investigation.
Office-based Personnel	
Project Personnel	
Woodside Project Manager/s (or delegate/s)	<ul style="list-style-type: none"> • Monitor and manage the activity so it is undertaken as per the relevant standards and commitments in this EP. • Notify the Woodside Environment Adviser of any scope changes in a timely manner. • Liaise with regulatory authorities as required. • Review this EP as necessary and manage change requests. • Ensure all Project and Support Vessel crew members complete an HSE induction. • Verify that contractors meet environmental related contractual obligations. • Confirm environmental incident reporting meets regulatory requirements (as outlined in this EP) and Woodside's Health, Safety and Environment Reporting and Investigation Procedure. • Monitor and close out corrective actions identified during environmental monitoring or audits
Woodside Projects/Scarborough Environmental Adviser	<ul style="list-style-type: none"> • Verify relevant Environmental Approvals for the activities exist prior to commencing activity. • Track compliance with performance outcomes and performance standards as per the requirements of this EP. • Prepare environmental component of relevant Induction Package. • Assist with the review, investigation and reporting of environmental incidents. • Ensure environmental monitoring and inspections/audits are undertaken as per the requirements of this EP. • Liaise with relevant regulatory authorities as required. • Assist in preparation of external regulatory reports required, in line with environmental approval requirements and Woodside incident reporting procedures. • Monitor and close out corrective actions (Campaign Action Register (CAR)) identified during environmental monitoring or audits.

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Title (role)	Environmental Responsibilities
	<ul style="list-style-type: none"> • Provide advice to relevant Woodside personnel and contractors to assist them to understand their environment responsibilities. • Liaise with primary installation contractors to ensure communication and understanding of environment requirements as outlined in this EP and in line with Woodside’s Compass values and management systems. • Support continuous improvement of environmental performance (including energy management)
Operations Personnel	
Asset Manager	<p>Systems, Practices and Procedures</p> <ul style="list-style-type: none"> • Accountable for ensuring all necessary regulatory approvals are in place to operate • Approves (decides on) the content to be contained in the Environment Plan • Accountable for managing the asset throughout its operations in accordance with legislative/regulatory requirements (including this EP) and WMS requirements. • Approves written notification to regulatory authorities (for example notifications to NOPSEMA under this Environment Plan) • Agrees facility key performance indicators (KPIs), including environment KPIs and is accountable for their achievement • Responsible for continuous improvement of operations of the facility, including environmental performance and energy management • Accountable for described petroleum activities occurring within WA-61-L, WA-62-L and WA-32-PL • Responsible for the operation of the facility in accordance with legislative/regulatory requirements (including this EP) and the WMS • Decides on technical decisions where required based on assessed current level of risk • Accountable for aspects of integrity management. <p>Monitoring, Auditing, Non-conformance and Emergency Response</p> <ul style="list-style-type: none"> • Decides on technical decisions where required based on assessed current level of risk • Accountable for incident notification, reporting and investigation in line with regulatory requirements, the WMS and EP requirements • Communicates changes relevant to the EP to the Production Environment team • Accountable for conformance to production Operations processes including ISSoW
Reliability and Integrity Manager	<p>Systems, Practices and Procedures</p> <ul style="list-style-type: none"> • Responsible for safeguarding process safety with respect to the asset • Ensure technical integrity risks are identified, managed and reduced to ALARP • Recommends technical decisions where required based on assessed current level of risk

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Title (role)	Environmental Responsibilities
Integrity Authorities (Technical Integrity Custodians, Technical Authorities and Engineering Authorities)	<p>Systems, Practices and Procedures</p> <ul style="list-style-type: none"> • Agree technical integrity decision based on assessed current level of risk when discipline owner • Undertake process safety responsibilities as defined under the Woodside process safety framework.
Environment Manager Australian Operations	<ul style="list-style-type: none"> • Facilitate operations environmental approval documentation and timely submission in accordance with regulatory requirements. • Ensure Asset and supporting personnel understand and adhere to legislative and regulatory environment requirements, EP requirements and the environmental requirements of the WMS. • Develop and maintain appropriate Production environmental processes and procedures. • Monitor and communicate to internal stakeholders all relevant changes to legislation, policies, regulator organisation that may impact the EP or business. • Facilitate review of the EP, including five-yearly revision and in relation to any technical decisions or proposed changes to operations.
Environment Adviser Australian Operations	<ul style="list-style-type: none"> • Manage change relevant to the EP in accordance with the Regulations and the EP. • Ensure environmental monitoring, offshore inspections, and reporting is undertaken as per the requirements of this EP. • Coordinate and monitor closeout of corrective actions. • Ensure environmental inspections/audits are undertaken as per the requirements of the EP. • Ensure environmental incident reporting meets regulatory requirements (as described within the EP) and WMS Systems, Practices and Procedures • Support continuous improvement of environmental performance and energy management.
Operations Support – IMMR Activity Manager	<p>Systems, Practices and Procedures</p> <ul style="list-style-type: none"> • Ensure IMMR activities undertaken in line with EP commitments • Manage IMMR change requests for the activity and notify the Subsea and Pipelines Environment Adviser of any scope changes in a timely manner • Responsible for governance of IMMR related activities for Support Vessels. <p>Resourcing, Training and Competencies</p> <ul style="list-style-type: none"> • Provide sufficient resources to implement the EP requirements <p>Monitoring, Auditing, Non-conformance and Emergency Response</p> <ul style="list-style-type: none"> • Monitor and close out corrective actions raised from IMMR environmental inspections/audits or incidents
Corporate Affairs Adviser	<ul style="list-style-type: none"> • Prepare and implement the Consultation Plan for the Petroleum Activities Program. • Report on consultation. • Perform ongoing liaison and notification as required as per Section 7.10.5

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Title (role)	Environmental Responsibilities
Woodside Marine Assurance Superintendent	<ul style="list-style-type: none"> Responsible for pre-charter assurance for all contracted vessels Conduct of ongoing operational assurance of vessels contracted through Woodside Marine, to confirm vessels operate in compliance with Relevant legislation, rules and Woodside Marine Charterers Instructions in order to be able to meet safety, navigation, operational and emergency response requirements.
Contractor Sponsors	<ul style="list-style-type: none"> Ensure implementation of EP for the contractor's scope of work Ensure contractors have adequate environmental capability in order to execute their respective scopes of work review contractor environmental performance as required.
Offshore-based Personnel	
Scarborough Offshore Installation Manager (OIM)	<p>Systems, Practices and Procedures</p> <ul style="list-style-type: none"> In charge of the Scarborough FPU and the field Accountable for implementation of the EP at the FPU Ensures offshore personnel comply with regulatory/legislative requirements (including the EP) and the WMS Responsible for Area Operations compliance with Technical Integrity requirements including Management of Change process, Permit to Work process and MOPO and process safety requirements Single point responsible person for the coordination of simultaneous activities Implement relevant offshore environment initiatives and review environmental performance (including energy management) to drive continuous improvement. Ensure effective communication with workforce on environmental performance Ensure incidents are reported and investigated in line with WMS and EP requirements, with appropriate actions initiated and closed out Decides on technical decisions where required based on assessed current level of risk Communicates changes relevant to the EP to the Production Environment team. <p>Resourcing, Training and Competencies</p> <ul style="list-style-type: none"> Accountable for the performance and development of direct reports, ensuring operator capability and competency across all shifts and ensuring the skill requirements of the Operations division are being met. <p>Monitoring, Auditing, Non-conformance and Emergency Response</p> <ul style="list-style-type: none"> Lead response efforts (as Level 1 Incident Controller, refer Section 7.13) in managing emergency or crisis scenarios Ensure exercises and drills are conducted in a manner to assure the facility's ability to respond effectively to an emergency

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Title (role)	Environmental Responsibilities
Frontline Superintendents/ Execution Superintendents/ Operations Supervisors/ Maintenance Superintendent	Systems, Practices and Procedures <ul style="list-style-type: none"> • Accountable for the day-to-day operations of the FPU including effective shift handover; completion and logging of operator routine • Responsible for operations shift compliance to all legislative and regulatory requirements as defined in the EP • Responsible for permitting and isolation for all frontline work activities • Responsible for leading and coordinating a multi-disciplined team performing specific duties required to support the FPU, including helicopter operations, vessel movements and consumable controls. Monitoring, Auditing, Non-conformance and Emergency Response <ul style="list-style-type: none"> • Responsible for following emergency response protocols in accordance with the emergency response procedure and fulfilling allocated emergency response roles
Scarborough Operations and Maintenance Technicians	Systems, Practices and Procedures <ul style="list-style-type: none"> • Responsible for daily operations on the facility within their operational control. • Undertake daily operational and maintenance tasks in accordance with approved standards and procedures to ensure compliance with the EP. • Manage day-to-day environmental risks through use of ISSoW and other risk management tools. • Identify opportunities for continuous improvement and communicate these to their Supervisor. • Complete training requirements to maintain competence and knowledge in operating and maintaining equipment, and manage environmental risks and impacts. • Participate in environmental assurance activities and inspections as required. • Report all environmental hazards and incidents and assist in investigations.
Scarborough Health, Safety and Environment Coordinator (HSEC)	Systems, Practices and Procedures <ul style="list-style-type: none"> • Liaise with managers/supervisors on day to day management of environmental risks and issues • Assist in the ongoing promotion of environmental performance and energy management at the facilities and day-to-day management HSE risks and issues • Identify opportunities for continuous improvement and communicate these to the OIM and Environment Team • Implement environmental improvement plans Resourcing, Training and Competencies <ul style="list-style-type: none"> • Support operational personnel to understand the EP requirements applicable to their role • Communicate environmental performance information and training material to offshore personnel and maintain associated records.

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Title (role)	Environmental Responsibilities
Vessel-based Personnel	
Vessel Master of Project and Operations Support Vessel (FPU and Support Vessels)	<p>Systems, Practices and Procedures</p> <ul style="list-style-type: none"> • Understand and manage HSE aspects of the vessel, including environmental requirements • Communicate with OIM as required regarding potential environmental risks applicable to vessel activities • Ensure vessel meets quarantine requirements <p>Monitoring, Auditing, Non-conformance and Emergency Response</p> <ul style="list-style-type: none"> • Notify AMSA and other authorities of any incidents as per maritime requirements • Provide, as requested by Woodside, copies of documents, records, reports and certifications (i.e. fuel use, ballast exchanges, waste logs, etc.) in a timely manner to assist in compliance reporting • Ensure the vessel's Emergency Response Team have sufficient training to implement the vessel's SOPEP • Ensure all emergency and SOPEP drills are conducted • Ensure that vessel procedures are followed in the event of an emergency or spill • Immediately notify the Woodside Representative of any environmental incidents.
Woodside Representative	<p>Systems, Practices and Procedures</p> <ul style="list-style-type: none"> • Ensure relevant management measures in this EP are implemented on the Support Vessel <p>Resourcing, Training and Competencies</p> <ul style="list-style-type: none"> • Ensure Support vessel induction attendance is recorded. <p>Monitoring, Auditing, Non-conformance and Emergency Response</p> <ul style="list-style-type: none"> • Ensure periodic environmental inspections are completed • Ensure environmental incidents or breaches of EPOs, EPSs or MCs are reported in accordance with Woodside and regulatory requirements

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7.7 Heritage Management Committee Implementation

Following consultations with MAC it was requested that Woodside develop a mechanism to address the management of new heritage information. In particular it was requested that a formal mechanism be established to address any new ethnographic values identified through an additional ethnographic survey.

On 1 February 2022, Woodside proposed the establishment of a Heritage Management Committee (HMC) whose role would be “to consider the necessary mitigation measures required to address any new heritage information arising following certain milestones related to the Scarborough Project” and “advise Woodside where any additional mitigation measures are recommended and of any other actions MAC or Woodside should consider”. This proposal required recommendations of the HMC to be unanimous, without limiting MAC’s right to provide additional advice to Woodside.

In a letter signed 7 October 2022, MAC responded to Woodside’s proposal, specifying that membership of the HMC should include:

- MAC’s Circle of Elders
- MAC’s Board and/or executive
- MAC staff
- representatives from Woodside
- appropriately qualified heritage experts agreed between MAC and Woodside.

MAC’s letter also clarified the milestones which may trigger a meeting of the HMC are:

- finalisation of a report from a future ethnographic survey
- conclusion of any future heritage assessment activities agreed by Woodside and MAC to inform the management of heritage for the Scarborough Project
- any proposed changes to the methodology for construction of the Scarborough Project requiring an update to the Scarborough CHMP or the management of Cultural and Spiritual Values
- following the discovery or identification of new heritage values relevant to the construction or operation of the Scarborough Project
- following the discovery or identification that heritage values previously identified beyond the Scarborough Project are also relevant to the construction or operation of the Scarborough Project.

It is intended that recommendations of the HMC will be implemented where they (independently or in conjunction with other actions) lower the risk of impacts to heritage to a level that is as low as reasonably practicable (ALARP). Woodside will also comply with relevant regulations, legislation and principles and requirements of this EP.

The process for addressing new information, therefore, is as follows:

- Upon becoming aware of any matter that would trigger a meeting of the HMC, Woodside is to notify MAC and request a meeting of the HMC.
- Woodside and MAC are to agree on the appropriate heritage experts to be engaged. Timing of the meeting should be as soon as practicable, but it is acknowledged that flexibility will be required particularly during law time to account for the cultural obligations of elders.
- Relevant information must be made available to attendees prior to the meeting.
- The HMC is to meet to discuss the relevant information provided and develop recommendations to Woodside.
- Woodside must implement all ALARP recommendations of the HMC.

- Where the recommendations are not considered ALARP—for example due to implementation of the recommendation resulting in a risk to safety or violation of a regulation or legislation—Woodside must:
- notify the members of the HMC that it will not implement the recommendation, the reason for not implementing the recommendation, and any alternative actions being undertaken to align with ALARP
- take reasonable steps to receive timely responses from the HMC to the notifications in a), proportionate to the urgency of action to be undertaken
- implement any alternative actions committed to in a) with necessary modifications after consideration of the responses in b)
- respond to any subsequent correspondence from HMC members.

7.8 Unexpected Finds Procedure

In the event of the discovery of what appears to be Underwater Cultural Heritage (defined as ‘any trace of human existence that has a cultural, historical or archaeological character and is located under water’), the following Unexpected Finds Procedure will apply:

- All activities with the potential to impact the suspected Underwater Cultural Heritage must cease immediately. Retain all records of the potential Underwater Cultural Heritage including any imagery, description and location.
- Person who discovers the heritage object must inform the Activity Supervisor.
- Activity Supervisor must notify Woodside’s Manager Global Heritage (or delegate).
- Woodside will specify an appropriate buffer around the potential Underwater Cultural Heritage, taking into consideration the nature and scale of the potential Underwater Cultural Heritage and the activities to be managed.
- No seabed disturbance may occur within the buffer area around the potential Underwater Cultural Heritage until approved by Woodside’s Manager Global Heritage.
- Woodside’s Manager Global Heritage must notify a qualified maritime archaeologist and provide all available documentation of the potential Underwater Cultural Heritage.
- If the potential Underwater Cultural Heritage appears to be Aboriginal Underwater Cultural Heritage, Woodside’s Manager Underwater Cultural Heritage must notify the appropriate Traditional Custodians to determine whether it is a heritage site and if so, how the site should be managed.
- If the potential Underwater Cultural Heritage appears to be a shipwreck or aircraft that has been wrecked for more than 75 years, or is of heritage significance or is otherwise reportable under section 40 of the UCH Act, Woodside’s Manager Global Heritage must notify the Minister responsible for the UCH Act, the DCCEEW underwater archaeological section, the Australasian Underwater Cultural Heritage Database (administered by DCCEEW), and the Western Australian Museum.
- If the suspected heritage object includes human remains, Woodside’s Manager Global Heritage must also notify:
 - the Australian Federal Police (phone: 131 444) of the location of the remains, that the remains are likely to be historic or Aboriginal in origin, and that it may be appropriate that Traditional Custodians and a maritime archaeologist are present during any handling of the remains; and
 - the Office of the Federal Environment Minister in accordance with Section 20 of the ATSIHP Act.

Work must not recommence in the vicinity of the heritage object until Woodside’s Manager Global Heritage provides written approval. Woodside’s Manager Global Heritage must only provide written

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approval once agreed management measures are implemented consistent with approvals and legislation or where the potential Underwater Cultural Heritage is confirmed to not be Underwater Cultural Heritage.

7.9 Training and Competency – Project and Vessel Activities

Woodside as part of its contracting process undertakes assessments of a proposed contractor's environmental management system to determine the level of compliance with the standard AS/NZS ISO 14001. This assessment is undertaken for the Petroleum Activities Program as part of the pre-mobilisation process. The assessment determines whether there is a clearly defined organisational structure that clearly defines the roles and responsibilities for key positions. The assessment also assesses whether there is an up-to-date training matrix that defines any corporate and site/activity-specific environmental training and competency requirements.

As a minimum, environmental awareness during inductions is required for all vessel personnel, detailing awareness and compliance with the Vessel contractor's environmental policy and environmental management system.

7.9.1 Inductions and Training

Inductions are provided to all relevant personnel (e.g. contractors and Woodside representatives) before mobilising to or on arrival at the activity location. The induction covers the HSE requirements and environmental information specific to the activity location. Attendance records will be maintained.

The induction may cover information about:

- description of the activity
- ecological and socio-economic values of the activity location (including Underwater Cultural Features and Heritage Values and pygmy blue whales)
- regulations relevant to the activity
- Woodside's Environmental Management System – Environment and Biodiversity Policy
- EP importance/structure/implementation/roles and responsibilities
- main environmental aspects/hazards and potential environmental impacts and related performance outcomes
- oil spill preparedness and response
- monitoring and reporting on performance outcomes and standards using MC
- incident reporting
- no recreational fishing from the vessels
- Unexpected Finds Procedure and reporting requirements.

Different levels of training are undertaken in relation to managing environmental risks and impacts for the production offshore facilities and associated support vessel-based IMMR activities, being:

- inductions for offshore facility workers and visitors
- operations competency framework training
- permit to work training (ISSoW)
- production environmental leadership training and environment awareness training
- emergency and hydrocarbon spill response training
- inductions for subsea IMMR (vessel based) personnel.

Records for Woodside operations personnel, in relation to the above listed training, are maintained in Woodside's learning management system. Contractor training records are also maintained.

Competence of operations personnel can be reviewed via online dashboards.

7.9.2 Activities Program Specific Environmental Awareness

Before petroleum activities begin, a pre-activity meeting will be held on-board Project Vessels with all relevant personnel. The pre-activity meeting provides an opportunity to reiterate specific environmental sensitivities or commitments associated with the activity. Relevant sections of the pre-activity meeting will also be communicated through to the Support Vessel personnel. Attendance lists are recorded and retained.

During operations, regular HSE meetings (which cover all crew) will be held on the FPU and Vessels. During these meetings, recent environmental incidents are regularly reviewed, and awareness material presented.

7.9.3 Inductions for Offshore Facility Workers and Visitors

A comprehensive induction process is in place for personnel working on or visiting Woodside's offshore production facilities. The induction process is designed to equip personnel with the HSE awareness and skills necessary for them to manage their own safety and environmental performance and contribute to others working around them. The induction process includes:

- **Common Production Induction** – All employees and contractors who have not accessed a production facility within twelve months are required to undertake this induction prior to mobilisation. It includes Woodside's values, HSEQ and Process Safety, continuous improvement, risk management and ISSoW.
- **Facility Specific Induction** – All employees and contractors that have not accessed the production facility within 12 months are required to undertake this induction prior to mobilisation. This induction covers the HSE and emergency response issues specific to each facility. For environment, this induction covers the Facility EP, prevention of spills, waste management, fauna interactions, hazard identification and risk assessment, and incident reporting.
- **Production Offshore Environmental Leadership Training** – Key operations leadership roles (as specified within the Operations Competency Framework) are required to complete this competency on commencement of the new role and three yearly thereafter. The training covers Woodside's policies and standards, environmental legislative requirements, the EP, key environmental risk and impacts, environmental reporting, environmental management tools (e.g. improvement planning, compliance reviews and audits), hydrocarbon spill response and environmental accountabilities.
- **Production Offshore Environmental Awareness Training** – All new offshore operational personnel are required to undertake this online training on commencement of the new role and two yearly thereafter. This training covers environmental legislative requirements, the facility EP, key environmental hazards and control measures (including waste management, spill prevention, chemical storage, wildlife interactions), environmental management tools, hazard and incident reporting, spill response, and environmental responsibilities.

7.9.4 Operations Competency Framework Training

The Operations Competency Guideline defines a framework to make sure all personnel on operating facilities are competent to perform their work and that competency is managed. By doing this, the potential for unplanned (accident/incident) type events that could result in environmental impact is minimised.

Operational Area Licence to Operate (LTO) roles are those roles related to oil and gas processing, equipment maintenance, marine regulations, emergency response and any other roles involved with safeguarding the facility integrity, including all roles where high-risk work licences are required.

Additionally, roles mandated by Woodside such as HSEC and helicopter landing officer are included in the LTO roles process.

The requisite competency and training for each LTO role has been defined. Competencies for these LTO roles are stipulated by the governance group for each respective position and are based on the applicable Australian or International standards. In cases where no Australian or International standards are available or applicable, training is based on the relevant Woodside Standard as determined by the respective governance group.

Contractors working on Woodside facilities are required to verify the competency of their personnel through the contractor's own verification systems. Additionally, contractor personnel working on Woodside facilities are required to be registered in Woodside's Contractor Verification Service (CVS) beforehand. Personnel registered in CVS have had their skills and qualifications independently verified on behalf of Woodside thereby confirming that contractor personnel hold the required competencies before mobilisation to the facility.

The LTO Roles Report (available online on the Woodside Competency Reporting Dashboard on the Production Academy Intranet page) provides the conformance status of the facility against the LTO roles requirements.

7.9.5 Permit to Work System Training

The ISSoW permit to work system is a key element in ensuring that all necessary steps are taken to ensure the safety of personnel, protection of the environment and technical integrity of the facility (Section 7.2.1). The ISSoW system takes a risk-based approach to all activities, thus tasks with higher levels of risk are subjected to greater scrutiny and control.

An overview of Woodside's hydrocarbon spill response training and competency requirements are provided in dashboards for key responder roles. The roles are consistent with Woodside's crisis and emergency management incident control structure (see Section 7.13). System is a key element in ensuring that all necessary steps are taken to ensure the safety of personnel, protection of the environment and technical integrity of the facility. The ISSoW system takes a risk-based approach to all activities, thus tasks with higher levels of risk are subjected to greater scrutiny and control.

All members of the workforce that are required to work with ISSoW (Section 7.2.1) receive training commensurate with the level of authority and responsibility they hold in ISSoW.

7.9.6 Emergency and Hydrocarbon Spill Response Training

All operations personnel involved in crisis and emergency management are required to commit to ongoing training, process improvement and participation in emergency and crisis response (both real and simulated), including emergency drills specific to potential incidents at the Scarborough facility.

Training includes task specific training and role-based training and 'on the job' experience Woodside Hydrocarbon Spill Preparedness Advisor(s) are responsible for maintaining hydrocarbon spill preparedness competency. This includes the identification and development of approved competency and non-competency-based courses, identification of relevant personnel required to undertake training and ensuring training records are maintained. Minimum Woodside capabilities will continue to be identified and documented.

7.9.7 Subsea Inspection, Monitoring, Maintenance and Repair Activity Environmental Awareness

At the beginning of, and during a new Subsea IMMR activity, the Support Vessel crew including contractor crew, Woodside representatives and other relevant personnel are required to undertake a vessel induction before commencing work. This induction covers HSE requirements for the vessel

and IMMR activities, and as required environmental information specific to the activity location. The induction may cover environmental information about:

- adherence to standards and procedures, and the use of Job Safety Analysis and permit to work hazard identification and management process
- spill management including prevention, response and clean-up, location of spill kits and reporting requirements
- waste management requirements and location of bins
- reporting of marine fauna, location of forms and charts
- chemical management requirements.

All personnel who undertake the project induction are required to sign an attendance sheet which is retained.

Regular HSE meetings are held on Support Vessels with crew. During these meetings, any environmental incidents are reviewed, and environmental awareness material presented.

7.9.8 Marine Fauna Observation Training

Relevant crew onboard AHT and LCVs will undertake Marine Fauna Observation (MFO) training before commencing project activities. MFOs will be implemented during FPU hook-up, which has an elevated underwater noise profile. Woodside and contractor personnel will be trained to deliver the MFO training ('train-the-trainer' model) by an external organisation specialising in marine environmental training, with expertise in marine fauna observations. Training materials will be developed by the external organisation in consultation with Woodside, to ensure activity specific information is incorporated. The bespoke training package will cover:

- an overview of Scarborough Project activities and the marine fauna that may be present during these activities
- an overview of the potential impacts and risks to marine megafauna, including PBW
- an overview of marine fauna that may be present during activities, including cetaceans and turtles.
- an overview of EP controls and management procedures relevant to marine fauna, including cetaceans (including PBW) presence and turtles identified in the EP.
- different types of cetaceans and turtle behaviours including PBW behaviours which includes the difference between foraging and migrating, and how to identify these based on the latest information on persistence in the area, dive time and swimming speed (Owen et al. 2016; AIMS unpublished data 2021; Thums & Ferreira 2021);
- precautionary approach to identification i.e. assume PBW if positive ID of different species type not possible
- the observation and reporting requirements.

When trained crew are undertaking observations, expectations are that:

- Observation equipment/tools are used as required (i.e. range-finding binoculars, marine megafauna ID prompts etc.).
- Escalation process carried out if cetaceans/PBW are identified to allow for implementation of adaptive management as required by controls throughout EP.
- Make and maintain records including the date, time and approximate distance from the vessel, and the action taken to comply with EPS.

Completion of PBW Observation Training (focusing on PBW) is a minimum requirement for those performing observations relevant to PBW mitigation/adaptive management measures in this EP

(such as C 4.4, C 4.5, C 4.6). Records will be maintained as evidence of the personnel who have completed PBW observation training.

For any trained crew who have not conducted PBW observations for greater than 12 months, refresher training is required prior to undertaking the role.

Training and competency is informed by a competency framework and tracked by a contractor MFO Coordinator who assures appropriate competency of trained vessel crew prior to them being allowed to perform MFO duties.

Bridge crew onboard crewed vessels (support vessels, ASV and LCV), transiting through the operational area that are undertaking FPU support/supply operations, IMMR or gravimetry activities will undertake marine fauna observations as part of their regular vessel observation duties. USVs will be remotely piloted from a remote operations centre and will undertake observations at all times using the built in cameras onboard the vessel. Controls relating to vessel separation from marine fauna (C.4.1, C 4.2, C 4.3) will be communicated to onboard crew and remote operations centre personnel through vessel inductions (Section 7.8.1).

7.9.9 Establishment of seabird handling capabilities

Woodside Environment Adviser(s) supporting activities that implement the Woodside Frontline Offshore Seabird Management Plan will be trained in its contents and use at least once every two years. Training will include at a minimum, a face-to-face information session with a Woodside Seabird Subject Matter Expert (SME) or similarly experienced Environment Adviser. Training for Woodside Environment Advisers will include:

- When to apply the Offshore Seabird Management Plan;
- When intervention with seabirds may be required;
- Safe handling of seabirds and short-term care; and
- Regulatory and other reporting of seabird encounters.

Training and awareness for relevant facility and vessel crew (i.e. Captain, First Officer and/or HSE Representative(s)) will involve delivery of a Woodside developed Presentation which outlines key elements of the Management Plan (as required by C3.3), including:

- Escalation protocol for seabird encounters to ensure approval and advice is obtained before handling seabirds;
- Handling of seabirds is considered a last resort and should only be undertaken if safe and critical to the safety of the bird or facility personnel;
- PPE and risk assessment requirements for safe bird handling;
- Short term care of seabirds and release methodologies.

7.9.10 Management of Training Requirements

All personnel on the FPU and Project Vessels are required to be competent to perform their assigned positions. This may be in the form of external or 'on the job' training. The vessel Safety Training Coordinator (or equivalent) is responsible for identifying training needs, keeping records of training performed and identifying minimum training requirements.

7.10 Monitoring, Auditing, Management of Non-conformance and Review

Regulation 22(5) of the Environment Regulations states that the implementation strategy is to provide for the monitoring, audit, management of non-conformance and review of operator's environmental performance and the implementation strategy itself.

This section of the EP outlines the measures undertaken by Woodside to regularly monitor the management of environmental risks and impacts of the Scarborough facility against the EPOs, EPSs and MCs, with a view to continuous improvement of environmental performance. The effectiveness of the implementation strategy is also reviewed periodically as part of the monitoring and assurance process.

7.10.1 Monitoring

Woodside and its contractors will perform a program of periodic monitoring during the Petroleum Activities Program – starting at mobilisation of each project activity and continuing through the duration of each activity-to-activity completion. This information will be collected using the tools and systems outlined below, developed based on the EPOs, controls, standards and MC in this EP. The tools and systems will collect, as a minimum, the data (evidence) referred to in the MC in Section 6.

The collection of this data (against the MC) will form part of the permanent record of compliance maintained by Woodside and will form the basis for demonstrating that the EPOs and standards are met, which will be summarised in a series of routine reporting documents.

7.10.1.1 Source-based Impacts and Risks

The tools and systems to monitor environmental performance, where relevant, will include:

- daily reports which include leading indicator compliance
- periodic review of waste management and recycling records
- use of contractor's risk identification program that requires recording and submitting safety and environment risk observation cards routinely (frequency varies with contractor)
- collection of evidence of compliance with the controls detailed in the EP relevant to offshore activities by the Woodside Offshore HSE Adviser (other compliance evidence is collected onshore)
- environmental discharge reports that record volumes of planned and unplanned discharges, to ocean and atmosphere
- internal auditing and assurance program as described in Section 7.10.2.

A summary of monitoring and quantitative records of emissions and discharges that will be kept and used to assess environmental performance is provided in Table 7-7.

Throughout this activity, Woodside will continuously identify new source-based risks and impacts through the Monitoring and Auditing systems and tools described above and in Section 7.10.1.2.

Other assurance tasks implemented through the EP include (as examples only):

- start of shift operator walk arounds
- permit to work hazard, risk management check list, area sign-on, and permit audits (ISSoW – Section 7.2.1)
- technical integrity SCE performance reviews (daily, weekly, monthly) (Section 7.2.8)
- ongoing maintenance performance assurance (e.g. conformance dashboard)
- management system performance audits reviews (e.g. MSPSs) (Section 7.10.1.2)
- data gathering and governance dashboard presentations (e.g. Woodside Integrated Risk and Compliance System).

Table 7-7: Summary of emissions and discharges monitoring for the Petroleum Activities Program

Category	Parameter to be Monitored/Reported	Monitoring Frequency	Monitoring Equipment/ Methodology	EP Reference
Planned Emissions				
Atmospheric emissions	Greenhouse, energy and criteria pollutants	Normally continuous process metering/annual reporting	NGERS and NPI reporting estimation methods (e.g. fuel/flare flowmeters, throughput meters, process estimation)	Section 6.7.6
	Fuel gas and flare intensity	Normally continuous process metering/monthly reviews	Fuel and flare flowmeters inform intensity profiles – tracked against optimisation targets	Section 6.7.6
Planned Discharges				
Discharge of subsea control fluids during valve actuations	Subsea control fluid consumption	Normally continuous process indication/monthly review	Subsea control fluid consumption surveillance. Process indication for gross leaks/ruptures	Section 6.7.12
Discharge of hydrocarbons and chemicals during subsea IMMR activities	Volumes of hydrocarbons and chemicals released subsea	As required, during IMMR activities (activity specific)	Estimates based on known volumes pumped and ROV observation	Section 6.7.12
Discharge of produced water	Volume discharged overboard	Normally continuous process indication/monthly review	PW flowmeter(s), process estimation	Section 6.7.11 / 7.2.5
	OIW concentration of discharged PW	Normally continuous process indication/monthly review	Normally continuous process metering/monthly review	
	Chemical characterisation	Annually	Characterisation of end of pipe sample	
	WET testing	Three yearly	PW ecotoxicity testing	
Waste recycling and disposal	Quantities of solid and liquid wastes disposed of onshore	Ongoing	Facility waste manifest	Section 6.8.8
Unplanned Emissions and Discharges				
Unplanned emissions and discharges	Nature of release	As required	HSEQ Event Reporting System (First Priority)	Section 6.7.13

7.10.1.2 Management of Newly Identified Impacts and Risks

New sources of receptor-based impacts and risks identified through monitoring and auditing and the Woodside Environment Knowledge Management System are assessed using the Change Management Process (Section 7.2.7).

7.10.1.3 Management of Knowledge

Review of knowledge relevant to the existing environment is undertaken in order to identify changes relating to the understanding of the environment or legislation that supports the risk and impact assessments for EPs (in-force and in-preparation).

The frequency and documentation of reviews, communication of relevant new knowledge and consideration of management of change are documented in the WMS Environment Plan Guideline. Relevant knowledge is defined as:

- environmental science supporting the description of the existing environment
- socio-economic environment and stakeholder information
- environmental legislation.

The frequency and documentation of reviews, communication of relevant new knowledge and consideration of management of change are documented in the WMS Environment Plan Guideline.

Under the Oil Spill Scientific Monitoring Program preparedness, an annual review and update to the environmental baseline studies database is completed and documented. Periodic location-focused environmental studies and baseline data gap analyses are completed and documented. Any subsequent studies scoped and executed as a result of such gap analysis are managed by the Environment Science Team and tracked via the Corporate Environment Baseline Database.

7.10.2 Auditing

Environmental performance auditing will be performed to:

- identify potential new or changes to existing environmental impacts and risk, and methods for reducing those to ALARP
- confirm that mitigation measures detailed in this EP are effectively reducing environmental impacts and risk, that mitigation measures proposed are practicable and provide appropriate information to verify compliance
- confirm compliance with the Performance Outcomes, Controls and Standards detailed in this EP.

Internal auditing will be performed to cover each key project activity as summarised below.

7.10.2.1 Floating Production Unit Hook-up and Commissioning Activities

The following internal assurance will be performed during Hook-up and Commissioning:

- Pre-mobilisation inspection/audit report will be conducted by a relevant person (before commencing). The scope of the audits are risk-based and specific to the relevant activity, but will generally focus on aspects relating to ensuring appropriate understanding of environmental commitments and the operational readiness of the activity scope, including appropriate environmental controls in place. All LCVs associated with the above scopes will be audited by Woodside or a delegate. Project Vessels will be assessed on a risk-based approach but will be audited via the primary subsea installation contractor's process.
- Contractor-specific HSE audits will also be conducted of the associated Support Vessels. The audits will consider the implementation of HSE management, risk management, as well as pre-mobilisation and offshore readiness.
- Vessel based HSE inspections will be conducted fortnightly by vessel HSE personnel (or delegate). Each inspection will focus on a specific risk area relevant to the project activity and a formal report will be issued (for example, bunkering controls, chemical and discharge management, cetacean reporting, etc).

- Woodside will assure satisfactory completion of the FPU and its relative sub-components/systems through the completions management process. Each component has a test record (Inspection Test Record, Functional Test Record, Commissioning Test Procedure) requiring completion and validation. Collation of all records for a system are used to demonstrate system completion via a System Acceptance Certificate.
- The internal audits and reviews, combined with the ongoing monitoring described in Section 7.10.1, and collection of evidence for MC are used to assess EPOs and standards.

As part of Woodside's EMS and/or assurances processes, activities may also be periodically selected for environmental audits as per Woodside's internal auditing process. Audit, inspection and review findings relevant to continuous improvement of environmental performance are tracked through the Environmental Commitments and Actions Register.

This Environmental Commitments and Actions Register is used to track Support Vessel and subsea activity compliance with EP commitments, including any findings and corrective actions.

7.10.2.2 Operations Assurance

Assurance is performed as described in the Provide Assurance Procedure and the Provide Assurance Guideline to provide confidence, based on evidence commensurate with risk, that business objectives are met, business activities are performed, and risks are managed. The Guideline aims to explain how the Operations Division Assurance Team implement WMS Assurance requirements, while concurrently satisfying the Operations Division's specific objectives.

Operations Assurance Assignments are contained within the Operations Division Integrated Assurance Assignment Plan.

Environmental assurance activities are conducted on a regular basis to:

- verify environmental risks and potential impacts are being managed in accordance with the EPOs and EPSs detailed in this EP
- monitor, review and evaluate the effectiveness of the performance outcomes and standards detailed in this EP
- verify effectiveness of the EP implementation strategy
- identify potential non-conformances.

The outputs of the assurance process are corrective actions that feed the improvement process. Therefore, assurance is a key driver of continuous improvement.

7.10.2.3 Inspection and Audits – Operations

Environmental inspections of Support Vessels will be undertaken. This involves annual inspection of Woodside's long-term hire Support Vessels for compliance with both the EP and the approved contractor management system. Short-term hire vessels are inspected dependent on the nature of the activity the vessel is undertaking and its level of environment risk. Inspections are conducted in line with the contractor implementation package, however, may include additional requirements for project specific inspection items.

Vessel Inspection findings are captured within a closeout report. Actions arising from subsea Support Vessel environmental audits are tracked through the Environment Vessel Inspection Register and Woodside's action tracking system.

As part of Woodside's EMS and/or assurances processes, activities may also be periodically selected for environmental audits as per Woodside's internal auditing process. Audit, inspection and review findings relevant to continuous improvement of environmental performance are tracked through the Environmental Commitments and Actions Register.

This Environmental Commitments and Actions Register is used to track subsea Support Vessel and subsea activity compliance with EP commitments, including any findings and corrective actions.

Non-conformances identified will be reported and/or tracked in accordance with Section 7.10.3.

7.10.2.4 Annual Offshore Inspection/Desktop Review

An inspection/review of the FPU will be undertaken every calendar year by the Production Environment Team, via either an offshore inspection or desktop review. Selected risk areas/activities are inspected to review environmental performance against the EPOs and EPSs and verify that control measures are effective in reducing the environmental risks and impacts of the activity to an ALARP and acceptable level.

The inspection/review also includes review of conformance with selected aspects of the EP implementation strategy. All risk sources/activities applicable to the offshore facility will be reviewed over a three-year rolling period. Records of findings and records of close-out of any corrective or improvement actions are maintained (close-out is tracked in Woodside's action tracking system).

7.10.2.5 Marine Assurance

Woodside's marine assurance is managed in accordance with Woodside's Marine Offshore Vessel Assurance Procedure. The Woodside process is based on industry standards and consideration of guidelines and recommendations from recognised industry organisations such as Oil Companies International Marine Forum and International Maritime Contractors Association.

Woodside's Marine Offshore Assurance process is mandatory for all vessels (other than Tankers and Floating Production Storage and Offloading vessels) that are chartered directly by or on behalf of Woodside, including for short term hires (i.e. <3 months in duration). It defines applicable marine offshore assurance activities, ensuring all vessel operators operate seaworthy vessels that meet the requirements for a defined scope of work and are managed with a robust Safety Management System.

The process is multi-faceted and encompasses the marine assurance activities of:

- Safety Management System Assessment
- Dynamic Positioning (DP) System Verification
- Vessel Inspections
- project support for tender review, evaluation and pre/post contract award.

Vessel inspections are used to verify actual levels of compliance with the Woodside's Safety Management System, the overall condition of the vessel and the status of the planned maintenance system onboard. Woodside Marine Assurance Specialist will conduct a risk assessment on the vessel to determine the level of assurance applied and the type of vessel inspection required.

Methods of vessel inspection may include, and are not limited to:

- Woodside Marine Vessel Inspection
- OCIMF OVID Inspection
- IMCA CMID Inspection
- Marine Warranty Survey.

Upon completion of the marine assurance process, to confirm that identified concerns are addressed appropriately and conditions imposed are managed, the Woodside Marine Assurance Team will issue the vessel a statement of approval. Should a proposed vessel not meet the requirements of the Woodside Marine Offshore Vessel Assurance Process and be rejected, there does exist an opportunity to further scrutinise the proposed vessel.

Where a vessel inspection and/or OVMSA Verification Review is not available and all reasonable efforts based on time and resource availability to complete an vessel inspection and/or OVMSA Verification Review are performed (i.e. short term vessel hire), the Marine Assurance Specialist Offshore may approve the use of an alternate means of inspection, known as a risk assessment.

7.10.2.6 Risk Assessment

Woodside conducts a risk assessment of vessels where either an OVMSA Verification Review and/or vessel inspection cannot be completed. This is not a regular occurrence and is typically used when the requirements of the assurance process are unable to be met or the processes detailed are not applicable to a proposed vessel(s). The Marine Vessel Risk Assessment will be conducted by the Marine Assurance Specialist, where the vessel meets the short-term hire prerequisites.

The risk assessment is a semi-quantitative method of determining what further assurance process activity, if any, is required to assure a vessel for a particular task or role. The process compares the level of management control a vessel is subject to against the risk factors associated with the activity or role.

Several factors are assessed as part of a vessel risk assessment, including:

- management control factors:
 - Woodside audit score (i.e. management system)
 - vessel HSE incidents
 - vessel Port State Control deficiencies
 - instances of Port State Control vessel detainment
 - years since previous satisfactory vessel inspection
 - age of vessel
 - contractors' prior experience operating for Woodside
- activity risk factors:
 - people health and safety risks (a function of the nature of the work and the area of operation)
 - environmental risks (a function of environmental sensitivity, activity type and magnitude of potential environment damage (e.g. largest credible oil spill scenario))
 - value risk (likely time and cost consequence to Woodside if the vessel becomes unusable)
 - reputation risk
 - exposure (i.e. exposure to risk based on duration of project)
 - industrial relations risk.

The acceptability of the vessel or requirement for further vessel inspections or audits is based on the ratio of vessel score to activity risk. If the vessel management control is not deemed to appropriately manage activity risk, a satisfactory Woodside audit and/or vessel inspection may be required before awarding work.

The risk assessment is valid for the period a vessel is on hire and for the defined scope of work.

7.10.3 Management of Non-conformance

Woodside classifies non-conformances with EPOs and standards in this EP as environmental incidents. Woodside employees and contractors are required to report all environmental incidents, and these are managed as per Woodside's internal event recording, investigation and learning requirements.

An internal computerised database called First Priority is used to record and report these incidents. Details of the event, immediate action taken to control the situation, investigation outcomes and

corrective actions to prevent reoccurrence are all recorded. Corrective actions are monitored using First Priority and closed out in a timely manner.

Woodside uses a consequence matrix for classification of environmental incidents, with the significant categories being A, B and C (as detailed in Section 2.3). Detailed investigations are completed for all categories A, B, C and high potential environmental incidents.

7.10.4 Review

7.10.4.1 Management Review

Within Woodside's Environment Division, senior management regularly monitor and review environmental performance and the effectiveness of managing environmental risks and performance. Within each Business Unit Leadership Team (e.g. Operations), managers review environmental performance regularly, including through quarterly HSE review meetings.

Woodside's Environment Team will perform six-monthly reviews of the effectiveness of the implementation strategy and associated tools. This will involve reviewing the:

- activity environment KPIs (leading and lagging)
- tools and systems to monitor environmental performance (detailed in Section 7.10.1)
- lessons learned about implementation tools and throughout each campaign phase.

Reviews of oil spill arrangements and testing are performed in accordance with Section 7.13.7.

7.10.4.2 Learning and Knowledge Sharing

Learning and knowledge sharing occurs via a number of different methods including:

- event investigations
- event bulletins
- after action review conducted at the end of each well, including review of environmental incidents as relevant
- ongoing communication with Project Vessel and facility operators
- formal and informal industry benchmarking
- cross asset learnings
- engineering and technical authorities discipline communications and sharing.

7.10.4.3 Review of Impacts, Risks and Controls Across the Life of the Environment Plan

In the event that activities described in this EP do not occur continuously or sequentially, before recommencing activities after a cessation period greater than 12 months, impacts, risks and controls will be reviewed.

The process will identify or review impacts and risks associated with the newly-commencing activity, and will identify or review controls to ensure impacts and risks remain/are reduced to ALARP and acceptable levels. Information learned from previous activities conducted under this EP will be considered. Controls which have previously been excluded on the basis of proportionality will be reconsidered. Any required changes will be managed by the MOC process outlined below (Section 7.2.7).

7.10.4.4 Program of Ongoing Engagement with Traditional Custodians

Woodside will undertake an annual review of the Program of Ongoing Engagement with Traditional Custodians (Appendix G: Program of Ongoing Engagement with Traditional Custodians) to

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Controlled Ref No: SA0006AF0000022

Revision: 3

Woodside ID: 1401801827

Page 680 of 752

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determine its effectiveness and adapt the program accordingly. The annual review will also include an assessment of appropriateness of the methods used to undertake ongoing consultation with Traditional Custodians.

7.10.5 Ongoing Consultation

Although consultation is complete for the purpose of Regulation 25 of the Environment Regulations, in accordance with Regulation 22(15) of the Environment Regulations, the implementation strategy must provide for appropriate consultation with relevant authorities of the Commonwealth, a State or Territory and other relevant interested persons or organisations.

Woodside proposes to undertake the engagements with directly impacted relevant persons or organisations listed in Section 5. Relevant new information identified during ongoing consultation will be assessed using the EP Management of Knowledge (refer to Section 7.10.1.2) and Management of Change Process (refer to Section 7.2.7).

Any significant changes on this activity will be communicated to relevant persons. Woodside hosts community forums at which members are updated on Woodside activities. These community and heritage meetings are held on a regular basis (for example, Karratha Community Liaison Group, Exmouth Community Liaison Group). Representatives are from community and industry and include Woodside, State Government (for instance relevant Regional Development Commissions), Local Government, Indigenous Groups, Industry representative bodies, Community and industry organisations.

Relevant persons and those who are interested in the activities, can remain up to date on this activity through subscribing to Woodside's website or by reading the publicly available version of the EP on NOPSEMA's website, where available.

Should consultation feedback be received following EP acceptance that identifies relevant new information or a measure or control that requires implementation or update to meet the intended outcome of consultation (see Section 5.2), Woodside will apply its EP Management of Knowledge process (refer to Section 7.10.1.2) and Management of Change Process (refer to Section 7.2.7), as appropriate.

Woodside has developed a Program of Ongoing Engagement with Traditional Custodians (Appendix G), which is compliant with Corporate Woodside Policies, Strategies and procedures and directly informed by feedback from Traditional Custodians. It provides a mechanism for ongoing dialogue so that Traditional Custodians can, on an ongoing basis, provide Woodside with feedback relating to the activity and in relation to caring for and managing country, including Sea Country. The Program will be tailored to each Traditional Custodian group and, as agreed with relevant Traditional Custodians, may include:

- social investment to support Indigenous ranger programs
- support for Indigenous oil spill response capabilities
- support for recording Sea Country values
- support to Traditional Custodian groups to build capabilities and capacity with respect to ability to engage with Woodside and the broader O&G industry on activities
- development of ongoing relationships with Traditional Custodian groups
- any other initiatives proposed for the purpose of protecting Country including cultural values.

At the time of EP submission, a number of specific activities as part of ongoing consultation regarding the activity are planned with Traditional Custodian Relevant Persons. These are described in Appendix G: Program of Ongoing Engagement with Traditional Custodians. Where Traditional Custodian relevant persons have requested information or further engagement considered as ongoing consultation, but have not requested a framework agreement, these

requests have been captured in Table 7-8. However, a framework agreement may still be initiated by these groups at any time.

Table 7-8: Ongoing consultation engagements

Report/ Information	Recipient	Purpose	Frequency	Content
Appendix G: Program of Ongoing Engagement with Traditional Custodians	Relevant cultural authorities	Identification, assessment and consideration of cultural values relevant to the Operational Area and EMBA	Ongoing	Assessment of cultural values. Any relevant new information on cultural values will be assessed using the EP Management Knowledge Process (Section 7.10.1.2) and Management of Change Process (refer to Section 7.2.7).
Emails/ Meetings	Relevant cultural authorities	Identification, assessment and consideration of cultural values relevant to the Operational Area and Consultation Area	Ongoing	Assessment of cultural values. Any relevant new information on cultural values will be assessed using the EP Management Knowledge Process (Section 7.10.1.2) and Management of Change Process (refer to Section 7.2.7).
Notification (email)	AHO	As requested by AHO during consultation.	No less than 4 weeks prior to commencement.	C1.5 (Section 6.7.1) Date of activity start.
Updates (email)			As required.	Changes to planned activities
Notification (email)	AMSA – Marine Safety	Standard practice	At least 24-48 hours before operations commence and at the end of activities.	PS 1.6.1 (Section 6.7.1) Date of activity start.
Update (email)			Provide updates to the AHO and JRCC should there be changes to the activity.	Changes to planned activities
Notification (email)	DoD	As requested by DoD during consultation	Five weeks prior to commencement of activities.	PS 1.9.1 (Section 6.7.1) Date of activity start.
Notification (email)	DEMIRS	Good practice	At least 10 days prior to commencement	Activity start date
Notification (email)	AFMA WAFIC CFA DAFF – Fisheries DPIRD Recfishwest Individual relevant Commonwealth fishery licence holders (in the	Good practice	No less than 10 days prior to commencement and following completion of activities.	PS 1.8.1 (Section 6.7.1) Date of activity start and end.

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Report/ Information	Recipient	Purpose	Frequency	Content
	Operational Area)			
Notification (email)	Adjacent Titleholders (subject to change): <ul style="list-style-type: none"> • Chevron • Western Gas 	As requested by Chevron and Western Gas during consultation in relation to gravimetry activities.	Prior to commencement of gravimetry activities with allowance of time to develop an ingress agreement if requested by adjacent titleholder.	PS 1.11 (Section 6.7.1) Date of Activity Start
Notification (email)	WA Museum Australasian Underwater Cultural Heritage Database. Any other stakeholders as required in the Unexpected Find Procedure (Section 7.8)	Report any unexpected finds of potential Underwater Cultural Heritage	If triggered by Unexpected Finds Procedure (Section 7.7)	Refer to Unexpected Finds Procedure (Section 7.8) and C 2.2
Notification (email)	Other relevant persons	Notification of significant change	As appropriate	Notification of significant change
Emails/ meetings	Persons or organisations who provide feedback to Woodside post EP submission.	Identification, assessment and consideration of feedback, claims and/or objections	As appropriate	Assessment of claims and/or objections. Relevant new information will be assessed using the EP Management of Knowledge (refer to Section 7.10.1.2) and Management of Change Process (refer to Section 7.2.7).

7.11 Record Keeping

Compliance records (outlined in MC in Section 6) will be maintained.

Record keeping will be in accordance with Regulation 22(6) of the Environment Regulations, which addresses maintaining records of emissions and discharges.

7.12 Reporting

To meet the EPOs and EPSs outlined in this EP, Woodside reports at a number of levels, as outlined in the next sections.

7.12.1 Routine Reporting (Internal)

7.12.1.1 Daily Progress Reports and Meetings

The daily reports issued, containing environmental performance information, are:

- daily reports for project execution activities
- pan-Woodside Daily Production Report – the report includes facility performance information on production and a log of any HSE events

- Support Vessel Daily Progress Report(s) – during subsea IMMR activities, daily reports are issued by the Woodside Site Representative. The reports provide performance information on HSE events, diesel use, together with equipment information, current and planned work activities.

Daily reports for activities are prepared and issued to key support personnel and relevant persons, by relevant managers responsible for the well. The report provides performance information about installation activities, health, safety and environment, and current and planned work activities.

Meetings between key personnel are used to transfer information, discuss incidents, agree plans for future activities and develop plans and accountabilities for resolving issues.

7.12.1.2 Regular Health, Safety and Environment Meetings

Regular dedicated HSE meetings are held with the offshore and Perth-based management and advisers to address targeted HSE incidents and initiatives. Minutes of these meetings are produced and distributed as appropriate.

7.12.1.3 Performance Reporting

Monthly and quarterly performance reports are developed and reviewed by the Function and Business Unit Leadership Teams. These reports cover a number of subject matters, including:

- HSE incidents (including high potential incidents and those related to this EP) and recent activities
- corporate KPI targets, which include environmental metrics
- outstanding actions as a result of audits or incident investigations
- technical high and low lights.

7.12.2 Routine Reporting (External)

7.12.2.1 Start and End Notifications of the Petroleum Activities Program

Prior to hook-up, commissioning and start-up project activities, in accordance with Regulation 54, Woodside will notify NOPSEMA of the commencement of the Petroleum Activities Program at least ten days before the activity commences and will notify NOPSEMA within ten days of completing the activity. Once initial start-up of the facility has been completed, the FPU will remain in place and be supported by various vessels (Section 3.11), start and end of activity notifications will be undertaken as per controls in Section 6.7.1.

The EP will end when Woodside notifies NOPSEMA that the Petroleum Activities Program has ended, all of the obligations identified in this EP have been completed, and NOPSEMA has accepted the notification, in accordance with Regulation 46 of the Environment Regulations.

7.12.2.2 Environmental Performance Review and Reporting

In accordance with applicable environmental legislation for the activity, Woodside is required to report information about environmental performance to the appropriate regulator. Regulatory reporting requirements are summarised in Table 7-9.

Table 7-9: Routine external reporting requirements

Report	Recipient	Frequency	Content
Monthly Recordable Incident Reports	NOPSEMA	Monthly, by the 15th of each month.	Details of recordable incidents that have occurred during the Petroleum Activities Program for previous month (if applicable).
Environmental Performance Report	NOPSEMA	Annually, with the first report submitted within 12 months of the commencement of the Petroleum Activities Program covered by this EP (as per the requirements of Regulation 22(7)).	Compliance with EPOs, controls and standards outlined in this EP, in accordance with the Environment Regulations.
National Pollutant Inventory (NPI) Report	DAWE	Annual, by 30 September each year	Summary of the emissions to land, air and water including those from the facility. Reporting period 1 July to 30 June each year.
National Greenhouse and Energy Reporting (NGERS)	Clean Energy Regulator	Annual, by 31 October each year	Summary of energy use and greenhouse gas emissions including those from the facility. Reporting period is 1 July to 30 June each year.

7.12.2.3 End of the Environment Plan

The EP will end when Woodside notifies NOPSEMA that the Petroleum Activities Program has ended and all of the obligations identified in this EP have been completed, and NOPSEMA has accepted the notification, in accordance with Regulation 46 of the Environment Regulations.

7.12.3 Incident Reporting (Internal)

All Woodside employees and contractors are responsible for reporting environmental incidents in accordance with Woodside and regulatory reporting requirements as detailed in the Woodside HSE Event Reporting and Investigation Procedure and this section of this EP.

7.12.4 Incident Reporting (External) – Reportable and Recordable

7.12.4.1 Reportable Incidents

Definition

A reportable incident is defined under Regulation 5 of the Environment Regulations as:

“an incident relating to the activity that has caused, or has the potential to cause, moderate to significant environmental damage”.

A reportable incident for the Petroleum Activities Program is:

- an incident that has caused environmental damage with a Consequence Level of Moderate C+ or above (as defined under Woodside’s Risk Table (refer to Section 2.3.2)).
- an incident that has the potential to cause environmental damage with a Consequence Level of Moderate C+ or above (as defined under Woodside’s Risk Table (refer to Section 2.3.2)).

The environmental risk assessment for the Petroleum Activities Program (Section 6) identified one risk with a potential consequence level of C+ for environment, a vessel collision resulting in a hydrocarbon spill. All incidents with actual or potential environmental consequences will be investigated. Where an actual or potential environment consequence of C+ is identified this incident will still be classified as a reportable incident and appropriate notifications completed.

Any such incidents represent potential events which would be reportable incidents. Incident reporting is performed with consideration of NOPSEMA (2014) guidance stating, 'if in doubt, notify NOPSEMA', and assessed on a case-by-case basis to determine if they trigger a reportable incident as defined in this EP and by the Regulations.

Notification

NOPSEMA will be notified of all reportable incidents, according to the requirements of Regulations 47, 48 and 49 of the Environment Regulations. Woodside will:

- report all reportable incidents to the regulator (orally) ASAP, but within two hours of the incident or of its detection by Woodside
- provide a written record of the reported incident to NOPSEMA, the National Offshore Petroleum Titles Administrator (NOPTA) and the Department of the responsible State Minister (DEMIRS) ASAP after orally reporting the incident
- complete a written report for all reportable incidents using a format consistent with the NOPSEMA Form FM0831 – Reportable Environmental Incident which must be submitted to NOPSEMA ASAP, but within three days of the incident or of its detection by Woodside
- provide a copy of the written report to the NOPTA and DEMIRS, within seven days of the written report being provided to NOPSEMA.

AMSA will be notified of oil spill incidents ASAP after their occurrence, and DCCEEW notified if MNES are to be affected by the oil spill incident.

7.12.4.2 Recordable Incidents

Definition

A recordable incident as defined under Regulation 5 of the Environment Regulations is an incident arising from the activity that 'breaches an environmental performance outcome or environmental performance standard, in the EP that applies to the activity, that is not a reportable incident'.

Notification

NOPSEMA will be notified of all recordable incidents, according to the requirements of Regulation 50(2)(b) of the Environment Regulations, no later than 15 days after the end of the calendar month using the NOPSEMA Form – Recordable Environmental Incident Monthly Summary Report detailing:

- all recordable incidents that occurred during the calendar month
- all material facts and circumstances concerning the recordable incidents that the operator knows or is able, by reasonable search or enquiry, to find out
- any action taken to avoid or mitigate any adverse environment impacts of the recordable incidents
- the corrective action that has been taken, or is proposed to be taken, to prevent similar recordable incidents
- the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future.

7.12.4.3 Other External Incident Reporting Requirements

In addition to the notification and reporting of environmental incidents defined under the Environment Regulations and Woodside requirements, Table 7-10 describes the incident reporting requirements that also apply to the Petroleum Activities Program.

Table 7-10: External incident reporting requirements

Event	Responsibility	Notifiable party	Notification requirements	Contact	Contact detail
Any marine incidents during Petroleum Activities Program	Vessel Master	AMSA	Incident Alert Form 18 as soon as reasonably practicable* Within 72 hours after becoming aware of the incident, submit Incident Report Form 19	AMSA	
Oil pollution incidents in Commonwealth waters	Vessel Master	AMSA Rescue Coordination Centre (RCC)	As per Article 8 and Protocol I of MARPOL within two hours via the national emergency 24hour notification contacts and a written report within 24 hours of the request by AMSA	AMSA RCC Australia	If the ship is at sea, reports are to be made to: Free call: 1800 641 792 Phone: 08 9430 2100 (Fremantle)
Oil pollution incidents in Commonwealth waters	Vessel Master	AMSA	Without delay as per <i>Protection of the Sea Act</i> , part II, section 11(1), AMSA RCC notified verbally via the national emergency 24-hour notification contact of the hydrocarbon spill; follow up with a written Pollution Report ASAP after verbal notification	RCC Australia	Phone: 1800 641 792 or +61 2 6230 6811 AFTN: YSARYCYX
Any oil pollution incident which has the potential to enter a National Park or requires oil spill response activities to be conducted within a National Park	Vessel Master	DCCEEW	Reported verbally, ASAP	Director of National Parks	Phone: 02 6274 2220
Activity causes unintentional death of or injury to fauna species listed as Threatened or Migratory under the EPBC Act	Vessel Master	DCCEEW	Within seven days of becoming aware	Secretary of the DCCEEW	Phone: 1800 803 772 Email: protected.species@environment.gov.au

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Other activities that should also be reported to AMSA via RCC Australia by the Vessel Master are:

- loss of plastic material
- garbage disposed of in the sea within 12 nm of land (garbage includes food, paper, bottles, etc)
- any loss of hazardous materials.

For oil spill incidents, other agencies and organisations will be notified as appropriate to the nature and scale of the incident as per procedures and contact lists in the Oil Pollution Emergency Arrangements (Australia) and the Scarborough Project Offshore Facility and Trunkline (Operation) First Strike Plan (Appendix I: Oil Pollution First Strike Plan).

External incident reporting requirements under the *Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009* (Cth), including under regulation 2.42, notices and reports of dangerous occurrences will be reported to NOPSEMA under the approved activity safety cases.

7.13 Emergency Preparedness and Response

7.13.1 Overview

Under Regulation 22(8) of the Environment Regulations, the implementation strategy must contain an Oil Pollution Emergency Plan (OPEP) and provide for updating the OPEP. Regulation 22(9) of the Environment Regulations outlines the requirements for the OPEP which must include adequate arrangements for responding to and monitoring oil pollution.

A summary of how this EP and supporting documents address the various requirements of Environment Regulations relating to oil pollution response arrangements is shown in Table 7-11.

Table 7-11: Oil pollution and preparedness and response overview

Content	Environment Regulations Reference	Document/Section Reference
Details of (oil pollution response) control measures that will be used to reduce the impacts and risks of the activity to ALARP and an acceptable level.	Regulation 22 (8), (9)	Appendix H: Oil Spill Preparedness and Response Mitigation Assessment
Describes the OPEP	Regulation 22(9)	EP: Woodside's oil pollution emergency plan has the following components: Woodside Oil Pollution Emergency Arrangements (Australia) Appendix I: Oil Pollution First Strike Plan Appendix H: Oil Spill Preparedness and Response Mitigation Assessment In accordance with Regulation 56 of the Environmental Regulations the Woodside Oil Pollution Emergency Arrangements (Australia) was provided with the Scarborough Drilling and Completions EP, accepted by NOPSEMA on 1 December 2023.
Details the arrangements for responding to and monitoring oil pollution (to inform response activities), including control measures	Regulation 22(10)	Appendix H: Oil Spill Preparedness and Response Mitigation Assessment Appendix I: Oil Pollution First Strike Plan
Details the arrangements for updating and testing the oil pollution response arrangements	Regulation 22(12), (13)	EP: Section 7.13.5 Appendix H: Oil Spill Preparedness and Response Mitigation Assessment

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Content	Environment Regulations Reference	Document/Section Reference
Details of provisions for monitoring impacts to the environment from oil pollution and response activities	Regulation 22(10)	Appendix H: Oil Spill Preparedness and Response Mitigation Assessment
Demonstrates that the oil pollution response arrangements are consistent with the national system for oil pollution preparedness and control	Regulation 22(11)	Oil Pollution Emergency Arrangements (Australia)

7.13.2 Emergency Response Training

Regulation 22(4) of the Environment Regulations requires that the implementation strategy includes measures to ensure that employees and contractors have the appropriate competencies and training. Woodside has conducted a risk-based training needs analysis on positions required for effective oil spill response. Following the mapping of training to Woodside identified competencies, training was then mapped to positions based on their required competencies (Table 7-12).

Table 7-12: Minimum levels of competency for key Incident Management Team positions

Position	Minimum Competency
Corporate Incident Management Team (CIMT) Incident Commander and Deputy Incident Commander	Incident and Crisis Leadership Development Program (ICLDP) IMO2 or equivalent spill response specialist level with an oil spill response organisation (OSRO) Participation in L2 oil spill skills (initial) Participation in L2 oil spill skills (refresher) ICS 100/200
Operations, Planning, Logistics and Finance Sections, and other rostered members of the CIMT	OSR Theory (e.g., Oil Spill Response Skills Enhancement Course (OSREC) CIMT Fundamentals Course (internal course). Participation in L2 oil spill skills (initial) Participation in L2 oil spill skills (refresher) ICS 100/200
Environment Unit Leader	CIMT Fundamentals. IMO2 or equivalent spill response Specialist level with an OSRO Participation in L2 oil spill skills (initial) Participation in L2 oil spill skills (refresher) ICS 100/200

Note on competency/equivalency

In 2018, Woodside undertook a review of incident and crisis systems, processes and tools to assess whether these were fit-for-purpose and has rolled out a change to the Incident and Crisis Management training and the Oil Spill Response training requirements for both CIMT and field-based roles.

The revised CIMT Fundamentals Training Program and Incident and Crisis Leaders Development Program (ICLDP) align with the performance requirements of the *PMAOMIR320 – Manage Incident Response Information* and *PMAOMOR418 – Coordinate Incident Response*.

Regarding training-specific equivalency:

ICLDP is mapped to *PMAOMOR418* (which is equivalent to IMO3 when combined with Woodside’s OSREC course) and ensures broader incident management principles aligned with Australasian Inter-service Incident Management System (AIIMS).

The revised CIMT Fundamentals Course is mapped to *PMAOMIR320* (which is equivalent to IMO2). The blended learning program offers modules aligned to IMO3, IMO2, IMO1 and Australian Marine Oil Spill Centre Core Group Training Oil Spill Response Organisation Specialist level training.

OSREC involves the completion of two online AMSA Modules (Introduction to National Plan and incident management, and Introduction to oil spills) as well as elements of IMO1 and IMO2 tailored to Woodside-specific oil spill response capabilities.

Woodside Learning Services (WLS) are responsible for collating and maintaining personnel training records. The Hydrocarbon Spill Preparedness Dashboard reflects the competencies required for each oil spill role (IMT/operational).

7.13.3 Emergency Response Preparation

The CIMT, based in Woodside's head office in Perth, is the onshore coordination point for an offshore emergency. The CIMT is staffed by a roster of appropriately skilled personnel available on call 24 hours a day. The CIMT, under the leadership of the CIMT Leader, supports the site-based Incident Management Team by providing additional support in areas such as operations, logistics, planning, people management and public information (corporate affairs). A description of Woodside's Incident Command Structure and arrangements is further detailed in the Woodside Oil Pollution Emergency Arrangements (Australia).

Woodside will have an Emergency Response Plan (ERP) in place relevant to the Petroleum Activities Program. The ERP provides procedural guidance specific to the asset and location of operations to control, coordinate and respond to an emergency or incident.

In addition, the Emergency Preparedness MSPS (M06) is in place to assure that in the event of an incident, the organisation is appropriately prepared for all necessary actions which may be required for the protection of People, Environment, Asset, Reputation and Livelihood.

For a vessel activity, the ERP will be a bridging document to the contracted vessel's emergency documentation. This document summarises the emergency command, control and communications processes for the integrated operation and management of an emergency. It is developed in collaboration with the contracted vessel and enables roles and responsibilities between the contracted vessel and Woodside personnel to be identified and understood. The ERPs will contain instructions for vessel emergency, medical emergency, search and rescue, reportable incidents, incident notification, contact information and activation of the contractor's emergency centre and Woodside Communication Centre (WCC).

7.13.3.1 Initial Response to Facility Incident

The FPU is equipped with emergency shutdown systems designed to protect personnel, the FPU and the environment from unsafe operating conditions and catastrophic situations.

Emergency shutdown systems are provided as a means of isolation in response to process upsets and FPU conditions (including associated flowlines and risers) that could result in loss of hydrocarbon inventories, or to reduce the potential impact from a hydrocarbon loss of containment event on the facility. Provision has been made for process and FPU alarm systems to provide early indication of any process upset conditions and potential hazardous events, including fire and gas alarms.

The key ERP relevant to the FPU and subsea infrastructure (excluding the export pipeline) is the Scarborough Emergency Response Plan. This plan covers health, safety, asset and environmental risks (including fire, structural integrity, sabotage, etc.) to the range of occupational, asset and environmental risk exposures from incidents have been considered and plans are in place for their management. The plan provides specific details on the initial response required during events with potential significant environmental consequences such as a hydrocarbon spill, subsea hydrocarbon leak or potential collision.

The Pipelines Emergency Response Plan covers key ERP relevant to the export pipeline, as well as other major pipelines on Woodside's NWS facilities. The Scarborough Operations Oil Pollution First Strike Plan provides immediate actions required to commence a response (Appendix I: Oil Pollution First Strike Plan). Vessels will have SOPEPs in accordance with the requirements of MARPOL 73/78 Annex I. These plans outline responsibilities, specify procedures and identify resources available in the event of a hydrocarbon or chemical spill from vessel activities. The Scarborough Operations Oil Pollution First Strike Plan is intended to work in conjunction with the SOPEPs, if hydrocarbons are released to the marine environment from a vessel.

Woodside has established EPOs, EPSs and MCs to be used for hydrocarbon spill response during the Petroleum Activities Program, as detailed in Appendix H: Oil Spill Preparedness and Response Mitigation Assessment

7.13.4 Oil and Other Hazardous Materials Spill

A significant hydrocarbon spill during the proposed Petroleum Activities Program is unlikely, but should such an event occur, it has the potential to result in a serious safety or environmental incident and cause asset and reputational damage if not managed properly. The Woodside Oil Pollution Emergency Arrangements (Australia) document, supported by the Oil Pollution First Strike Plan (Appendix I: Oil Pollution First Strike Plan) provides tactical response guidance to the activity/area and covers the spill response for this Petroleum Activities Program.

The Security and Emergency Management Function is responsible for managing Woodside's hydrocarbon spill response equipment and for maintaining oil spill preparedness and response documentation. In the event of a major spill, Woodside will request that AMSA (administrator of the National Plan) provides support to Woodside through advice and access to equipment, people and liaison. The interface and responsibilities, as defined under the National Plan, are described in the Woodside Oil Pollution Emergency Arrangements (Australia). AMSA and Woodside have a Memorandum of Understanding in place to support Woodside in the event of an oil spill.

The Oil Pollution First Strike Plan provides immediate actions required to commence a response (Appendix I: Oil Pollution First Strike Plan).

The Project Vessels will have SOPEPs in accordance with the requirements of MARPOL 73/78 Annex I. These plans outline responsibilities, specify procedures and identify resources available in the event of a hydrocarbon or chemical spill from vessel activities. The Oil Pollution First Strike Plan is intended to work in conjunction with the SOPEPs, if hydrocarbons are released to the marine environment from a vessel.

Woodside has established EPOs, performance standards and MC to be used for oil spill response during the Petroleum Activities Program, as detailed in Section 6.

7.13.5 Emergency and Spills Response

Woodside categorises incidents and emergencies in relation to response requirements as follows:

Level 1

Level 1 incidents are those that can be resolved using existing resources, equipment and personnel. A Level 1 incident is contained, controlled and resolved by site/regionally based teams using existing resources and functional support services.

Level 2

Level 2 incidents are characterised by a response that requires external operational support to manage the incident. It is triggered if the capabilities of the tactical level response are exceeded. This support is provided to the activity by activating all or part of the responsible CIMT.

Level 3

A Level 3 incident or crisis is identified as a critical event that seriously threatens the organisation's people, the environment, Woodside assets, reputation, or livelihood. At Woodside, the Crisis Management Team (CMT) manages the strategic impacts in order to respond to and recover from the threat to the Woodside (material impacts, litigation, legal and commercial, reputation etc.). The CIMT may also be activated as required to manage the operational incident response.

7.13.6 Emergency and Spill Response Drills and Exercises

Woodside's capability to respond to incidents will be tested periodically, in accordance with the *Crisis and Emergency Management Training Drill and Exercise Standard*. The scope, frequency and objective of these tests is described in Table 7-13

Emergency response testing is aligned to existing or developing risks associated with Woodside's operations and activities. Corporate hazards/risks outlined in the corporate risk register, respective Safety Cases or project Risk Registers, are reference points developing and scheduling emergency and crisis management exercises. External participants may be invited to attend exercises (e.g., government agencies, specialist service providers, oil spill response organisations, or industry members with which Woodside has mutual aid arrangements).

The overall objective of exercises is to test procedures, skills and the teamwork of the Emergency Response and Command Teams in their ability to respond to major accident/major environment events. After each exercise, the team holds a debriefing session, during which the exercise is reviewed. Any lessons learned or areas for improvement are identified and incorporated into revised procedures, where appropriate.

The Level 1-3 incident testing requirements for vessels and the FPU associated with the PAP are described in Table 7-13. Because the purpose of Level 2 drills is to exercise Woodside response capabilities (more so than vessel response), Level 2 exercises are not mandatory for PAP vessels and will instead involve project vessels opportunistically, if required by the Woodside Crisis Management Team. Level 2 exercises for the FPU align with Regulatory requirements (particularly Regulation 22 14 (e) which requires testing of response arrangements post operational status) and have been scheduled based on risk (i.e. once upon hookup infield, once upon introduction of hydrocarbons (gas) and initial post-operations test within 12 months of the last Level 2).

The testing arrangements in Figure 7-8 are commensurate with the level of hydrocarbon release risk for the PAP. As described in Section 6.8.4 the worst-case credible spill scenario for this PAP is a diesel release from Vessel(s) including the ASV or FPU Topsides of up to 470m³. There are no new or unaccounted for risks or increase in risks associated with activities such as hook-up, commissioning and startup that would introduce a need for additional testing arrangements.

Table 7-13: Testing of response capability

Response Category	Scope	Response Testing Frequency Hook-up, commissioning & start-up activities	Response Testing Frequency – Operations Phase (Post Final Facility Acceptance)	Response Testing Objective
Level 1 Response	Exercises are project-/activity-specific	FPU: One Level 1 ‘First Strike’ drill as per the First Strike Plan including contacting the WCC and testing of spill tracker buoy to be conducted within two weeks of commencing activity in the Operational Area.	FPU: Two comprehensive Level 1 ‘First Strike’ drills conducted per year. Additional drills can be carried out as required, based on risk and activities.	Comprehensive exercises test elements of the Oil Pollution First Strike Plan. Emergency drills are scheduled to test other aspects of the Emergency Response Plan.
		Vessels: One Level 1 ‘First Strike’ drill as per the First Strike Plan including contacting the WCC and testing of spill tracker buoy if on board, conducted within two weeks of commencing activity in the Operational Area for all vessels; and then at least once every 6-month hire period thereafter (i.e. if vessel moves activity / EP but stays on-hire to or working for Woodside, Level 1 does not need to be repeated if last drill was conducted within 6 months; unless WEL environment adviser stipulates another drill is required, due to change in risk profile between activities).	Vessels: One Level 1 ‘First Strike’ drill as per the First Strike Plan including contacting the WCC and testing of spill tracker buoy if on board, conducted within two weeks of commencing activity in the Operational Area for all vessels; and then at least once every 6-month hire period thereafter (i.e. if vessel moves activity / EP but stays on-hire to or working for Woodside, Level 1 does not need to be repeated if last drill was conducted within 6 months; unless WEL environment adviser stipulates another drill is required, due to change in risk profile between activities).	
Level 2 Response	Exercises are vessel/facility-specific	FPU: The first Level 2 exercise for the Scarborough FPU will be conducted within 3 months of hook-up. The second Level 2 exercise is required to be carried out within 3 months of RFSU (the introduction of gas to the FPU).	FPU: A minimum of one Emergency Management exercise is conducted biennially. The first Level 2 Exercise for the FPU in Operations phase (post Final Facility Acceptance) will be conducted within 12 months following the last Level 2 exercise (carried out post RFSU).	Testing both the facility IMT response and/or that of the CIMT following handover of incident control.
		Vessels: Level 2 exercises will be carried out in accordance with <i>Crisis and Emergency Management Training Drill and Exercise Standard</i> .	Vessels: Level 2 exercises will be carried out in accordance with <i>Crisis and Emergency Management Training Drill and Exercise Standard</i> .	

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		<p>The CEM team manage the CIMTs capability and competency requirements, and theme exercises, drills and training based on current and emerging risks per year.</p> <p>These Level 2 exercises may opportunistically involve vessels in the field carrying out the PAP.</p>	<p>The CEM team manage the CIMTs capability and competency requirements, and theme exercises, drills and training based on current and emerging risks per year.</p> <p>These Level 2 exercises may opportunistically involve vessels in the field carrying out the PAP.</p>	
Level 3 Response	Exercises are relevant to all Woodside assets	The number of CMT exercises conducted each year is determined by the Chief Executive Officer, in consultation with the Vice President of Security and Emergency Management.		Test Woodside's ability to respond to and manage a crisis level incident

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7.13.7 Hydrocarbon Spill Response Testing of Arrangements

In the event of a spill, several arrangements underpin Woodside’s ability to implement a response across its petroleum activities. To adequately test these arrangements, the Capability Development Team within Security and Emergency Management confirms that tests are conducted in alignment with the Hydrocarbon Spill Testing of Arrangements Schedule.

Woodside’s arrangements for spill response are common across its Australian operating assets and activities to ensure the controls are consistent. The overall objective of testing these arrangements is to maintain Woodside’s ability to respond to a hydrocarbon spill, specifically to:

- confirm relevant responders, contractors and key personnel understand and practise their assigned roles and responsibilities
- test response arrangements and actions to validate response plans
- incorporate lessons learned are incorporated into Woodside’s processes and procedures and make improvements where required.

If new response arrangements are introduced, or existing arrangements significantly amended, additional testing is undertaken accordingly. Additional activities or activity locations are not anticipated to occur; however, if they do, testing of relevant response arrangements will be undertaken as soon as practicable.

In addition to the testing of response capability described in Table 7-13, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment.

7.13.7.1 Testing of Arrangements Schedule

Woodside’s Testing of Arrangements Schedule (Figure 7-8) aligns with international good practice for spill preparedness and response management; the testing is compatible with the IPIECA Good Practice Guide and the Australian Institute for Disaster Resilience (AIDR) Australian Emergency Management Arrangements Handbook. If a spill occurs, enacting these arrangements will underpin Woodside’s ability to implement a response across its petroleum activities.

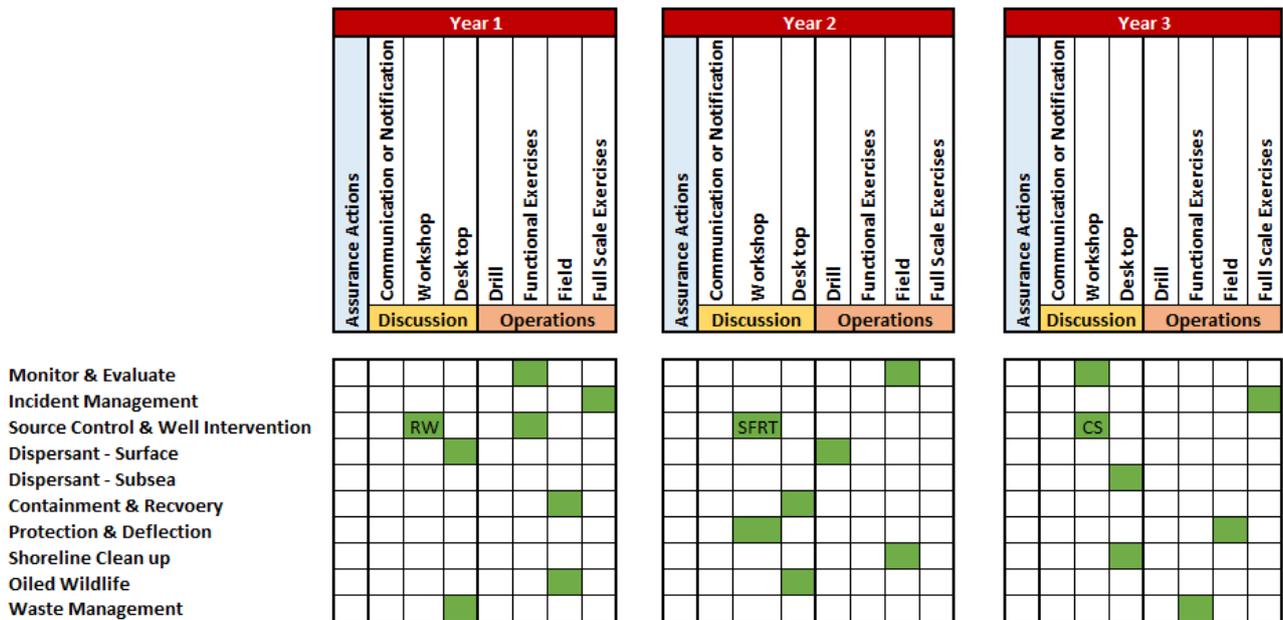


Figure 7-8: Indicative three-yearly testing of arrangements schedule

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The hydrocarbon spill arrangements shown in the rows of the schedule are tested against Woodside's regulatory commitments. Each arrangement has a support agency/company and an area to be tested (e.g., capability, equipment and personnel). For example, an arrangement could be to test Woodside's personnel capability for conducting scientific monitoring, or the ability of the Australian Marine Oil Spill Centre to provide response personnel and equipment.

The vertical columns relate to how hydrocarbon spill arrangements will be tested over the 3-year rolling schedule. The sub-heading for the column describes the standard method of testing likely to be undertaken (e.g., discussion exercise, desktop exercise), and the green cells indicate the arrangements that could be tested for each method.

Some arrangements may be tested across multiple exercises (e.g., critical arrangements) or via other 'additional assurance' methods outside the formal Testing of Arrangements Schedule that also constitute sufficient evidence of testing of arrangements (e.g., audits, no-notice drills, internal exercises, assurance drills).

7.13.8 Cyclone and Dangerous Weather Preparation

Tropical cyclones and other severe weather events are a potential risk to the safety and health of personnel and can potentially cause spills of hazardous materials into the environment from infrastructure and/or damaged vessels.

Facilities and relevant Support Vessels on hire to Woodside receive regular forecasts from Woodside Meteorologists, who liaise closely with the Bureau of Meteorology (BOM). If a cyclone or other severe weather event is forecasted, the path and its development is plotted and monitored using the BOM data. If there is the potential for the cyclone or other severe weather event to affect the Petroleum Activities Program, the asset Cyclone Contingency Plan and the vessel's Cyclone Contingency Plan will be actioned. If required, vessels can transit from the proposed track of the cyclone or other severe weather event.

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Page 701 of 752

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9 GLOSSARY AND ABBREVIATIONS

9.1 Glossary

Term	Meaning
(the) Regulator	The Government Agency (State or Commonwealth) that is the decision maker for approvals and performs ongoing regulation of the approval once granted
4D seismic data	A set of numerous closely-spaced seismic lines that provide a high spatially sampled measure of subsurface reflectivity and 4D image
Acceptability	The EP must demonstrate that the environmental impacts and risks of an activity will be of an acceptable level as per Regulation 10A(c).
ALARP	A legal term in Australian safety legislation, it is taken here to mean that all contributory elements and stakeholdings have been considered by assessment of costs and benefits, and which identifies a preferred course of action
Ballast	Extra weight taken on to increase a ship's stability to prevent rolling and pitching. Most ships use seawater as ballast. Empty tank space is filled with inert (non-combustible) gas to prevent the possibility of fire or explosion.
Bathymetry	Related to water depth, a bathymetry map shows the depth of water at a given location on the map.
Benthos/Benthic	Relating to the seabed and includes organisms living in or on sediments/rocks on the seabed
Biodiversity	Relates to the level of biological diversity of the environment. The EPBC Act defines biodiversity as "the variability among living organisms from all sources (including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part) and includes: (a) diversity within species and between species; and (b) diversity of ecosystems".
Biota	The animal and plant life of a particular region, habitat or geological period
Cetacean	Whale and dolphin species
Consequence	The worstcase credible outcome associated with the selected event, assuming some controls (prevention and mitigation) have failed. Where more than one impact applies (e.g. environmental and legal/compliance), the consequence level for the highest severity impact is selected.
Coral	Anthozoa that are characterised by stonelike, horny or leathery skeletons (external or internal). The skeletons of these animals are also called coral.
Coral Reef	A wave-resistant structure resulting from skeletal deposition and cementation of hermatypic corals, calcareous algae, and other calcium carbonate-secreting organisms
Crustacean	A large and variable group of mostly aquatic invertebrates that have a hard external skeleton (shell), segmented bodies, with a pair of often very modified appendages on each segment, and two pairs of antennae (e.g. crabs, crayfish, shrimps, wood lice, water fleas and barnacles)
Cyclone	A rapidly-rotating storm system characterised by a low-pressure centre, strong winds, and a spiral arrangement of thunderstorms that produce heavy rain
dB	Decibel, a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (that is, 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies
dB re 1 μPa^2	Measure of underwater noise, in terms of sound pressure. Because the dB is a relative measure rather than an absolute measure, it must be referenced to a standard 'reference intensity', in this case 1 micro Pascal (1 mPa), which is the standard reference that is used. The dB is also measured over a specified frequency, which is usually either a one Hertz bandwidth (expressed as dB re 1 mPa^2/Hz), or over a broadband that has not been filtered. Where a frequency is not specified, it can be assumed that the measurement is a broadband measurement.
dB re 1 $\mu\text{Pa}^2\cdot\text{s}$	Normal unit for sound exposure level

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Term	Meaning
Demersal	Living close to the floor of the sea (typically of fish)
Dynamic positioning	In reference to a marine vessel that uses satellite navigation and radio transponders in conjunction with thrusters to maintain its position
Echinoderms	Any of numerous radially symmetrical marine invertebrates of the phylum Echinodermata, which includes the starfishes, sea urchins and sea cucumbers, that have an internal calcareous skeleton and are often covered with spines
Endemic	A species that is native to or confined to a certain region
Environment	The surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelations (Source: ISO 14001)
Environment Regulations	OPGGS (Environment) Regulation 2023
Environmental approval	The action of approving something, which has the potential to have an adverse impact on the environment. Environmental impact assessment is generally required before environmental approval is granted.
Environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services (Source: HB 203:2006).
Environmental impact assessment	An orderly and systematic process for evaluating a proposal or scheme (including its alternatives), and its effects on the environment, and mitigation and management of those effects (Source: Western Australian <i>Environmental Impact Assessment Administrative Procedures 2010</i>)
EP	Prepared in accordance with the <i>OPGGS (Environment) Regulations 2023</i> , which must be assessed and accepted by the Designated Authority (NOPSEMA) before any petroleum-related activity can be performed
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> . Commonwealth legislation designed to promote the conservation of biodiversity and protection of the environment.
Epifauna	Benthic animals that live on the surface of a substrate
Fauna	Collectively, the animal life of a particular region
Flora	Collectively, the plant life of a particular region
Infauna	Aquatic animals that live in the substrate of a body of water, especially in a soft sea bottom
ISO 14001	ISO 14001 is an international standard that specifies a process (called an EMS) for controlling and improving a company's environmental performance. An EMS provides a framework for managing environmental responsibilities so they become more efficient and more integrated into overall business operations.
Likelihood	The description that best fits the chance of the selected consequence actually occurring, assuming reasonable effectiveness of the prevention and mitigation controls
MARPOL (73/78)	The International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978. MARPOL 73/78 is one of the most important international marine environmental conventions. It was designed to minimise pollution of the seas, including dumping, oil and exhaust pollution. Its stated objective is to preserve the marine environment through the complete elimination of pollution by oil and other harmful substances and the minimisation of accidental discharge of such substances.
Meteorology	The study of the physics, chemistry and dynamics of the earth's atmosphere, including the related effects at the air–earth boundary over both land and the oceans
Mitigation	Management measures that minimise and manage undesirable consequences
Ngarda-Ngarli	Ngarda-Ngarli is the collective term for the five Traditional Owner groups of Murujuga, being Ngarluma, Yindjibarndi, Yaburara, Mardudhunera and Wong-Goo-Tt-Oo. There are several spellings arising from transliteration into English including Ngurra-ra Ngarli. Woodside uses spellings that are contextually correct to the source material discussed.

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Term	Meaning
pH	Measure of the acidity or basicity of an aqueous solution
Protected Species	Threatened, vulnerable or endangered species that are protected from extinction by preventive measures. Often governed by special Federal or State laws.
Putrescible	Refers to food scraps and other organic waste associated with food preparation that will be subject to decay and rot (putrefaction)
Risk	The combination of the consequences of an event and its associated likelihood. For guidance, see Environmental Guidance on Application of Risk Management Procedure.
Sessile	Organism that is fixed in one place; immobile
Stereo-BRUVS	Stereo-baited remote underwater video systems
Teleost	A fish belonging to the Teleostei or Teleostomi, a large group of fishes with bony skeletons, including most common fishes. The teleosts are distinct from the cartilaginous fishes such as sharks, rays, and skates.
Zooplankton	Plankton consisting of small animals and the immature stages of larger animals

9.2 Abbreviations

Abbreviation	Meaning
µm	Micrometre
350A	350 Australia
ABF	Australian Border Force
AFC	Antifouling Coating
AFMA	Australian Fisheries Management Authority
AHO	Australian Hydrographic Office
AHT	Anchor Handling Tugs
AIDR	Australian Institute for Disaster Resilience
AIIMS	Australasian Inter-service Incident Management System
AIMS	Australian Institute of Marine Science
AIS	Automatic Identification System
ALAN	Artificial Night At Night
ALARP	As Low As Reasonably Practicable
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
ANZECC	Australian and New Zealand Environment and Conservation Council
AEP	Australian Energy Producers
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASAP	As soon as practicable
ASV	Accommodation support vessel
ATSB	Australian Transport Safety Bureau
AusSAR	Australian Search and Rescue
AUV	Autonomous Underwater Vehicle
AWR	Air Weapons Range
BESS	Battery Energy Storage System

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Abbreviation	Meaning
BIA	Biologically Important Area
BMSL	Below mean sea level
BOM	Bureau of Meteorology
BOP	Blowout Preventer
BSG	Black Start Generator
BTAC	Buurabalayii Thalanyii Aboriginal Corporation
BTEX	Benzene, Tolulene
CAES	Catch and Effort System
CCP	Cyclone Contingency Plan
CCWA	Conservation Council of Western Australia
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CFA	Commonwealth Fisheries Association
CH ₄	Methane
CHMP	Cultural Heritage Management Plan
CHP	Commonwealth Heritage Properties
CIMT	Corporate Incident Management Team
CMID	Common Marine Inspection Document
CMMS	Computerised Maintenance Management System
CMP	Conservation Management Plan
CMT	Crisis Management Team
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ -e	Carbon Dioxide Equivalent
CoA	Commonwealth of Australia
CoP	Cessation of Production
CS	Cost/Sacrifice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cth	Commonwealth
CVS	Contractor Verification Service
D&C	Drilling and Completions
DAA	Department of Aboriginal Affairs
DAFF	Department of Agriculture, Fisheries and Forestry
dB	Decibel
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEA	Doctors for the Environment Australia
DEWHA	Department of Environment, Water, Heritage and the Arts
DGVs	Default guideline values
DISER	Department of Industry, Science, Energy and Resources

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Abbreviation	Meaning
DLV	Derrick lay vessel
DMIRS	Department of Mines, Industry Regulation and Safety
DMP	Department of Mines and Petroleum
DNP	Director of National Parks
DoD	Department of Defence
DoT	Department of Transport
DP	Dynamically Positioned
DPIRD	Department of Primary Industries and Regional Development
EDG	Emergency Diesel Generator
EDU	Electrical Distribution Unit
EET	Emission Estimation Techniques
EFL	Electrical Flying Lead
EGC	Export Gas Compressors
EMBA	Environment that May Be Affected
EMS	Environmental Management System
ENVID	Environmental hazard Identification
EP	Environment Plan
EPA	Environmental Protection Authority
EPO	Environmental Performance Outcome
EPS	Environmental Performance Standard
ER95%	95 th Percentile Exposure Range
ERM	Environmental Resource Management
ERP	Emergency Response Plans
ERT	Emergency Response Team
ESD	Ecological Sustainable Development
EVP	Executive Vice President
F	Control Feasibility
FARA	Friends of Australian Rock Art
FCG	Flooded, cleaned and gauged
FEED	Front End Engineering and Design
FFS	Fitness for Service
FLETS	Flowline end terminations
FLIP	Flowline Induced Pulsation
FLNG	Floating Liquefied Natural Gas units
FPSO	Floating Production Storage Offload
FPU	Floating Production Unit
FRC	Fast Rescue Craft
FWP	Firewater Pump
g/m ²	Grams per square metre

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Abbreviation	Meaning
GAP	Greenpeace Australia Pacific
GEP	Gas Export Pipeline
GHG	Greenhouse Gas
GP	Good Practice
GV	Guideline value
HF	High Frequency
HFC	Hydrofluorocarbons
HFO	Heavy Fuel Oil
HOCNF	Harmonised Offshore Chemical Notification Format
HP	High Pressure
HPU	Hydraulic Power Unit
HQ	Hazard Quotient
HSE	Health, Safety and Environment
HSEQ	Health, Safety and Environment Quality
HSP	Hydrocarbon Spill Preparedness
HVAC	Heating, Ventilation and Airconditioning
IAP	Incident Action Plan
IAPP	International Air Pollution Prevention
ICLDP	Incident and Crisis Leadership Development Program
ICOMOS	International Council on Monuments and Sites
IEA	International Energy Agency
IFO	Intermediate Fuel Oils
ILTs	In-Line Tees
ILUA	Indigenous Land Use Agreements
IMCA	International Marine Contractors Association
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMMR	Inspection, Monitoring, Maintenance and Repair
IMO	International Marine Organisation
IMS	Invasive Marine Species
IMSMA	Invasive Marine Species Management Area
IMT	Incident Management Team
IPCC	Intergovernmental Panel on Climate Change
IPIECA	International Petroleum Industry Environmental Conservation Association
ISPP	International Sewage Pollution Prevention Certificate
ISSoW	Integrated Safe System of Work
ITF	Indonesian Through Flow
ITOPF	International Tankers Owners Pollution Federation
IUCN	International Union for Conservation of Nature
IHUC	Installation Hook Up and Commissioning

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Abbreviation	Meaning
IUU	Illegal, Unregulated and Unreported
JRCC	Joint Rescue Coordination Centre
JSA	Job Safety Analysis
KEF	Key Ecological Feature
KGP	Karratha Gas Plant
kHz	Kilohertz
km	Kilometre
KO	Knock Out
KPI	Key Performance Indicator
L	Litres
LARS	Launch and Recovery System
LBL	Long Baseline
LCR	Local Control Room
LCS	Legislation, Codes and Standards
LCV	Light Construction Vessel
LF	Low Frequency
LGM	Last Glacial Minimum
LNG	Liquefied Natural Gas
LP	Low Pressure
LPMFV	Low Pressure MEG Flash Vessel
LTGA	Lock the Gate
LTO	Licence to Operate
LTS	Low Temperature Separator
LQ	Living Quarters
m	metre
MAC	Murujuga Aboriginal Corporation
MAE	Major Accident Events
MARPOL	International Convention for the Prevention of Pollution from Ships
MBES	Multibeam Echo Sounders
MC	Measurement Criteria
MDO	Marine Diesel Oil
MEG	Mono-ethylene Glycol
METL	Maintenance Engineering Team Leader
MFO	Marine Fauna Observers
MGO	Marine Gas Oil
MMSI	Maritime Mobile Service Identity
MNES	Matters of National Environmental Significance
MOC	Management of Change
MODU	Mobile Offshore Drilling Unit

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Abbreviation	Meaning
MOPO	Manual of Permitted Operation
MPA	Marine Protected Area
MPG	Main Power Generators
MRU	MEG Recovery Unit
MSIN	Maritime Safety Information Notifications
MSL	Mean Sea Level
MSPS	Management System Performance Standards
MUZ	Multiple Use Zone
MWS	Marine Warranty Surveyor
N ₂ O	Nitrous Oxide
NAC	Ngarluma Aboriginal Corporation
NCOS	National Carbon Offset Scheme
NCVA	National Conservation Values Atlas
NDC	Nationally Determined Contribution
NGAF	National Greenhouse Account Factors
NGER	National Greenhouse and Energy Reporting
NHP	National Heritage Places
NIMS	Non-indigenous Marine Species
NLPG	National Light Pollution Guidelines
nm	Nautical mile (1,852 m) a unit of distance on the sea
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NORM	Naturally Occurring Radioactive Material
NOx	Oxides of Nitrogen
NPI	National Pollutant Inventory
NRC	North Rankin Complex
NTGAC	Nghanhurra Thanardi Garrbu Aboriginal Corporation
NTM	Notice to Mariners
NWMR	North-west Marine Region
NWS	North-west Shelf
NWXA	North West Exercise Area
NZE	Net Zero Emissions
OCIMF	Oil Companies International Marine Forum
OCNS	Offshore Chemical Notification Scheme
OCV	Offshore Construction Vessel
OILMAP	Oil Spill Mapping and Analysis Program
OIW	Oil in Water

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Abbreviation	Meaning
OMDAMP	Offshore Marine Discharges Adaptive Management Plan
OPEP	Oil Pollution Emergency Plan
OPGGS	Offshore Petroleum and Greenhouse Gas Storage
OPP	Offshore Project Proposal
OSREC	Oil Spill Response Skills Enhancement Course
OSRO	Oil Spill Response Organisation
OSV	Offshore Support Vessel
OVID	Offshore Vessel Inspection Database
OVMSA	Offshore Vessel Safety Management System assessment
PAA	Petroleum Activity Area
PAH	Polycyclic Aromatic Hydrocarbon
PAM	Passive Acoustic Monitoring
PBA	Pre-emptive Baseline Areas
PBW	Pygmy Blue Whale
PER	Public Environmental Review
PFC	Perfluorocarbons
PHD	Process Historian Database
PJ	Professional Judgement
PLET	Pipeline End Termination
PLP	Pluto LNG Plant
PLRs	Pig Launcher Receivers
PM10	Particulate Matter less than 10 microns
PMST	Protected Matters Search Tool
PNEC	Predicted No-Effect Concentration
POB	Persons on Board
PPA	Pilbara Port Authority
ppb	Parts Per Billion
ppm	Parts Per Million
PS	Performance Standards
PSM	Process Safety Management
PSV	Process Safety Value
PSZ	Petroleum Safety Zone
PTS	Permanent Threshold Shift
PTW	Permit To Work
PV	Pipelay vessel
PW	Produced Water
PWT	Produced Water Treatment
PWTP	Produced Water Treatment Package
RAAF	Royal Australian Air Force

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Abbreviation	Meaning
RBI	Risk Based Inspection
RBM	Riser base manifold
RCC	Rescue Coordination Centre
RCR	Remote Control Room
RFSU	Ready for Start-Up
RMS	Root Mean Square
RO	Reverse Osmosis
ROV	Remotely Operated Vehicle
SBMP	Woodside Frontline Offshore Seabird Management Plan
SCA	Scarborough
SCM	Subsea Control Module
SCC	Safety and Environment Critical Component
SDA	Subsea distribution assembly
SDU	Subsea distribution units
SEEMP	Ship Energy Efficiency Management Plan
SEL	Sound exposure level
SF6	Sulphur hexafluoride
SI&TI	Seabed Intervention and Trunkline Installation
SIMAP	Spill Impact Mapping and Analysis Program
SIMOPS	Simultaneous Operations
SMPEP	Spill Monitoring Programme Execution Plan
SO2	Sulphur Dioxide
SOLAS	Safety of Life at SEA
SOPEP	Ship Oil Pollution Emergency Plan
SPL	Sound Pressure Levels
SPS	Subsea Production System
SSIV	Subsea Isolation Valve
SSPL	Subsea Pipeline
SSS	Side Scan Sonar
SURF	Subsea Umbilicals Risers and Flowlines
SVP	Senior Vice President
TAP	Threat Abatement Plan
TER	Telecom Equipment Room
TSHD	Trailing Suction Hopped Dredge
TSS	Total Suspended Solids
TTS	Temporary Threshold Shift
UB	Utility Building
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change

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Abbreviation	Meaning
USBL	Ultra-short baseline
UTAs	Umbilical termination assemblies
UTHs	Umbilical termination heads
UXO	Unexploded Ordinance
VHF	Very high frequency
VOC	Volatile Organic Hydrocarbons
VP	Vice President
WA	Western Australia
WAC	Wirrawandi Aboriginal Corporation
WAFIC	Western Australian Fishing Industry Council
WCC	Woodside Communication Centre
WEL	Woodside Energy Ltd
WET	Whole Effluent Toxicity
WHA	World Heritage Area
WLS	Woodside Learning Service
WMS	Woodside Management System
WOMP	Well Operations Management Plan
Woodside	Woodside Energy Ltd
WSR	Woodside Site Representative
YAC	Yinggarda Aboriginal Corporation
YMAC	Yamatji Marlpa Aboriginal Corporation

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APPENDIX A: WOODSIDE POLICIES

Risk Management Policy: https://www.woodside.com/docs/default-source/about-us-documents/corporate-governance/woodside-policies-and-code-of-conduct/risk-management-policy.pdf?sfvrsn=61ec596b_19

Climate Policy: <https://www.woodside.com/docs/default-source/about-us-documents/corporate-governance/woodside-policies-and-code-of-conduct/climate-change-policy.pdf>

Please note that the Woodside Policies is reviewed regularly and is updated as required. The Environment and Biodiversity Policy, Risk Management Policy and Climate Policy is made available on our website, along with the other Board policies: <https://www.woodside.com/who-we-are/corporate-governance-and-policies>

Climate Policy.docx

BACKGROUND

The Intergovernmental Panel on Climate Change has stated that “it is unequivocal that human influence has warmed the atmosphere, ocean and land”. An objective of the Paris Agreement is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and to pursue “efforts to limit the temperature increase to 1.5°C”. Many countries have set targets to reduce greenhouse gas emissions, including by changing the way they produce and consume energy.

OBJECTIVE

Woodside’s objective is to thrive in this energy transition as a low cost, lower carbon energy provider.

PRINCIPLES

Woodside aims to achieve the objective by:

- Setting science-based¹ near, mid, and long-term net emissions reduction targets that are consistent with Paris-aligned² scenarios, covering equity scope 1 and 2 emissions, both operated and non-operated.³
- Developing and operating oil and gas projects in a manner that is consistent with these targets. This includes the deployment of lower-emission technologies (Design Out), supporting efficient operations (Operate Out) and use of robust offsets (Offset) as methods to reduce and offset greenhouse gas emissions.
- Investing in new energy products and lower carbon services to reduce customers’ emissions (part of Woodside’s Scope 3 emissions), including but not limited to hydrogen, ammonia and carbon capture, utilisation and storage.
- Publishing transparent climate-related disclosures aligned to the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) or other recognised global reporting standards.
- Aligning our advocacy to the principles of this Climate Policy.

¹ Woodside is using the draft Prototype IFRS Sustainability Disclosure Standard definition of “science-based” (published 2021) which states “targets are considered ‘science-based’ if they are in line with what the most recent climate science sets out is necessary to meet the goals of the Paris Agreement—limiting global warming to below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit warming to 1.5 degrees Celsius.” See <https://www.ifrs.org/content/dam/ifrs/groups/trwg/trwg-climate-related-disclosures-prototype.pdf> (Appendix A).

² Woodside is using the draft Prototype IFRS Sustainability Disclosure Standard definition of “Paris-aligned scenarios” (published 2021) which states “scenarios consistent with limiting global warming to below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit warming to 1.5 degrees Celsius.” See <https://www.ifrs.org/content/dam/ifrs/groups/trwg/trwg-climate-related-disclosures-prototype.pdf> (Appendix A).

³ Equity emissions means the share of the total emissions arising from an activity that are attributable to Woodside in proportion to Woodside’s ownership interest in the activity, irrespective of whether Woodside operates the activity. Operated emissions are the total emissions arising from an activity that Woodside operates, irrespective of Woodside’s ownership interest.

APPLICABILITY

Responsibility for the application of this Policy rests with all Woodside employees, contractors and joint venture participants engaged in activities under Woodside operational control. Woodside managers are also responsible for promotion of this Policy in non-operated joint ventures.

This Policy will be reviewed regularly and updated as required.

Reviewed by the Woodside Energy Group Ltd Board in December 2023.

Environment and Biodiversity Policy.docx

OBJECTIVE

Woodside recognises the intrinsic value of nature and the importance of conserving biodiversity and ecosystem services to support the sustainable development of our society. We are committed to doing our part. We understand and embrace our responsibility to undertake activities in an environmentally sustainable way.

PRINCIPLES

Woodside commits to:

- Implementing a systematic approach to the management of the impacts and risks of our operating activities on an ongoing basis, including emissions and air quality, discharge and waste management, water management, biodiversity and protected areas.
- Applying the mitigation hierarchy principle (avoid, minimise, restore) and a continuous improvement approach to ensure we maintain compliance, improve resource use efficiency and reduce our environmental impacts.
- Embedding environmental and biodiversity management, and opportunities, in our business planning and decision making processes.
- Complying with relevant laws and regulations and applying responsible standards where laws do not exist.
- Not undertaking new exploration or development of hydrocarbons within the boundaries of natural sites on the UNESCO World Heritage List (as specified at 1 December 2022). Existing activity may continue if compatible with maintenance of the listed outstanding universal values.
- Not undertaking new exploration or development of hydrocarbons within IUCN Protected Areas (as specified at 1 December 2022) unless compatible with management plans in place for the area. Existing activity may continue if compatible with management plans in place for the area.
- Achieving net zero deforestation¹ associated with new projects that take a Final Investment Decision (FID) after 1 December 2022.
- Developing Biodiversity Action Plans for all new major projects (CAPEX >USD\$2 billion) that take a FID after 1 December 2022.
- Supporting positive biodiversity outcomes in regions and areas in which we operate.
- Setting targets and publicly reporting on our environmental and biodiversity performance.

APPLICABILITY

Responsibility for the application of this Policy rests with all Woodside employees, contractors and joint venturers engaged in activities under Woodside operational control. Woodside managers are also responsible for promotion of this Policy in non-operated joint ventures.

This Policy will be reviewed regularly and updated as required.

Reviewed by the Woodside Energy Group Ltd Board in December 2023.

¹ Definition of Forest: 'trees higher than 5 metres and a canopy cover of more than 10 percent on the land to be cleared'.

APPENDIX B: RELEVANT REQUIREMENTS

The table below refers to Commonwealth Legislation related to the activity.

Commonwealth Legislation	Legislation Summary
<ul style="list-style-type: none"> • Air Navigation Act 1920 • Air Navigation Regulations 1947 • Air Navigation (Aerodrome Flight Corridors) Regulations 1994 • Air Navigation (Aircraft Engine Emissions) Regulations 1995 • Air Navigation (Aircraft Noise) Regulations 1984 • Air Navigation (Fuel Spillage) Regulations 1999 	<p>This Act relates to the management of air navigation.</p>
<ul style="list-style-type: none"> • Australian Maritime Safety Authority Act 1990 	<p>This Act establishes a legal framework for the Australian Maritime Safety Authority (AMSA), which represents the Australian Government and international forums in the development, implementation and enforcement of international standards including those governing ship safety and marine environment protection. AMSA is responsible for administering the Marine Orders in Commonwealth waters.</p>
<ul style="list-style-type: none"> • Australian Radiation Protection and Nuclear Safety Act 1998 	<p>This Act relates to the protection of the health and safety of people, and the protection of the environment from the harmful effects of radiation.</p>
<ul style="list-style-type: none"> • Biosecurity Act 2015 • Quarantine Regulations 2000 • Biosecurity Regulation 2016 • Australian Ballast Water Management Requirements 2017 • Biosecurity Amendment (Biofouling Management) Regulations 2021 	<p>This Act provides the Commonwealth with powers to take measures of quarantine, and implement related programs as are necessary, to prevent the introduction of any plant, animal, organism or matter that could contain anything that could threaten Australia's native flora and fauna or natural environment. The Commonwealth's powers include powers of entry, seizure, detention and disposal.</p> <p>This Act includes mandatory controls on the use of seawater as ballast in ships and the declaration of sea vessels voyaging out of and into Commonwealth waters. The Regulations stipulate that all information regarding the voyage of the vessel and the ballast water is declared correctly to the quarantine officers.</p> <p>The Biofouling Management Regulations requires ships to report information about biofouling management and the voyage history of the ship in the past 12 months through a pre-arrival report.</p>
<ul style="list-style-type: none"> • Environment Protection and Biodiversity Conservation Act 1999 • Environment Protection and Biodiversity Conservation Regulations 2000 	<p>This Act protects matters of national environmental significance (NES). It streamlines the national environmental assessment and approvals process, protects Australian biodiversity and integrates management of important natural and culturally significant places.</p> <p>Under this Act, actions that may be likely to have a significant impact on matters of NES must be referred to the Commonwealth Environment Minister.</p>
<ul style="list-style-type: none"> • Environment Protection (Sea Dumping) Act 1981 • Environment Protection (Sea Dumping) Regulations 1983 	<p>This Act provides for the protection of the environment by regulating dumping matter into the sea, incineration of waste at sea and placement of artificial reefs.</p>
<ul style="list-style-type: none"> • Industrial Chemicals (Notification and Assessment Act) 1989 	<p>This Act creates a national register of industrial chemicals. The Act also provides for restrictions on the use of certain chemicals which could have harmful effects on the environment or health.</p>

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Commonwealth Legislation	Legislation Summary
<ul style="list-style-type: none"> Industrial Chemicals (Notification and Assessment) Regulations 1990 	
<ul style="list-style-type: none"> National Environment Protection Measures (Implementation) Act 1998 National Environment Protection Measures (Implementation) Regulations 1999 	<p>This Act and Regulations provide for the implementation of National Environment Protection Measures (NEPMs) to protect, restore and enhance the quality of the environment in Australia and ensure that the community has access to relevant and meaningful information about pollution.</p> <p>The National Environment Protection Council has made NEPMs relating to ambient air quality, the movement of controlled waste between states and territories, the national pollutant inventory, and used packaging materials.</p>
<ul style="list-style-type: none"> National Greenhouse and Energy Reporting Act 2007 National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 	<p>This Act and associated Rule establishes the legislative framework for the NGER scheme for reporting greenhouse gas emissions and energy consumption and production by corporations in Australia.</p>
<ul style="list-style-type: none"> Navigation Act 2012 Marine order 12 – Construction – subdivision and stability, machinery and electrical installations Marine order 30 - Prevention of collisions Marine order 47 – Offshore Industry units Marine order 57 - Helicopter operations Marine order 91 - Marine pollution prevention—oil Marine order 93 - Marine pollution prevention—noxious liquid substances Marine order 94 - Marine pollution prevention—packaged harmful substances Marine order 96 - Marine pollution prevention—sewage Marine order 97 - Marine pollution prevention—air pollution 	<p>This Act regulates navigation and shipping including Safety of Life at Sea (SOLAS). The Act will apply to some activities of project vessels.</p> <p>This Act is the primary legislation that regulates ship and seafarer safety, shipboard aspects of marine environment protection and pollution prevention.</p>
<ul style="list-style-type: none"> Offshore Petroleum and Greenhouse Gas Storage Act 2006 Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009 	<p>This Act is the principal Act governing offshore petroleum exploration and production in Commonwealth waters. Specific environmental, resource management and safety obligations are set out in the Regulations listed.</p>
<ul style="list-style-type: none"> Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995 	<p>This Act provides for measures to protect ozone in the atmosphere by controlling and ultimately reducing the manufacture, import and export of ozone depleting substances (ODS) and synthetic greenhouse gases, and replacing them with suitable alternatives. The Act will only apply to Woodside if it manufactures, imports or exports ozone depleting substances.</p>
<ul style="list-style-type: none"> Protection of the Sea (Powers of Intervention) Act 1981 	<p>This Act authorises the Commonwealth to take measures for the purpose of protecting the sea from pollution by oil and other</p>

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Commonwealth Legislation	Legislation Summary
	noxious substances discharged from ships and provides legal immunity for persons acting under an AMSA direction.
<ul style="list-style-type: none"> Recycling and Waste Reduction (Mandatory Product Stewardship—Mercury-added Products) Rules 2021 (Minamata Convention on Mercury 2017) 	This Convention is an agreement to protect human and environmental health from the effects of releases of mercury and mercury-containing compounds to the environment. The Convention was ratified by Australia in December 2021 and is implemented in Commonwealth law under the <i>Recycling and Waste Reduction (Mandatory Product Stewardship – Mercury added Products) Rules 2021</i> .
<ul style="list-style-type: none"> Protection of the Sea (Prevention of Pollution from Ships) Act 1983 Protection of the Sea (Prevention of Pollution from Ships) (Orders) Regulations 1994 Marine order 91 - Marine pollution prevention—oil Marine order 93 - Marine pollution prevention—noxious liquid substances Marine order 94 - Marine pollution prevention—packaged harmful substances Marine order 95 - Marine pollution prevention—garbage Marine order 96 - Marine pollution prevention—sewage Maritime Legislation Amendment (Prevention of Air Pollution from Ships) Act 2007 MARPOL Convention 	<p>This Act relates to the protection of the sea from pollution by oil and other harmful substances discharged from ships. Under this Act, discharge of oil or other harmful substances from ships into the sea is an offence. There is also a requirement to keep records of the ships dealing with such substances.</p> <p>The Act applies to all Australian ships, regardless of their location. It applies to foreign ships operating between 3 nautical miles (nm) off the coast out to the end of the Australian Exclusive Economic Zone (200 nm). It also applies within the 3 nm of the coast where the State/Northern Territory does not have complementary legislation.</p> <p>All the Marine Orders listed, except for Marine Order 95, are enacted under both the <i>Navigation Act 2012</i> and the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>.</p> <p>This Act is an amendment to the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>. This amended Act provides the protection of the sea from pollution by oil and other harmful substances discharged from ships.</p>
<ul style="list-style-type: none"> Protection of the Sea (Harmful Antifouling Systems) Act 2006 Marine order 98—(Marine pollution—anti-fouling systems) 	This Act relates to the protection of the sea from the effects of harmful anti-fouling systems. It prohibits the application or reapplication of harmful anti-fouling compounds on Australian ships or foreign ships that are in an Australian shipping facility.
<ul style="list-style-type: none"> <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> 	<p>This Act seeks “to preserve and protect places, areas and objects of particular significance” to Aboriginal people. Under the Section 9 and 10 provisions of the Act, the Minister for the Environment may declare significant Aboriginal areas temporarily or permanently protected if they are considered under threat. Similar declarations regarding Aboriginal objects can be made under Section 12.</p> <p>Under Section 22 of the Act, the contravention of any of these declarations is an offence. Additionally, the discovery of any Aboriginal remains must be reported to the Minister under Section 20.</p> <p>Damage or interference with Aboriginal objects or places is not an offence under the ATSIHO Act except within Victoria under Section 21U.</p>
<ul style="list-style-type: none"> Underwater Cultural Heritage Act 2018 Underwater Cultural Heritage Guidance for Offshore Developments Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters -Guidelines on the application of the Underwater Cultural Heritage Act 2018 	The Act prescribes penalties for damage to protected Underwater Cultural Heritage without a permit under Section 30 or in contravention of a permit under Section 28. Protected Underwater Cultural Heritage is prescribed in Section 16 to automatically include the remains and associated artefacts of any vessel or aircraft that has been in Australian waters for 75 years, whether known or unknown. This protection is also extended to Underwater Cultural Heritage in Commonwealth waters specified by the Environment Minister under Section 17.

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Commonwealth Legislation	Legislation Summary
	Without a declaration under this section, Aboriginal Underwater Cultural Heritage is not protected under the UCH Act.

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Revision: 3

Woodside ID: 1401801827

Page 735 of 752

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APPENDIX C: ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT PROTECTED MATTERS SEARCH

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Page 736 of 752

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Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 01-May-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	26
Listed Migratory Species:	42

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	74
Whales and Other Cetaceans:	29
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	3

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	56
Key Ecological Features (Marine):	3
Biologically Important Areas:	11
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Commonwealth Marine Area

[\[Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species

[\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name

Threatened Category

Presence Text

BIRD

[Calidris acuminata](#)

Sharp-tailed Sandpiper [874]

Vulnerable

Species or species habitat may occur within area

[Calidris canutus](#)

Red Knot, Knot [855]

Vulnerable

Species or species habitat may occur within area

[Calidris ferruginea](#)

Curlew Sandpiper [856]

Critically Endangered

Species or species habitat may occur within area

[Macronectes giganteus](#)

Southern Giant-Petrel, Southern Giant Petrel [1060]

Endangered

Species or species habitat may occur within area

[Numenius madagascariensis](#)

Eastern Curlew, Far Eastern Curlew [847]

Critically Endangered

Species or species habitat may occur within area

[Phaethon lepturus fulvus](#)

Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]

Endangered

Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area
FISH		
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Breeding known to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Congregation or aggregation known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Congregation or aggregation known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area

SHARK

Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Breeding likely to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Congregation or aggregation known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Congregation or aggregation known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Breeding likely to occur within area
Fish		
Acentronura larsonae Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus spirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Reptile		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Congregation or aggregation known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Congregation or aggregation known to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis czeblukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area

Whales and Other Cetaceans [\[Resource Information \]](#)

Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]		Species or species habitat may occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks		[Resource Information]
Park Name	Zone & IUCN Categories	
Montebello	Multiple Use Zone (IUCN VI)	

Habitat Critical to the Survival of Marine Turtles			[Resource Information]
Scientific Name	Behaviour	Presence	
Aug - Sep			
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur	
Dec - Jan			
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur	
Nov - May			
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur	

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Gorgon Gas Development	2003/1294		Post-Approval
Project Highclere Cable Lay and Operation	2022/09203		Completed
Controlled action			
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Develop Jansz-lo deepwater gas field in Permit Areas WA-18-R, WA-25-R and WA-26-	2005/2184	Controlled Action	Post-Approval
Development of Browse Basin Gas Fields (Upstream)	2008/4111	Controlled Action	Completed
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
The Scarborough Project - FLNG & assoc subsea infrastructure, Carnarvon Basin	2013/6811	Controlled Action	Post-Approval
Not controlled action			
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed
Drilling of an exploration well Gats-1 in Permit Area WA-261-P	2004/1701	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Jansz-2 and 3 Appraisal Wells	2002/754	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Telstra North Rankin Spur Fibre Optic Cable	2016/7836	Not Controlled Action	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373	Not Controlled Action	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey	2012/6296	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey	2005/2146	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in WA 457-P & WA 458-P, North West Shelf, offshore WA	2013/6862	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Bonaventure 3D seismic survey	2006/2514	Not Controlled Action (Particular Manner)	Post-Approval
Cable Seismic Exploration Permit areas WA-323-P and WA-330-P	2008/4227	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval
Demeter 3D Seismic Survey, off Dampier, WA	2002/900	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular Manner)	Post-Approval
Geco Eagle 3D Marine Seismic Survey	2008/3958	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Honeycombs MC3D Marine Seismic Survey	2012/6368	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular Manner)	Post-Approval
Lion 2D Marine Seismic Survey	2007/3777	Not Controlled Action (Particular Manner)	Post-Approval
Moosehead 2D seismic survey within permit WA-192-P	2005/2167	Not Controlled Action (Particular Manner)	Post-Approval
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Reindeer gas reservoir development, Devil Creek, Carnarvon Basin - WA	2007/3917	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
Scarborough Development nearshore component, NWS, WA	2018/8362	Not Controlled Action (Particular Manner)	Post-Approval
Stag 4D & Reindeer MAZ Marine Seismic Surveys, WA	2013/7080	Not Controlled Action (Particular Manner)	Post-Approval
Stag Off-bottom Cable Seismic Survey	2007/3696	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a 3D marine seismic survey	2010/5695	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
West Panaeus 3D seismic survey	2006/3141	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval

Key Ecological Features [[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west

Biologically Important Areas [[Resource Information](#)]

Scientific Name	Behaviour	Presence
Marine Turtles		
Caretta caretta		
Loggerhead Turtle [1763]	Internesting buffer	Known to occur
Chelonia mydas		
Green Turtle [1765]	Internesting buffer	Known to occur
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Internesting buffer	Known to occur

Scientific Name	Behaviour	Presence
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Seabirds		
Ardena pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Whales		
Balaenoptera musculus brevipinna Pygmy Blue Whale [81317]	Distribution	Known to occur
Balaenoptera musculus brevipinna Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 31-Oct-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	1
National Heritage Places:	2
Wetlands of International Importance (Ramsar)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	3
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	51
Listed Migratory Species:	63

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	1
Listed Marine Species:	103
Whales and Other Cetaceans:	32
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	8
Habitat Critical to the Survival of Marine Turtles:	4

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	22
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	185
Key Ecological Features (Marine):	5
Biologically Important Areas:	36
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [\[Resource Information \]](#)

Name	State	Legal Status
The Ningaloo Coast	WA	Declared property

National Heritage Places [\[Resource Information \]](#)

Name	State	Legal Status
Indigenous		
Dampier Archipelago (including Burrup Peninsula)	WA	Listed place

Natural

The Ningaloo Coast	WA	Listed place
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Commonwealth Marine Area [\[Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species [\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Malurus leucopterus edouardi White-winged Fairy-wren (Barrow Island), Barrow Island Black-and-white Fairy-wren [26194]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area
FISH		
Milyeringa veritas Cape Range Cave Gudgeon, Blind Gudgeon [66676]	Vulnerable	Species or species habitat known to occur within area
Ophisternon candidum Blind Cave Eel [66678]	Vulnerable	Species or species habitat known to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Bettongia lesueur Barrow and Boodie Islands subspecies Boodie, Burrowing Bettong (Barrow and Boodie Islands) [88021]	Vulnerable	Translocated population known to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isoodon auratus barrowensis Golden Bandicoot (Barrow Island) [66666]	Vulnerable	Species or species habitat known to occur within area
Lagorchestes conspicillatus conspicillatus Spectacled Hare-wallaby (Barrow Island) [66661]	Vulnerable	Species or species habitat known to occur within area
Lagorchestes hirsutus Central Australian subspecies Mala, Rufous Hare-Wallaby (Central Australia) [88019]	Endangered	Translocated population known to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Osphranter robustus isabellinus Barrow Island Wallaroo, Barrow Island Euro [89262]	Vulnerable	Species or species habitat likely to occur within area
Petrogale lateralis lateralis Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647]	Endangered	Species or species habitat known to occur within area
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Ctenotus zasticus Hamelin Ctenotus [25570]	Vulnerable	Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Liasis olivaceus barroni Pilbara Olive Python [66699]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
SHARK		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species [\[Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Dugong dugon Dugong [28]		Breeding known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Heritage Places [[Resource Information](#)]

Name	State	Status
Natural		
Ningaloo Marine Area - Commonwealth Waters	WA	Listed place

Listed Marine Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
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Bird

[Actitis hypoleucos](#)

Common Sandpiper [59309] Species or species habitat known to occur within area

[Anous stolidus](#)

Common Noddy [825] Species or species habitat likely to occur within area

[Apus pacificus](#)

Fork-tailed Swift [678] Species or species habitat likely to occur within area overfly marine area

[Ardenna carneipes as Puffinus carneipes](#)

Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] Species or species habitat likely to occur within area

[Ardenna pacifica as Puffinus pacificus](#)

Wedge-tailed Shearwater [84292] Breeding known to occur within area

[Bubulcus ibis as Ardea ibis](#)

Cattle Egret [66521] Species or species habitat may occur within area overfly marine area

[Calidris acuminata](#)

Sharp-tailed Sandpiper [874] Vulnerable
Species or species habitat known to occur within area

[Calidris canutus](#)

Red Knot, Knot [855] Vulnerable
Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Breeding known to occur within area
Sternula nereis as Sterna nereis Fairy Tern [82949]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalasseus bengalensis as Sterna bengalensis Lesser Crested Tern [66546]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area
Fish		
Acentronura larsonae Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Breeding known to occur within area
Reptile		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis czeb lukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowellii as Hydrophis mcdowellii MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area

Whales and Other Cetaceans [[Resource Information](#)]

Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Indopacetus pacificus Longman's Beaked Whale [72]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Mesoplodon ginkgodens Ginkgo-toothed Beaked Whale, Ginkgo-toothed Whale, Ginkgo Beaked Whale [59564]		Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks [[Resource Information](#)]

Park Name	Zone & IUCN Categories
Dampier	Habitat Protection Zone (IUCN IV)
Gascoyne	Habitat Protection Zone (IUCN IV)
Dampier	Multiple Use Zone (IUCN VI)
Gascoyne	Multiple Use Zone (IUCN VI)
Montebello	Multiple Use Zone (IUCN VI)
Dampier	National Park Zone (IUCN II)
Gascoyne	National Park Zone (IUCN II)
Ningaloo	Recreational Use Zone (IUCN IV)

Habitat Critical to the Survival of Marine Turtles [[Resource Information](#)]

Scientific Name	Behaviour	Presence
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Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus		
Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Chelonia mydas		
Green Turtle [1765]	Nesting	Known to occur
Nov-Feb		
Caretta caretta		
Loggerhead Turtle [1763]	Nesting	Known to occur
Nov - May		
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Nesting	Known to occur

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	
Barrow Island	Nature Reserve	WA	
Barrow Island	Marine Management Area	WA	
Barrow Island	Marine Park	WA	
Great Sandy Island	Nature Reserve	WA	
Jurabi Coastal Park	5(1)(h) Reserve	WA	
Lowendal Islands	Nature Reserve	WA	
Montebello Islands	Conservation Park	WA	
Montebello Islands	Conservation Park	WA	
Montebello Islands	Marine Park	WA	
Muiron Islands	Nature Reserve	WA	
Muiron Islands	Marine Management Area	WA	
Murujuga	National Park	WA	
Ningaloo	Marine Park	WA	

Protected Area Name	Reserve Type	State
Round Island	Nature Reserve	WA
Serrurier Island	Nature Reserve	WA
Unnamed WA36909	5(1)(h) Reserve	WA
Unnamed WA36910	5(1)(h) Reserve	WA
Unnamed WA36913	Nature Reserve	WA
Unnamed WA36915	Nature Reserve	WA
Unnamed WA40828	5(1)(h) Reserve	WA
Unnamed WA40877	5(1)(h) Reserve	WA
Unnamed WA41080	5(1)(h) Reserve	WA

EPBC Act Referrals [[Resource Information](#)]

Title of referral	Reference	Referral Outcome	Assessment Status
Browse to North West Shelf Development, Indian Ocean, WA	2018/8319		Approval
Gorgon Gas Development	2003/1294		Post-Approval
North West Shelf Project Extension, Carnarvon Basin, WA	2018/8335		Approval
Project Highclere Cable Lay and Operation	2022/09203		Completed
Action clearly unacceptable			
Highlands 3D Marine Seismic Survey	2012/6680	Action Clearly Unacceptable	Completed
Controlled action			
'Van Gogh' Petroleum Field Development	2007/3213	Controlled Action	Post-Approval
Anketell Point Iron Ore Processing & Export Port	2009/5120	Controlled Action	Post-Approval
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Develop Jansz-lo deepwater gas field in Permit Areas WA-18-R, WA-25-R and WA-26-	2005/2184	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Development of Browse Basin Gas Fields (Upstream)	2008/4111	Controlled Action	Completed
Development of Coniston/Novara fields within the Exmouth Sub-basin	2011/5995	Controlled Action	Post-Approval
Development of Stybarrow petroleum field incl drilling and facility installation	2004/1469	Controlled Action	Post-Approval
Echo-Yodel Production Wells	2000/11	Controlled Action	Post-Approval
Enfield full field development	2001/257	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Eramurra Industrial Salt Project	2021/9027	Controlled Action	Assessment Approach
Eramurra Industrial Salt Project, near Karratha, WA	2019/8448	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Gorgon Gas Revised Development	2008/4178	Controlled Action	Post-Approval
Greater Enfield (Vincent) Development	2005/2110	Controlled Action	Post-Approval
Greater Gorgon Development - Optical Fibre Cable, Mainland to Barrow Island	2005/2141	Controlled Action	Completed
Light Crude Oil Production	2001/365	Controlled Action	Post-Approval
Mardie Project, 80 km south west of Karratha, WA	2018/8236	Controlled Action	Post-Approval
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval
Simpson Development	2000/59	Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Simpson Oil Field Development	2001/227	Controlled Action	Post-Approval
The Scarborough Project - FLNG & assoc subsea infrastructure, Carnarvon Basin	2013/6811	Controlled Action	Post-Approval
Vincent Appraisal Well	2000/22	Controlled Action	Post-Approval
Not controlled action			
'Goodwyn A' Low Pressure Train Project	2003/914	Not Controlled Action	Completed
'Van Gogh' Oil Appraisal Drilling Program, Exploration Permit Area WA-155-P(1)	2006/3148	Not Controlled Action	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed
Bultaco-2, Laverda-2, Laverda-3 and Montesa-2 Appraisal Wells	2000/103	Not Controlled Action	Completed
Carnarvon 3D Marine Seismic Survey	2004/1890	Not Controlled Action	Completed
Cazadores 2D seismic survey	2004/1720	Not Controlled Action	Completed
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Controlled Source Electromagnetic Survey	2007/3262	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Development of iron ore facilities	2013/7013	Not Controlled Action	Completed
Drilling of an exploration well Gats-1 in Permit Area WA-261-P	2004/1701	Not Controlled Action	Completed
Eagle-1 Exploration Drilling, North West Shelf, WA	2019/8578	Not Controlled Action	Completed
Echo A Development WA-23-L, WA-24-L	2005/2042	Not Controlled Action	Completed
Exploration drilling well WA-155-P(1)	2003/971	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Exploration Well in Permit Area WA-155-P(1)	2002/759	Not Controlled Action	Completed
Exploratory drilling in permit area WA-225-P	2001/490	Not Controlled Action	Completed
Extension of Simpson Oil Platforms & Wells	2002/685	Not Controlled Action	Completed
HCA05X Macedon Experimental Survey	2004/1926	Not Controlled Action	Completed
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Infill Production Well (Griffin-9)	2001/417	Not Controlled Action	Completed
Jansz-2 and 3 Appraisal Wells	2002/754	Not Controlled Action	Completed
Klammer 2D Seismic Survey	2002/868	Not Controlled Action	Completed
Maia-Gaea Exploration wells	2000/17	Not Controlled Action	Completed
Mermaid Marine Australia Desalination Project	2011/5916	Not Controlled Action	Completed
Montesa-1 and Bultaco-1 Exploration Wells	2000/102	Not Controlled Action	Completed
Murujuga archaeological excavation, collection and sampling, Dampier Archipelago, WA	2014/7160	Not Controlled Action	Completed
North Rankin B gas compression facility	2005/2500	Not Controlled Action	Completed
Pipeline System Modifications Project	2000/3	Not Controlled Action	Completed
Port Expansion and Dredging	2003/1265	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Searipple gas and condensate field development	2000/89	Not Controlled Action	Completed
Spool Base Facility	2001/263	Not Controlled Action	Completed
Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline	2005/2033	Not Controlled Action	Completed
sub-sea tieback of Perseus field wells	2004/1326	Not Controlled Action	Completed
Telstra North Rankin Spur Fibre Optic Cable	2016/7836	Not Controlled Action	Completed
Thevenard Island Retirement Project	2015/7423	Not Controlled Action	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373	Not Controlled Action	Completed
Wanda Offshore Research Project, 80 km north-east of Exmouth, WA	2018/8293	Not Controlled Action	Completed
Western Flank Gas Development	2005/2464	Not Controlled Action	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			
'Kate' 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km	2005/2037	Not Controlled Action (Particular Manner)	Post-Approval
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D seismic surveys	2005/2151	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey	2012/6296	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
2D Seismic Survey	2005/2146	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey Permit Area WA-352-P	2008/4628	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey	2008/4281	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in WA 457-P & WA 458-P, North West Shelf, offshore WA	2013/6862	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey over petroleum title WA-268-P	2007/3458	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, WA	2008/4428	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey in the Carnarvon Basin on the North West Shelf	2002/778	Not Controlled Action (Particular Manner)	Post-Approval
Agrippina 3D Seismic Marine Survey	2009/5212	Not Controlled Action (Particular Manner)	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Artemis-1 Drilling Program (WA-360-P)	2010/5432	Not Controlled Action (Particular Manner)	Post-Approval
Australia to Singapore Fibre Optic Submarine Cable System	2011/6127	Not Controlled Action (Particular Manner)	Post-Approval
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Bonaventure 3D seismic survey	2006/2514	Not Controlled Action (Particular Manner)	Post-Approval
Cable Seismic Exploration Permit areas WA-323-P and WA-330-P	2008/4227	Not Controlled Action (Particular Manner)	Post-Approval
Cerberus exploration drilling campaign, Carnarvon Basin, WA	2016/7645	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
Charon 3D Marine Seismic Survey	2007/3477	Not Controlled Action (Particular Manner)	Post-Approval
Consturction & operation of the Varanus Island kitchen & mess cyclone refuge building, compression p	2013/6952	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	Not Controlled Action (Particular Manner)	Post-Approval
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval
Demeter 3D Seismic Survey, off Dampier, WA	2002/900	Not Controlled Action (Particular Manner)	Post-Approval
Diesel Fuel Bunker Operation	2012/6289	Not Controlled Action (Particular Manner)	Post-Approval
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Earthworks for kitchen/mess, cyclone refuge building & Compression Plant, Varanus Island	2013/6900	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Effect of marine seismic sounds to demersal fish and pearl oysters, north-west WA	2018/8169	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Enfield M3 & Vincent 4D Marine Seismic Surveys	2008/3981	Not Controlled Action (Particular Manner)	Completed
Enfield M3 4D, Vincent 4D & 4D Line Test Marine Seismic Surveys	2008/4122	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M4 4D Marine Seismic Survey	2008/4558	Not Controlled Action (Particular Manner)	Post-Approval
Enfield oilfield 3D Seismic Survey	2006/3132	Not Controlled Action (Particular Manner)	Post-Approval
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular Manner)	Post-Approval
Exploration drilling of Zeus-1 well	2008/4351	Not Controlled Action (Particular Manner)	Post-Approval
Foxhound 3D Non-Exclusive Marine Seismic Survey	2009/4703	Not Controlled Action (Particular Manner)	Post-Approval
Gazelle 3D Marine Seismic Survey in WA-399-P and WA-42-L	2010/5570	Not Controlled Action (Particular Manner)	Post-Approval
Geco Eagle 3D Marine Seismic Survey	2008/3958	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Greater Western Flank Phase 1 gas Development	2011/5980	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Grimalkin 3D Seismic Survey	2008/4523	Not Controlled Action (Particular Manner)	Post-Approval
Guacamole 2D Marine Seismic Survey	2008/4381	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Harpy 1 exploration well	2001/183	Not Controlled Action (Particular Manner)	Post-Approval
Honeycombs MC3D Marine Seismic Survey	2012/6368	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas MC3D Marine Seismic Survey (HZ-13) Carnarvon Basin, offshore WA	2013/7003	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas phase 2 marine seismic survey, Exmouth Plateau, Northern Carnarvon Basin, WA	2013/7093	Not Controlled Action (Particular Manner)	Post-Approval
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval
John Ross & Rosella Off Bottom Cable Seismic Exploration Program	2008/3966	Not Controlled Action (Particular Manner)	Post-Approval
Judo Marine 3D Seismic Survey within and adjacent to WA-412-P	2009/4801	Not Controlled Action (Particular Manner)	Post-Approval
Judo Marine 3D Seismic Survey within and adjacent to WA-412-P	2008/4630	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Klimt 2D Marine Seismic Survey	2007/3856	Not Controlled Action (Particular Manner)	Post-Approval
Laverda 3D Marine Seismic Survey and Vincent M1 4D Marine Seismic Survey	2010/5415	Not Controlled Action (Particular Manner)	Post-Approval
Leopard 2D marine seismic survey	2005/2290	Not Controlled Action (Particular Manner)	Post-Approval
Lion 2D Marine Seismic Survey	2007/3777	Not Controlled Action (Particular Manner)	Post-Approval
Macedon Gas Field Development	2008/4605	Not Controlled Action (Particular Manner)	Post-Approval
Marine reconnaissance survey	2008/4466	Not Controlled Action (Particular Manner)	Post-Approval
Moosehead 2D seismic survey within permit WA-192-P	2005/2167	Not Controlled Action (Particular Manner)	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Program, WA-264-P	2007/3844	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Survey	2005/2017	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	Not Controlled Action (Particular Manner)	Post-Approval
Port Walcott upgrade, dredging & spoil disposal, & channel realignment	2006/2806	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees 4D Marine Seismic Monitor Survey, HCA12A	2012/6579	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees-Macedon 3D marine seismic survey	2005/2325	Not Controlled Action (Particular Manner)	Post-Approval
Reindeer gas reservoir development, Devil Creek, Carnarvon Basin - WA	2007/3917	Not Controlled Action (Particular Manner)	Post-Approval
Rose 3D Seismic Program	2008/4239	Not Controlled Action (Particular Manner)	Post-Approval
Rydal-1 Petroleum Exploration Well, WA	2012/6522	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
Scarborough Development nearshore component, NWS, WA	2018/8362	Not Controlled Action (Particular Manner)	Post-Approval
Skorpion Marine Seismic Survey WA	2001/416	Not Controlled Action (Particular Manner)	Post-Approval
Sovereign 3D Marine Seismic Survey	2011/5861	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Stag 4D & Reindeer MAZ Marine Seismic Surveys, WA	2013/7080	Not Controlled Action (Particular Manner)	Post-Approval
Stag Off-bottom Cable Seismic Survey	2007/3696	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow 4D Marine Seismic Survey	2011/5810	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
Tantabiddi Boat Ramp Sand Bypassing	2015/7411	Not Controlled Action (Particular Manner)	Post-Approval
Tidepole Maz 3D Seismic Survey Campaign	2007/3706	Not Controlled Action (Particular Manner)	Post-Approval
Tortilla 2D Seismic Survey, WA	2011/6110	Not Controlled Action (Particular Manner)	Post-Approval
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a 3D marine seismic survey	2010/5695	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5679	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5715	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Vincent M1 and Enfield M5 4D Marine Seismic Survey	2010/5720	Not Controlled Action (Particular Manner)	Post-Approval
Warramunga Non-Inclusive 3D Seismic Survey	2008/4553	Not Controlled Action (Particular Manner)	Post-Approval
West Anchor 3D Marine Seismic Survey	2008/4507	Not Controlled Action (Particular Manner)	Post-Approval
West Panaeus 3D seismic survey	2006/3141	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Seismic Survey	2008/4219	Referral Decision	Completed
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	Referral Decision	Completed
CVG 3D Marine Seismic Survey	2012/6270	Referral Decision	Completed
Enfield 4D Marine Seismic Surveys, Production Permit WA-28-L	2005/2370	Referral Decision	Completed
Rose 3D Seismic acquisition survey	2008/4220	Referral Decision	Completed
Stybarrow Baseline 4D Marine Seismic Survey (Permit Areas WA-	2008/4165	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
255-P, WA-32-L, WA-			
Two Dimensional Transition Zone Seismic Survey - TP/7 (R1)	2010/5507	Referral Decision	Completed
Varanus Island Compression Project	2012/6698	Referral Decision	Completed

Key Ecological Features [[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west
Commonwealth waters adjacent to Ningaloo Reef	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west

Biologically Important Areas [[Resource Information](#)]

Scientific Name	Behaviour	Presence
Dugong		
Dugong dugon		
Dugong [28]	Breeding	Known to occur
Dugong dugon		
Dugong [28]	Calving	Known to occur
Dugong dugon		
Dugong [28]	Foraging (high density seagrass beds)	Known to occur
Dugong dugon		
Dugong [28]	Nursing	Known to occur

Marine Turtles

Caretta caretta		
Loggerhead Turtle [1763]	Internesting buffer	Known to occur

Scientific Name	Behaviour	Presence
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Chelonia mydas Green Turtle [1765]	Aggregation	Known to occur
Chelonia mydas Green Turtle [1765]	Basking	Known to occur
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Chelonia mydas Green Turtle [1765]	Mating	Known to occur
Chelonia mydas Green Turtle [1765]	Migration corridor	Known to occur
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Mating	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Migration corridor	Known to occur

Scientific Name	Behaviour	Presence
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Natator depressus Flatback Turtle [59257]	Aggregation	Known to occur
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Mating	Known to occur
Natator depressus Flatback Turtle [59257]	Migration corridor	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Seabirds		
Ardena pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Rhincodon typus Whale Shark [66680]	Foraging (high density)	Known to occur

Scientific Name	Behaviour (prey)	Presence
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111

APPENDIX D: ABORIGINAL CULTURAL HERITAGE INQUIRY SYSTEM SEARCHES

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Page 737 of 752

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List of Aboriginal Cultural Heritage (ACH) Lodged

Search Criteria

5 Aboriginal Cultural Heritage (ACH) Lodged in Shapefile - ScaOps_AdvertisingEMBA_20240215

Disclaimer

Aboriginal heritage holds significant value to Aboriginal people for their social, spiritual, historical, scientific, or aesthetic importance within Aboriginal traditions, and provides an essential link for Aboriginal people to their past, present and future. In Western Australia Aboriginal heritage is protected under the *Aboriginal Heritage Act 1972*.

All Aboriginal cultural heritage in Western Australia is protected, whether or not the ACH has been reported or exists on the Register.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you provide the details to the Department via <https://achknowledge.dplh.wa.gov.au/ach-enquiry-form> and we will make every effort to rectify it as soon as possible.

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List of Aboriginal Cultural Heritage (ACH) Lodged

Terminology

ID: ACH on the Register is assigned a unique ID by the Department of Planning, Lands and Heritage using the format: ACH-00000001. For ACH on the former Register the ID numbers remain unchanged and use the new format. For example the ACH ID of the place Swan River was previously '3536' and is now 'ACH-00003536'.

Access and Restrictions:

- **Boundary Reliable (Yes/No):** Indicates whether to the best knowledge of the Department, the location and extent of the ACH boundary is considered reliable.
- **Boundary Restricted = No:** Represents the actual location of the ACH as understood by the Department.
- **Boundary Restricted = Yes:** To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the ACH is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- **Culturally Sensitive = No:** Availability of information that the Department of Planning, Lands and Heritage holds in relation to the ACH is not restricted in any way.
- **Culturally Sensitive = Yes:** Some of the information that the Department of Planning, Lands and Heritage holds in relation to the ACH is restricted if it is considered culturally sensitive information. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the people who provided the information. To request access please contact via <https://achknowledge.dplh.wa.gov.au/ach-enquiry-form>.
- **Culturally Sensitive Nature:**
 - **No Gender / Initiation Restrictions:** *Anyone* can view the information.
 - **Men only:** Only *males* can view restricted information.
 - **Women only:** Only *females* can view restricted information.

Status:

- **Register:** Aboriginal cultural heritage places that are assessed as meeting Section 5 of the *Aboriginal Heritage Act 1972*.
- **Lodged:** Information which has been received in relation to an Aboriginal cultural heritage place, but is yet to be assessed under Section 5 of the *Aboriginal Heritage Act 1972*.
- **Historic:** Aboriginal heritage places assessed as not meeting the criteria of Section 5 of the *Aboriginal Heritage Act 1972*. Includes places that no longer exist as a result of land use activities with existing approvals.

Place Type: The type of Aboriginal cultural heritage place. For example an artefact scatter place or engravings place.

Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place.

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Lodged

ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
976	ROSEMARY IS.21: HALFWAY CK	No	No	No	No Gender / Initiation Restrictions	Lodged	Traditional Structure	*Registered Knowledge Holder names available from DPLH	
1111	LEGENDRE 08.	No	No	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter; Traditional Structure; Shell	*Registered Knowledge Holder names available from DPLH	
21500	Gidley Island RAMMC2	No	No	No	No Gender / Initiation Restrictions	Lodged	Engraving	*Registered Knowledge Holder names available from DPLH	
21503	Gidley Island RAMMC9	No	No	No	No Gender / Initiation Restrictions	Lodged	Engraving	*Registered Knowledge Holder names available from DPLH	
39191		No	805180000	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter; Ritual / Ceremonial; Creation / Dreaming Narrative; Engraving; Midden; Rock Shelter; Water Source	*Registered Knowledge Holder names available from DPLH	

Search Criteria

58 Aboriginal Cultural Heritage (ACH) Register in Shapefile - ScaOps_AdvertisingEMBA_20240215. Warning: Search area complex so results may be inaccurate. Contact DPLH for assistance.

Disclaimer

Aboriginal heritage holds significant value to Aboriginal people for their social, spiritual, historical, scientific, or aesthetic importance within Aboriginal traditions, and provides an essential link for Aboriginal people to their past, present and future. In Western Australia Aboriginal heritage is protected under the Aboriginal Heritage Act 1972.

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Terminology

ID: ACH on the Register is assigned a unique ID by the Department of Planning, Lands and Heritage using the format: ACH-00000001. For ACH on the former Register the ID numbers remain unchanged and use the new format. For example the ACH ID of the place Swan River was previously '3536' and is now 'ACH-00003536'.

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- Boundary Restricted = Yes: To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the ACH is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
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- Culturally Sensitive = Yes: Some of the information that the Department of Planning, Lands and Heritage holds in relation to the ACH is restricted if it is considered culturally sensitive information. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the people who provided the information. To request access please contact via <https://achknowledge.dplh.wa.gov.au/ach-enquiry-form>.
- Culturally Sensitive Nature:
 - No Gender / Initiation Restrictions: Anyone can view the information.
 - Men only: Only males can view restricted information.
 - Women only: Only females can view restricted information.

Status:

- Register: Aboriginal cultural heritage places that are assessed as meeting Section 5 of the Aboriginal Heritage Act 1972.
- Lodged: Information which has been received in relation to an Aboriginal cultural heritage place, but is yet to be assessed under Section 5 of the Aboriginal Heritage Act 1972.
- Historic: Aboriginal heritage places assessed as not meeting the criteria of Section 5 of the Aboriginal Heritage Act 1972. Includes places that no longer exist as a result of land use activities with existing approvals.

Place Type: The type of Aboriginal cultural heritage place. For example an artefact scatter place or engravings place.

Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place.

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
873	MONTEBELLO IS: NOALA CAVE.	No	Yes	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden; Rock Shelter	*Registered Knowledge Holder names available from DPLH	P07287
926	MONTEBELLO IS: HAYNES CAVE.	No	Yes	No	No Gender / Initiation Restrictions	Register	Sub surface cultural material; Artefacts / Scatter; Midden; Rock Shelter	*Registered Knowledge Holder names available from DPLH	P07286
966	ROSEMARY IS.11: CHOOKIE BAY	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P07219
967	ROSEMARY IS.12: CHOOKIE BAY	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Quarry	*Registered Knowledge Holder names available from DPLH	P07220
968	ROSEMARY IS.13	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Grinding areas / Grooves; Midden	*Registered Knowledge Holder names available from DPLH	P07221
969	ROSEMARY IS.14	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Grinding areas / Grooves; Midden	*Registered Knowledge Holder names available from DPLH	P07222
970	ROSEMARY IS.15: AIRSTRIP	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Grinding areas / Grooves; Midden	*Registered Knowledge Holder names available from DPLH	P07223
971	ROSEMARY IS.16: AIRSTRIP	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden; Quarry	*Registered Knowledge Holder names available from DPLH	P07224
972	ROSEMARY IS.17: AIRSTRIP	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Quarry	*Registered Knowledge Holder names available from DPLH	P07225
973	ROSEMARY IS.18: DEEP WATER	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P07226
974	ROSEMARY IS.19: CHITON	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P07227
975	ROSEMARY IS.20: HALFWAY CK	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P07228
977	ROSEMARY IS.22	No	No	No	No Gender / Initiation Restrictions	Register	Engraving; Traditional Structure	*Registered Knowledge Holder names available from DPLH	P07230
978	ROSEMARY IS.23: WADJURU R/H	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Engraving; Grinding areas / Grooves; Traditional Structure; Midden; Water Source	*Registered Knowledge Holder names available from DPLH	P07231
979	ROSEMARY IS.24: HUNGERFORD	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P07232
1062	LEGENDRE 11	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	P07204
1103	LEGENDRE HILL	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P07193

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
1104	LEGENDRE 01.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Shell; Water Source	*Registered Knowledge Holder names available from DPLH	P07194
1105	LEGENDRE 02	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P07195
1106	LEGENDRE 03.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Shell	*Registered Knowledge Holder names available from DPLH	P07196
1109	LEGENDRE 06.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Shell	*Registered Knowledge Holder names available from DPLH	P07199
1110	LEGENDRE 07.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Shell	*Registered Knowledge Holder names available from DPLH	P07200
1112	LEGENDRE 09.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Shell	*Registered Knowledge Holder names available from DPLH	P07202
1113	LEGENDRE 10.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Rock Shelter; Shell	*Registered Knowledge Holder names available from DPLH	P07203
6078	ROSEMARY ISLAND 10	No	Yes	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P07019
6187	ANGEL ISLAND: NW.	No	Yes	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Engraving; Grinding areas / Grooves; Midden; Rock Shelter	*Registered Knowledge Holder names available from DPLH	P06920
6227	MALUS ISLAND.	No	Yes	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Camp; Engraving; Grinding areas / Grooves; Traditional Structure	*Registered Knowledge Holder names available from DPLH	P06908
6232	WEST LEWIS ISLAND: N	No	Yes	No	No Gender / Initiation Restrictions	Register	Engraving; Traditional Structure	*Registered Knowledge Holder names available from DPLH	P06913
7133	ANGEL ISLAND BEACON	No	Yes	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P05799
7899	MALUS ISLAND	No	Yes	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	P04947
7906	DELAMBRE ISLAND SOUTH.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Water Source	*Registered Knowledge Holder names available from DPLH	P04954
9735	GIDLEY PASSAGE	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P02447
11328	GAP WELL	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00836
11645	DOLPHIN LOCATION 8 NO. 3	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00509

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
11646	DOLPHIN LOCATION 8 NO. 1	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00510
11647	DOLPHIN LOCATION 8 NO. 2	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00511
11648	DOLPHIN ISLAND	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00512
11698	ANGELA COVE	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Engraving	*Registered Knowledge Holder names available from DPLH	P00457
11699	GIDLEY BAY, GIDLEY ISLAND.	No	No	No	No Gender / Initiation Restrictions	Register	Camp; Engraving	*Registered Knowledge Holder names available from DPLH	P00458
11713	LAST ENCOUNTER COVE.	No	No	No	No Gender / Initiation Restrictions	Register	Camp; Engraving	*Registered Knowledge Holder names available from DPLH	P00473
11714	GIDLEY ISLAND	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00474
11715	RIM ROCK GORGE.	No	No	No	No Gender / Initiation Restrictions	Register	Camp; Engraving	*Registered Knowledge Holder names available from DPLH	P00475
11729	NGARLUMA POINT, GIDLEY IS.	No	Yes	No	No Gender / Initiation Restrictions	Register	Engraving; Traditional Structure	*Registered Knowledge Holder names available from DPLH	P00434
11730	MORS HILL, GIDLEY ISLAND.	No	No	No	No Gender / Initiation Restrictions	Register	Burial; Artefacts / Scatter; Engraving; Shell	*Registered Knowledge Holder names available from DPLH	P00435
11734	ANGEL ISLAND 2	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00440
11735	ANGEL ISLAND 1	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Engraving	*Registered Knowledge Holder names available from DPLH	P00441
11767	FISH POINT, GIDLEY ISLAND	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00418
11772	ROSEMARY ISLAND 09	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P00369
11773	ROSEMARY ISLAND 08	No	No	No	No Gender / Initiation Restrictions	Register	Engraving; Grinding areas / Grooves; Traditional Structure	*Registered Knowledge Holder names available from DPLH	P00370
11774	ROSEMARY ISLAND 07	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00371
11775	ROSEMARY ISLAND 06	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00372

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
11776	ROSEMARY ISLAND 04.	No	No	No	No Gender / Initiation Restrictions	Register	Camp; Engraving	*Registered Knowledge Holder names available from DPLH	P00373
11777	ROSEMARY ISLAND 03	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00374
11789	ROSEMARY ISLAND 01	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Engraving; Midden; Quarry	*Registered Knowledge Holder names available from DPLH	P00386
11818	ROSEMARY ISLAND 02	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00362
11819	ROSEMARY ISLAND 05	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00363
11820	ENDERBY ISLAND 01	No	No	No	No Gender / Initiation Restrictions	Register	Engraving	*Registered Knowledge Holder names available from DPLH	P00364
38533	Cape Bruguieres Channel	No	Yes	No		Register	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	

APPENDIX E: NATIONAL OFFSHORE PETROLEUM SAFETY AND ENVIRONMENTAL MANAGEMENT AUTHORITY REPORTING FORMS

NOPSEMA Recordable Environmental Incident monthly Reporting Form:
<https://www.nopsema.gov.au/sites/default/files/documents/Monthly%20Environmental%20Incident%20Reports%20form%20%28A198750%29.docx>

Report of an accident, dangerous occurrence or environmental incident:
<https://www.nopsema.gov.au/sites/default/files/documents/Form%20-%20Report%20of%20an%20Accident%20Dangerous%20Occurrence%20or%20Environmental%20Incident%20%28A159980%29.docx>

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Page 738 of 752

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APPENDIX F: CONSULTATION

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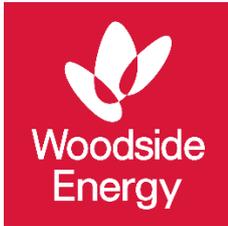
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Page 739 of 752

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Appendix F

Scarborough Offshore Facility and Trunkline (Operations) Environment Plan

- **Consultation Approach**
- **Table 1: Assessment of Relevance**
- **Consultation Activities**
- **Table 2: Consultation Report with Relevant Persons or Organisations**
- **Table 3: Engagement Report with Persons or Organisations Assessed as Not Relevant**
- **Record of Consultation**

Date: January 2025

Revision: 3

TABLE OF CONTENTS

APPENDIX F

CONSULTATION APPROACH	3
RELEVANCY ASSESSMENT	13
Table 1: Assessment of Relevance	15
CONSULTATION ACTIVITIES	50
TABLE 2: CONSULTATION REPORT WITH RELEVANT PERSONS OR ORGANISATIONS	60
TABLE 3: ENGAGEMENT REPORT WITH PERSONS OR ORGANISATIONS ASSESSED AS NOT RELEVANT	571
RECORD OF CONSULTATION	631

CONSULTATION APPROACH

Consultation under Regulation 25 requires that, in the course of preparing an EP, a titleholder must consult each relevant person (Regulation 25(1)), must give each relevant person **sufficient information** to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person (Regulation 25(2)) and must allow a relevant person a **reasonable period** for the consultation (Regulation 25(3)).

A titleholder must also give a relevant person a **reasonable opportunity** to consult – this means that a titleholder will need to demonstrate that what it did constituted consultation appropriate and adapted to the nature of the interests of the relevant person (see Tipakalippa Full Court para 104).

The EP must contain a report on all consultations that contain an assessment of the merits of any objection or claim about the adverse impact of each activity to which the EP relates and a statement of the titleholder’s response, or proposed response, if any, to each objection or claim (Regulation 24(b)). The criteria for acceptance of an EP includes that the EP demonstrates that the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate (Regulation 34(g)).

For the Scarborough Offshore Facility and Trunkline (Operations) EP (referred to as either the Operations EP or this EP), Woodside has taken a broad and proactive, tiered consultation approach over either a 30-day period or an extended period of at least four and a half months (often extended at the request of some relevant and non-relevant persons).

Consultation for this EP was advertised widely to raise public awareness of the consultation opportunity and enable self-identification. It included two social media campaigns and advertising in national, state, regional and Indigenous newspapers.

Consultation on the Operations EP has included a consideration of, assessment and proactive response to historical feedback received from stakeholders on the Scarborough Project Offshore Project Proposal (Scarborough OPP) and prior Scarborough Energy Project EPs, where that feedback relates to this Operations EP.

The tiered consultation approach is proactive, extended, has enabled self-identification, and has raised broad awareness of Woodside’s activities related to the Operations EP and the Scarborough Energy Project.

Consultation Tiered Approach

Regulation 25	Woodside’s consultation approach assessed and identified relevant persons, enabled two-way dialogue and engagement, and included email and phone call follow-up. The approach taken satisfies the requirements of Regulation 25: to give relevant persons sufficient information and allow a reasonable period of time for consultation (see Section 5).
Proactive	To raise awareness of the consultation process, and to enable broad capture and grass-roots consultation, Woodside undertook advertised regional consultation roadshows and facilitated consultation at regional community events. Woodside also reviewed, assessed and proactively wrote to numerous relevant and non-relevant persons based on their historical feedback to the Scarborough OPP, and/or four previous Scarborough Energy Project EPs.
Extended	A reasonable consultation period (in some instances at least four and a half months) was provided to enable relevant persons to make an informed assessment of possible consequences on their functions, interests or activities and enabled other communication activities. The consultation timeframe was also extended at the request of some relevant and non-relevant persons.

Self-Identification	Broad communication activities were undertaken to build awareness of consultation and enable self-identification, supported by targeted education materials.
Broad Understanding	Broad, proactive communication activities were undertaken with the public to raise awareness of Woodside's activities related to the Operations EP and the Scarborough Energy Project.

Building on the Existing Consultation Approach

For the Operations EP, Woodside has built on its consultation methodology and undertaken additional consultation activities throughout the extended consultation period so that it has allowed a reasonable period of time and given sufficient information to relevant persons so that they can make an informed assessment of the possible consequences of the activity on their functions, interests or activities.

The approach for the Operations EP has included:

- Allowing a 30-day period for consultation for those who only required 30 days
- Allowing an extended consultation period of at least four and a half months for some relevant and non-relevant persons
- Undertaking proactive consultation activities to provide sufficient information to relevant persons
- Raising awareness of the consultation process and opportunity to provide feedback
- Encouraging participation in the consultation process
- Remaining open to receive feedback while the EP was being prepared, while it is under assessment and after it has been accepted.

An overview of this approach is shown below:

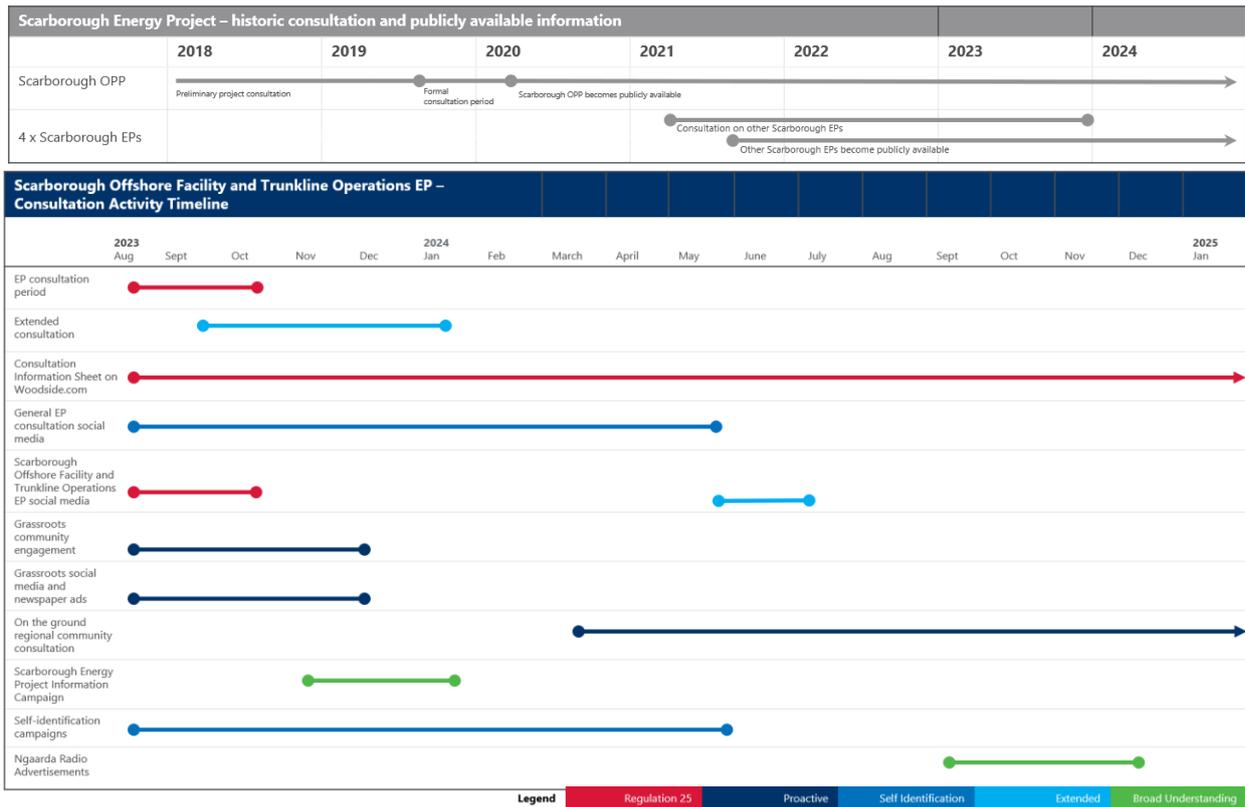


Figure 1: Scarborough Energy Project Consultation Activity

Historical Consultation

Woodside recognises that consultation for the Operations EP, separate from historical consultation and engagement, is required under Regulation 25 of the Environment Regulations. However, the historical consultation and engagement is relevant as it provides important background as to the state of knowledge of each of the parties involved in the consultation process, (the information available and already provided to relevant persons and awareness of the Scarborough Energy Project), the methods of consultation that a relevant person has previously engaged in or noted as a preference (emails or meetings) and length of time that Woodside has had a relationship with the relevant person in which engagement has occurred, especially where Woodside has addressed and responded to topics of interest on a number of previous occasions. This position is endorsed in *Newchurch v The Minister for Aboriginal Affairs and Reconciliation* [2011] SASC 29 at [157], cited with approval in *Tipakalippa* at [105]).

A number of relevant persons have been engaged in discourse about the Scarborough Energy Project and have had access to the Scarborough OPP from February 2020 (Record of Consultation, reference 4) and have continued to consult on the Scarborough Project EPs up to and including the end date of Woodside’s broad consultation approach for this EP, and thereafter pursuant to Woodside’s program of ongoing engagement (see Section 5.7). This is important context because the activities under this EP are included in the OPP as are assessments or risks and impacts and control measures relevant to the activity under this EP. The information has therefore been publicly available and accessible for persons being consulted since the OPP was published.

Initial consultation for the Scarborough OPP commenced in February 2018 with interested and affected stakeholders as part of a planned, integrated and consistent approach to stakeholder engagement for Woodside’s proposed activities.

Consultation on the Scarborough Energy Project also took place with a number of relevant persons during the development of three Scarborough EPs¹ between July 2021 and October 2023. Consultation was also undertaken regarding the Scarborough 4D Baseline Marine Seismic EP between May 2021 and October 2023. Consultation on these EPs is relevant because topics raised during that consultation were also raised during consultation for this EP (for example topics including greenhouse gas, climate change and assessment and controls for management of direct and indirect impacts and risks to the environment relevant to the Scarborough Project). In a number of instances, these topics have been raised and then reviewed, assessed and responded to by Woodside and have then been re-raised again by the same persons and organisations during consultation on this EP.

Additional information (full draft EPs) for the three Scarborough EPs² was available on NOPSEMA's website between November 2021 and January 2022, then after further consultation following the Prakalpa decision, available in early-December 2023. The Scarborough 4D Baseline Marine Seismic EP was made publicly available from October 2021.

A timeline of historical consultation is shown below:



Figure 2: Scarborough Energy Project Consultation Timeline

Scarborough Offshore Project Proposal (OPP) and Climate Impacts

The Scarborough OPP has been publicly available on the NOPSEMA website since 2020. Consultation on the OPP at that time included consultation with a number of NGOs.

As part of consultation for this EP, Woodside referred relevant persons to the OPP which amongst other things provides information on routine GHG emissions associated with the project lifecycle, inclusive of the activity under this EP. Examples of content in the OPP which is relevant to this EP includes:

- Description of the whole project and each component part (including a description of activities under this EP)
- Description of emission sources, including direct offshore emissions and indirect emissions associated with onshore processing and third party consumption
- Estimates of GHG emissions on an annual and life of project basis, with description of underpinning assumptions and estimation methodology
- Consideration of the role gas from the Scarborough project can play in the global energy system, energy mixes and climate related scenarios
- Management and mitigation measures for direct and indirect GHG emissions

¹ Scarborough Seabed Intervention and Trunkline Installation, Scarborough Drilling and Completions, and WA-61-L and WA-62-L Subsea Infrastructure Installation.

² See footnote 1 above.

- Assessment of the potential impacts of climate change, considering Australian and global receptors.

In addition to running a broader Scarborough Energy Project information campaign in 2023, Woodside referred relevant persons to the Woodside website which includes a dedicated page on the Scarborough Energy Project. This page provides a description of the Scarborough Project and includes a section on managing impacts including:

- Scarborough's role in the energy transition
- Managing emissions at Scarborough
- Environmental management
- Cultural heritage management.

Direct references are provided on the website to relevant sections of the OPP and links to reports such as the Pluto LNG Facility Greenhouse Gas Abatement Program.

Throughout historic consultation on the Scarborough Energy Project, and consultation specific to this EP, topics including those relating to GHG emissions and broader climate related information relating to the Scarborough Energy Project, have been made publicly available.

Traditional Custodian Consultation Approach

Woodside's aim is to have meaningful, long-term relationships with relevant Traditional Owners which support consultation and which are continuous and not confined to individual EPs. The relationships aim to enable consultation on Woodside's portfolio of EPs and also provide a forum for discussion of other issues that are relevant at the time of engagement.

To this end, consultation on Woodside's EPs, including the Operations EP, can occur before, during and after the designated consultation period in a more holistic manner allowing for an understanding of the big picture and respecting and accommodating cultural requirements. Ongoing consultation remains an important part of consulting with Traditional Custodians and is designed to respect Traditional Custodians' availability, cultural protocols and their preferred method of consultation. In the case of the Scarborough Energy Project, Woodside has been talking to a large number of relevant person Traditional Owners about the project including the whole project proposal (OPP) and specific activities under the four previous Scarborough EPs.³

From February 2024, when requested, Woodside began working with a limited number of nominated representative bodies to develop Consultation Agreements which aim to obtain input from those groups on how they would like to be consulted (eg what is sufficient information; what is a reasonable period for consultation) so as to enable each group to be consulted in a manner appropriately adapted to their interests. While the Consultation Agreements have been useful in prompting conversations with groups about how they wish to be consulted, there has been limited interest from groups in finalising the detail in the Consultation Agreements. Feedback is that groups have higher order priority matters to focus on. Consultation on this EP therefore progressed in parallel to discussion on the Consultation Agreements and Woodside will remain open to progressing Consultation Agreements should groups seek them.

NGO Consultation Approach

Woodside consults with environmental non-government organisations (NGOs) as part of its EP consultation process. In its methodology (Section 5.3.4, Table 5-2), NGOs are considered "Other non-government groups or organisations" and "Research institutes and local conservation groups or organisations". Relevant person identification for these categories is based on registered non-government groups or organisations with current, targeted, public website material specific to the proposed activity at the time of developing the EP and who have demonstrated functions, interests or

³ These being the three Scarborough EPs (as detailed in footnote 1 above), together with the Scarborough 4D Baseline Marine Seismic EP.

activities relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation.

As part of Woodside's methodology for example, Woodside consults with Greenpeace Australia Pacific (GAP), Australian Conservation Foundation (ACF) and Conservation Council of WA (CCWA). In addition to these NGOs, Woodside consults with various other NGOs when relevant and depending on the type of proposed activity or requests to be consulted.

Given the nature and scale of the Operations EP's planned activity, and current and past public interest in the project, including from a number of NGOs, Woodside has consulted widely and proactively and has extended the consultation timeframe where requested. In addition, Woodside has proactively considered historical consultation and topics of interest previously raised by NGOs so that past issues and topics they are interested in and which may be relevant to this EP, have been addressed.

This proactive approach enabled two-way consultation and encouraged relevant persons to engage with titleholders as early as possible. NOPSEMA has published a brochure entitled *Consultation on offshore petroleum environment plans: Information for the community*. That brochure states, "What constitutes sufficient information and a reasonable period of time depends on several factors including the nature of your functions, interests and activities. You should communicate as early as possible in consultation with titleholders about what information and how much time you may need so that they can consider, respond and address these in their planning". Woodside's initial consultation correspondence to all NGOs included a link to this brochure.

So that NGOs were given sufficient information and a reasonable period of time to consult, Woodside undertook a series of varied and proactive consultation methods for these relevant persons:

- Consultation was extended to four and a half months (or longer if reasonably requested) and correspondence continued to be exchanged up to submission of the Operations EP
- Advertising of the consultation period (social and traditional media)
- Notice of when consultation was closing for the preparation of the EP
- Advising NGOs they had been given sufficient information and a reasonable period of time for consultation in preparation of the EP.

In addition to the Consultation Information Sheet, Woodside also made the following available to NGOs:

- Consultation correspondence addressing historical claims and objections, as well as responses to ongoing correspondence including where relevant persons raised new and repeated claims and objectives
- Offers of face-to-face briefings (none of which were taken up by NGOs)
- A roadshow to communities in the Pilbara, Gascoyne and Murchison which could be attended by NGOs including local groups (If NGOs attended these sessions, they did not identify themselves.)
- Provided links to the Scarborough OPP which provided a description of the whole project including risks, impacts and controls
- Provided links to the other relevant EPs,⁴ and in particular the Scarborough Seabed Intervention and Trunkline Installation EP, for which the activity is the installation of the trunkline that will be operated under the Operations EP.

NGO Response

For the Operations EP, Woodside identified ten NGOs as relevant and a further six as not relevant (but which Woodside nevertheless chose to contact). Of those assessed as not relevant, one engaged in a

⁴ See footnote 3 on page 5.

meaningful manner, but was still assessed as being not relevant as issues raised did not demonstrate their functions, interests or activities would be impacted by activities under the EP.

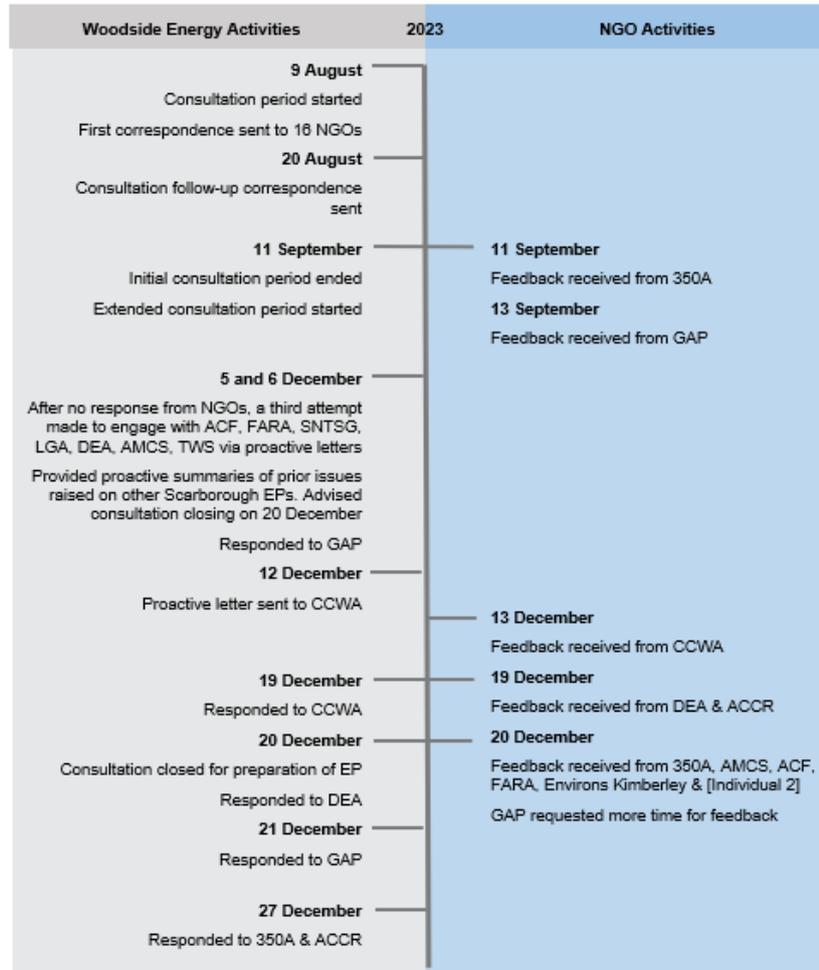
Two NGOs self-identified during the consultation process. One was assessed as relevant. The other was assessed as not relevant as the issues raised did not demonstrate their functions, interests or activities would be impacted by activities under the EP.

During the consultation process, Woodside observed a general pattern in NGO responses to Woodside emails and information which was along the following lines:

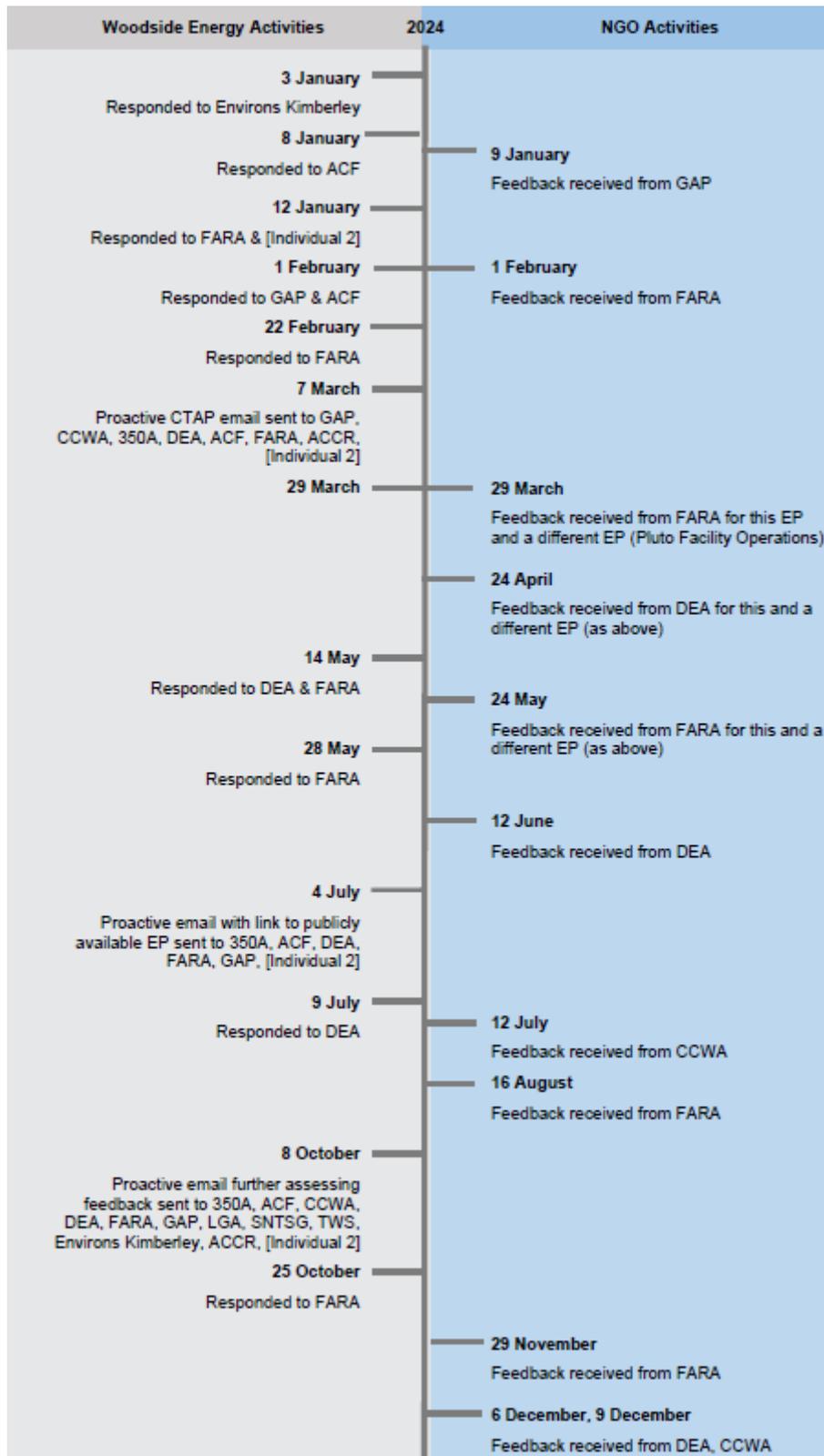
- No response or a delay in responses beyond consultation closure dates. These delayed responses followed an initial four-week consultation period which Woodside then extended to a four-and-a-half-month consultation period. The responses would invariably assert, that Woodside has not met regulatory requirements as it has not provided sufficient information or a reasonable period of time for consultation. The exception to this was Conservation Council of WA who provided responses within the initial consultation period.
- Correspondence continued to be sent to Woodside or NOPSEMA, irrespective of consultation deadlines and the fact that information had already been provided which addressed claims, feedback or objections or topics of interest.
- Once the extended consultation period had passed, Woodside continued to receive correspondence related to this EP from NGOs via feedback on other EPs, specifically the Pluto Facility Operations EP and the Scarborough Trunkline Operations (State Waters) EP.

In addition, of the NGOs consulted, nine have publicly stated via the media, social media, websites or their submission to the Federal Government's Future Gas Strategy that their functions, interests or activities included efforts to stop or phase out all fossil fuel use and development in Australia and specifically to block any new gas field development. These nine groups expressed what Woodside understands to be a fundamental objection to the Australian gas industry. In a number of instances, it was also clear that these groups hold views that are different to the views held by Woodside's on topics including the role of Scarborough LNG, the energy transition, greenhouse gas, climate change and risks and impacts to cultural values including Murujuga rock art. Given the differences in views, it became clear during consultation that the groups are unlikely to agree with Woodside's review, assessment and responses to their correspondence. This has been evident in continued correspondence received after consultation closed for this EP. Given the interest by these groups in this EP, it is anticipated that feedback of this nature will continue to be sent to Woodside during assessment of the EP and after it has been accepted. In accordance with Woodside's consultation approach, Woodside will continue to review, assess and respond to appropriate feedback, objections and claims about the adverse impact of the activity under this EP after it has been accepted and throughout the lift of the EP. Should a claim or objection be received following the acceptance of the EP that Woodside assesses to have identified a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Revision process as appropriate. Further information on the NGO consultation approach and response is in the Proactive Consultation section of Consultation Activities.

Given the historical consultation that has occurred, consultation that has occurred for this EP, and that several NGOs have a fundamental objection to the Australian gas industry, Woodside confirms it has made genuine and extensive efforts to consult and that not all NGOs have taken the opportunity to consult in way that is consistent with the purpose of consultation. In circumstances where NGOs who are relevant persons have been provided with sufficient information and a reasonable period to consult as well as a reasonable opportunity to do so, regulation 25 of the Environment Regulations has been discharged.



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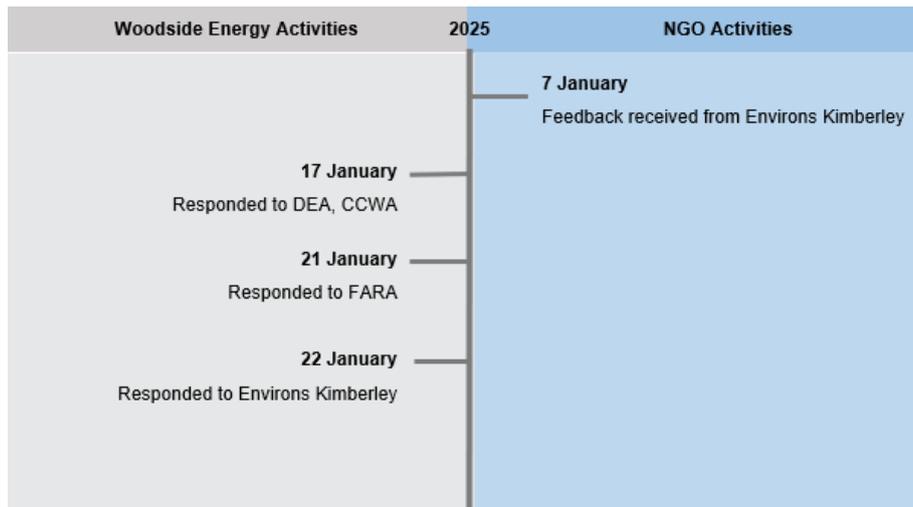


Figure 3: Scarborough Offshore Facility and Trunkline Operations EP NGO Consultation

RELEVANCY ASSESSMENT

Assessment of Relevant Persons for the Proposed Activity

The result of Woodside's assessment of relevant persons is outlined at Table 1 and Table 2.

Persons or organisations that Woodside assessed as not relevant but nonetheless chose to contact at its discretion or who self-identified and Woodside assessed as not relevant in accordance with Section 5.3.4 are summarised below at Table 1 and Table 3.

Environment That May Be Affected (EMBA)

The Environment that May Be Affected (EMBA) is the largest spatial extent where unplanned events could have an environmental consequence on the surrounding environment. For this EP, the EMBA is the potential spatial extent of surface and in-water hydrocarbons at concentrations above ecological impact thresholds, in the event of the worst-case credible spill. The ecological impact thresholds used to delineate the EMBA are defined in Section 6.8.1.2. The EMBA also includes any areas that are predicted to experience shoreline contact with hydrocarbons above threshold concentrations. The worst-case credible spill scenarios for this EP are highly unlikely loss of marine diesel during a vessel collision:

- At the FPU location
- From a vessel conducting activities along the trunkline in the Montebello Multi Use Zone
- From a vessel conducting activities along the trunkline at the boundary between State and Commonwealth waters.

Results from each of these scenarios were overlaid to create a combined EMBA.

As per Woodside's methodology (Section 5), assessment of relevant persons is based on the EMBA. In the case of the Operations EP, the original EMBA (Figure 5) determined the extent of Woodside's consultation. After consultation had been completed, Woodside applied a revised, industry-wide agreed approach to oil spill modelling. This exercise led to a reduction in the size of the EMBA (Figure 4). The result is that Woodside's original approach to consultation applied an inclusive approach and involved a consultation which was broader than is defined in its methodology. This has meant that, because in the change of the EMBA, some stakeholders previously assessed as relevant are no longer relevant and are now included in Table 3 as "chose to contact". For the sake of clarity, consultation with those persons was, in any event, undertaken and is complete.

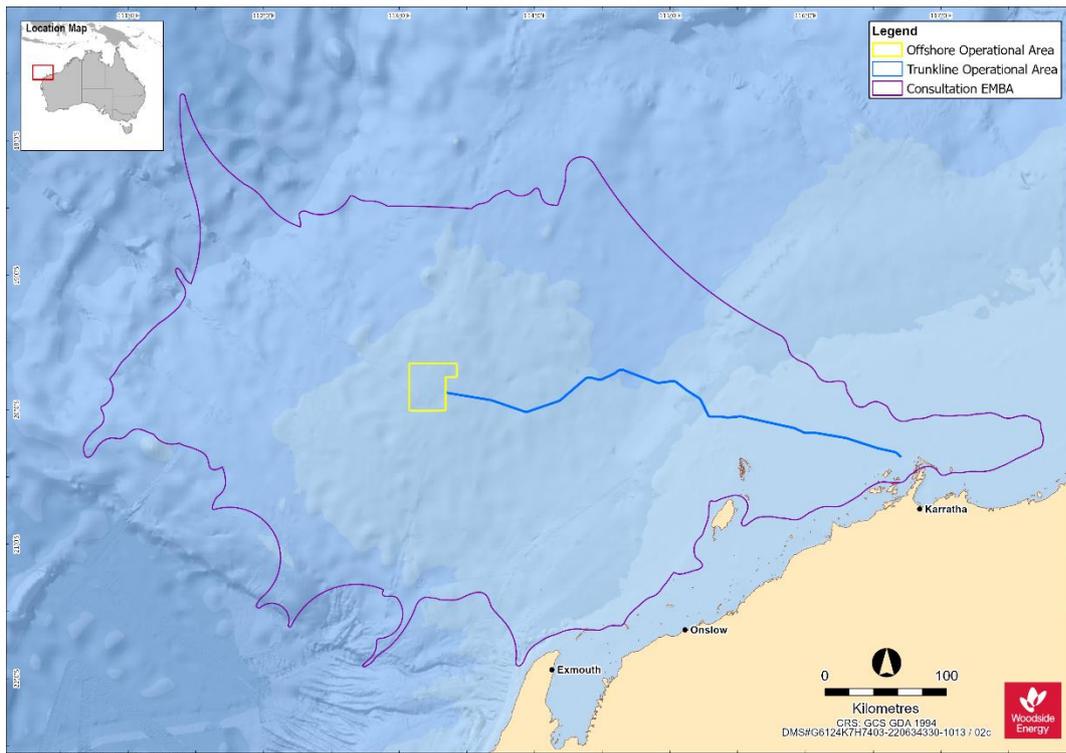


Figure 4: Operational Area and revised EMBA for this EP

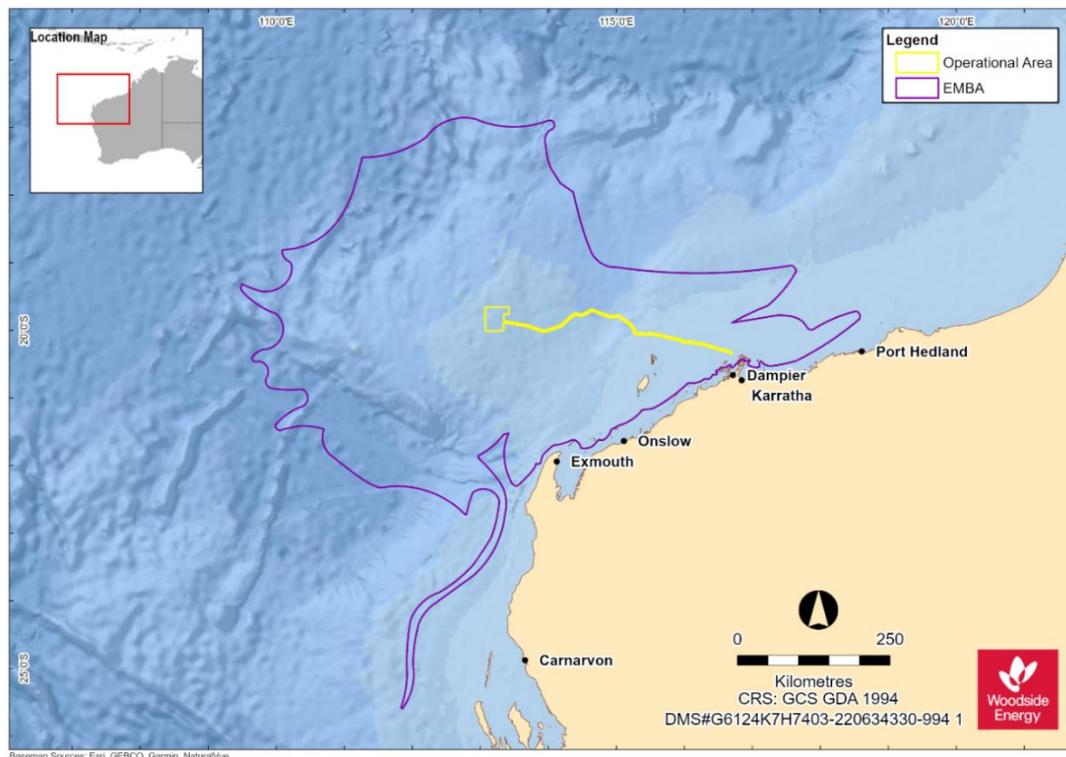


Figure 5: Operational Area and original EMBA for this EP

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Table 1: Assessment of Relevance

Stakeholder	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Commonwealth and WA State Government Departments or Agencies – Marine			
Australian Border Force (ABF)	Responsible for coordinating maritime security	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. ABF's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
Australian Communications and Media Authority (ACMA)	Regulator for communications and media	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. ACMA's responsibilities may be relevant to the activity as there are telecommunications lines that intersect the Operational Area.	Yes
Australian Fisheries Management Authority (AFMA)	Responsible for managing Commonwealth fisheries	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. The North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery are active in the Operational Area. The North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery are active in the EMBA. AFMA's responsibilities may be relevant to the activity as the North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery are active in the Operational Area and the EMBA.	Yes
Australian Hydrographic Office (AHO)	Responsible for maritime safety and Notices to Mariners	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. AHO's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
Australian Maritime Safety Authority (AMSA) – Marine Safety	Statutory agency for vessel safety and navigation	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. AMSA – Marine Safety's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes

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Stakeholder	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Australian Maritime Safety Authority (AMSA) – Marine Pollution	Legislated responsibility for oil pollution response in Commonwealth waters	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. AMSA – Marine Pollution's responsibilities may be relevant to the activity as the proposed activity has a hydrocarbon spill risk which may require AMSA response in Commonwealth waters.	Yes
Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries	Responsible for implementing Commonwealth policies and programs to support agriculture, fishery, food and forestry industries	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. The North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery are active in the Operational Area. The North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery, are active in the EMBA. DAFF – Fisheries' responsibilities may be relevant to the activity as the North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery are active in the Operational Area and the EMBA.	Yes
Department of Defence (DoD)	Responsible for defending Australia and its national interests.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. DoD's responsibilities may be relevant to the activity as defence training areas lie within the EMBA.	Yes
Department of Primary Industries and Regional Development (DPIRD)	Responsible for managing State fisheries	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. Marine Aquarium Managed Fishery, Mackerel Managed Fishery - Pilbara (Area 2), Pilbara Crab Managed Fishery, Specimen Shell Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery, West Coast Deep Sea Crustacean Managed Fishery and Onslow Prawn Managed Fishery are active in the Operational Area. Marine Aquarium Managed Fishery, Mackerel Managed Fishery, Pilbara Crab Managed Fishery, Specimen Shell Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Fish Trawl (Interim) Managed Fishery, Pilbara Trap Managed Fishery, Pilbara Line Fishery (Condition), West Coast Deep Sea Crustacean Managed Fishery, Onslow Prawn Managed Fishery, Exmouth Gulf Prawn Managed Fishery and Nickol Bay Prawn Managed Fishery are active in the EMBA.	Yes

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Stakeholder	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		DPIRD's responsibilities may be relevant to the activity as the government department responsible for State fisheries.	
Department of Transport (DoT)	Legislated responsibility for oil pollution response in State waters	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. The proposed activity has a hydrocarbon spill risk, which may require DoT response in State waters.	Yes
Department of Planning, Lands and Heritage (DPLH)	Responsible for state level land use planning and management, and oversight of Aboriginal cultural heritage and built heritage matters.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. There is known Maritime Cultural Heritage overlapping the EMBA.	Yes
Western Australian Museum (WAM)	Manages 200 shipwreck sites of the 1,500 known to be located off the Western Australian coast.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. There are known shipwrecks overlapping the EMBA which the WAM may be responsible for.	Yes
Pilbara Ports Authority (PPA)	Responsible for the operation of the Port of Dampier, Port of Varanus Island and greenfield port Balla Balla.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. The proposed activity has the potential to impact Pilbara Ports Authority's responsibilities as the Operational Area and EMBA overlaps the PPA's area of responsibility.	Yes
Commonwealth and WA State Government Departments or Agencies – Environment			
Clean Energy Regulator (CER)	The CER administers schemes legislated by the Australian Government (e.g. National Greenhouse and Energy Reporting Scheme, Emissions Reduction Fund, Renewable Energy Target and Australian National Registry of Emissions Units) for measuring, managing, reducing or offsetting Australia's carbon emissions, determined by climate change law.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. CER's responsibilities may be relevant to the proposed activities in relation to emissions and climate related matters given CER's role in administering schemes legislated by the Australian Government in relation to Australia's carbon emissions.	Yes

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Stakeholder	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
<p>Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)</p>	<p>DAFF – Biosecurity administers, implements and enforces the Biosecurity Act 2015. The Department requests to be consulted where an activity has the potential to transfer marine pests.</p> <p>DAFF – Biosecurity also has inspection and reporting requirements to ensure that all conveyances (vessels, installations and aircraft) arriving in Australian territory comply with international health Regulations and that any biosecurity risk is managed.</p> <p>The Dept requests to be consulted where an activity involves the movement of aircraft or vessels between Australia and offshore petroleum activities either inside or outside Australian territory.</p>	<p>Woodside has applied its methodology for ‘Government departments / agencies – environment’ under regulation 25(1)(a) of the Environment Regulations.</p> <p>DAFF – Biosecurity’s responsibilities may be relevant to the proposed activities in the EMBA in the prevention of introduced marine species.</p>	<p>Yes</p>
<p>Department of Climate Change, Energy, the Environment and Water Agriculture (DCCEEW)</p>	<p>Responsible for implementing Commonwealth policies and programs to support climate change, sustainable energy use, water resources, the environment and our heritage.</p> <p>Administers the Underwater Cultural Heritage Act 2018 in collaboration with the States, Northern Territory and Norfolk Island, which is responsible for the protection of shipwrecks, sunken aircraft and other types of underwater heritage and their associated artefacts in Commonwealth waters.</p>	<p>Woodside has applied its methodology for ‘Government departments / agencies – environment’ under regulation 25(1)(a) of the Environment Regulations.</p> <p>DCCEEW’s responsibilities may be relevant to the proposed activities in the EMBA as there are potential environmental impacts from the proposed activity.</p> <p>There is known Maritime Cultural Heritage overlapping the EMBA.</p>	<p>Yes</p>

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Stakeholder	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Director of National Parks (DNP)	Responsible for the management of Commonwealth parks and conservation zones.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. DNP's responsibilities may be relevant to the activity as DNP requires an awareness of activities that occur within AMPs, and an understanding of potential impacts and risks to the values of parks (NOPSEMA guidance note: N-04750-GN1785 A620236, June 2020). Titleholders are required to consult DNP on offshore petroleum and greenhouse gas exploration activities if they occur in, or may impact on the values of marine parks, including where potential spill response activities may occur in the event of a spill (i.e. scientific monitoring).	Yes
Department of Biodiversity, Conservation and Attractions (DBCA)	Responsible for managing WA's parks, forests and reserves to achieve wildlife conservation and provide sustainable recreation and tourism opportunities.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(b) of the Environment Regulations. The EMBA for the proposed activities overlap WA parks, forests or reserves. Activities have the potential to impact marine tourism in the EMBA.	Yes
Ningaloo Coast World Heritage Advisory Committee (NCWHAC)	Supports the DBCA to manage the Ningaloo Coast World Heritage Area.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. The proposed activity has the potential to impact NCWHAC's responsibilities as the EMBA overlaps the Ningaloo Marine Park.	Yes
Commonwealth and State Government Departments or Agencies – Industry			
Department of Industry, Science and Resources (DISR)	Department of relevant Commonwealth Minister.	Required to be consulted under regulation 25(1)(a) of the Environment Regulations.	Yes
Department of Mines, Industry Regulation and Safety (DEMIRS)	Department of relevant State Minister	Required to be consulted under regulation 25(1)(c) of the Environment Regulations.	Yes

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Commonwealth Commercial fisheries and peak representative bodies			
North West Slope and Trawl Fishery	Commonwealth commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.</p>	Yes
Western Deepwater Trawl Fishery	Commonwealth commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.</p>	Yes
Western Tuna and Billfish Fishery	Commonwealth commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery overlaps the Operational Area and EMBA but has not been active in the Operational Area or EMBA within the past five years.</p> <p>Woodside chose to consult Western Tuna and Billfish Fishery at its discretion in line with Section 5.3.7 of the EP.</p>	No
Commonwealth Fisheries Association (CFA)	Represents the interests of commercial fishers with licences in Commonwealth waters	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery are active in the Operational Area.</p> <p>The North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery, are active in the EMBA.</p>	Yes

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		CFA's functions may be relevant to the activity as the North West Slope and Trawl Fishery and Western Deepwater Trawl Fishery are active in the Operational Area and EMBA.	
Tuna Australia	Represents the interests of the Western Tuna and Billfish Fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Tuna Australia's functions are not relevant to the activity as the Western Tuna and Billfish Fishery is not active in the EMBA. Woodside chose to consult Tuna Australia based on the Western Tuna and Billfish Fishery overlap with the initial EMBA.	No
State Commercial fisheries and peak representative bodies			
Mackerel Managed Fishery – Area 2 (Pilbara)	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. Under an agreement with WAFIC Woodside has consulted Mackerel Managed Fishery - Pilbara (Area 2) as relevant persons.	Yes
Mackerel Managed Fishery – Area 3 (Central)	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and revised EMBA but has not been active in the Operational Area or revised EMBA within the past five years. Nevertheless, to take an inclusive approach and to consult more widely, Woodside chose to consult the Mackerel Managed Fishery – Area 3 (Central) based on overlap with the initial EMBA.	No
Pilbara Crab Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under Regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. Under an agreement with WAFIC Woodside has consulted Pilbara Crab Managed Fishery as relevant persons.	Yes

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Marine Aquarium Managed Fishery	State commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.</p> <p>Under an agreement with WAFIC Woodside has consulted Marine Aquarium Managed Fishery as relevant persons.</p>	Yes
West Coast Deep Sea Crustacean Managed Fishery	State commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.</p> <p>Under an agreement with WAFIC Woodside has consulted West Coast Deep Sea Crustacean Managed Fishery as relevant persons.</p>	Yes
Specimen Shell Managed Fishery	State commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.</p> <p>Under an agreement with WAFIC Woodside has consulted Specimen Shell Managed Fishery as relevant persons.</p>	Yes
Onslow Prawn Managed Fishery	State commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.</p> <p>Under an agreement with WAFIC Woodside has consulted Onslow Prawn Managed Fishery as relevant persons.</p>	Yes

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Nickol Bay Prawn Managed Fishery	State commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years, however, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA.</p> <p>As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would however be undertaken only in the event of an unplanned emergency scenario.</p> <p>As all individual licence holders in this fishery were consulted as part of other relevant fisheries, Woodside has chosen to consult the Nickol Bay Prawn Managed Fishery at its discretion in line with Section 5.3.7.</p>	No
Western Australian Sea Cucumber Fishery	State commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.</p> <p>Under an agreement with WAFIC Woodside has consulted Western Australian Sea Cucumber Fishery as relevant persons.</p>	Yes
Exmouth Gulf Prawn Managed Fishery	State commercial fishery	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The fishery does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years, however, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA.</p> <p>As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would however be undertaken only in the event of an unplanned emergency scenario.</p> <p>As all individual licence holders in this fishery were consulted as part of other relevant fisheries, Woodside has chosen to consult the Exmouth Gulf Prawn Managed Fishery at its discretion in line with Section 5.3.7.</p>	No

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Gascoyne Demersal Scalefish Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery does not overlap the revised EMBA. Nevertheless, to take an inclusive approach and to consult more widely, Woodside chose to consult the Gascoyne Demersal Scalefish Fishery based on overlap with the initial EMBA.	No
Land Hermit Crab Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under Regulation 25(1)(d) of the Environment Regulations. Under an agreement between WAFIC and Woodside, WAFIC has advised there is no need to consult this fishery given the proposed activities operate in depths ~31-1400m which is outside the depth of the hand collection methods used by this fishery.	No
Pilbara Trawl Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. Under an agreement with WAFIC Woodside has consulted Pilbara Trawl Fishery as relevant persons.	Yes
Pilbara Trap Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. Under an agreement with WAFIC Woodside has consulted Pilbara Trap Fishery as relevant persons.	Yes
Pilbara Line Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. Under an agreement with WAFIC Woodside has consulted Pilbara Line Fishery as relevant persons.	Yes

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Western Australian Fishing Industry Council (WAFIC)	Represents the interests of commercial fishers with licences in State waters.	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Marine Aquarium Managed Fishery, Mackerel Managed Fishery - Pilbara (Area 2), Pilbara Crab Managed Fishery, Specimen Shell Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery, West Coast Deep Sea Crustacean Managed Fishery and Onslow Prawn Managed Fishery are active in the Operational Area.</p> <p>Marine Aquarium Managed Fishery, Mackerel Managed Fishery, Pilbara Crab Managed Fishery, Specimen Shell Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Fish Trawl (Interim) Managed Fishery, Pilbara Trap Managed Fishery, Pilbara Line Fishery (Condition), West Coast Deep Sea Crustacean Managed Fishery and Onslow Prawn Managed Fishery Exmouth Gulf Prawn Managed Fishery, and Nickol Bay Prawn Managed Fishery, are active in the EMBA.</p> <p>WAFIC's functions may be relevant to the activity as the peak representative body for State fisheries.</p> <p>WAFIC issued consultation materials to relevant commercial fisheries licence holders.</p>	Yes
Recreational marine users and peak representative bodies			
Karratha recreational marine users	Karratha-based dive, tourism and charter operators	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Nickol Bay Sport Fishing Club, Archipelago Adventures, Hampton Harbour Boat & Sailing Club, King Bay Game Fishing Club, Marine Rescue Dampier, Port Walcott Volunteer Marine Rescue, Port Walcott Yacht Club, Reef Seeker Charters, West Pilbara Volunteer Sea Search and Rescue Group.</p> <p>Activities have the potential to impact Karratha-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.</p>	Yes
Exmouth recreational marine users	Exmouth-based dive, tourism and charter operators	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under Regulation 25(1)(d) of the Environment Regulations.</p> <p>Andro Maritime Services Australia, Aquatic Adventure Exmouth, Birds Eye View, Blue Horizon Charters, Blue Lightning Charters,</p>	Yes

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		<p>Cape Immersion Tours, Coastal Adventure Tours, Coral Bay Ecotours, Cruise Ningaloo, Dampier Island Tourism, Dive Ningaloo, Evolution Fishing Charters, Exmouth Adventure Co., Exmouth Dive Centre, Exmouth Fly Fishing, Exmouth Game Fishing Club, Indian Chief Charters, Innkeeper Sport Fishing Charter, Kings Ningaloo Reef Tours, Live Ningaloo, Mahi Fishing Charters, Montebello Island Safaris, Ningaloo Aviation, Ningaloo Blue, Ningaloo Coral Bay Boats, Ningaloo Discovery, Ningaloo Ecology Cruises, Ningaloo Fly Fishing, Ningaloo Marine Interaction, Ningaloo Reef Dive, Ningaloo Reef to Range Tours, Ningaloo Safari Tours, Ningaloo Sportfishing Charters, Ningaloo Whaleshark n Dive, Ningaloo Whaleshark Swim, Ocean Eco Adventures, On Strike Charters, Peak Sportfishing Charters, Pelican Charters, Sail Ningaloo, Sea Force Charters, Set the Hook, The Mobile Observatory, Three Islands, Top Gun Charters, Ultimate WaterSports, Venture Ningaloo, View Ningaloo, Warrior Princess Charters, Yardi Creek Boat Tours.</p> <p>Activities have the potential to impact Exmouth-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.</p>	
Gascoyne Recreational Marine Users	Gascoyne-based dive, tourism and charter operators	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. Silverado Charters Pty Ltd, Reel Force Charters Pty Ltd, D & N Nominees Pty Ltd, Lyons Family Super Pty Ltd, Seafresh Holdings Pty Ltd, Eco-Abrolhos Pty Ltd, C Emery Fishing Pty Ltd, On Strike Charters (Wa) Pty Ltd, Melkit Pty Ltd, Maritime Engineering Services Pty Ltd, G. C. Bass Nominees Pty Ltd, Brefjen Nominees Pty Ltd, W.A Maritime Investments Pty Ltd, Blue Juice Tours Pty Ltd, Surefire Marine Services Pty Ltd, Makalee Pty Ltd, L & S Family Holdings Pty Ltd, Bondall Pty Ltd, Kw Marine Pty Ltd, Sharkbay Charters Pty Ltd, Bluecity Enterprises Pty Ltd, Jostan Holdings Pty Ltd, Monkey Mia Yacht Charters Pty Ltd, On Strike Charters (Wa) Pty Ltd, Rainfield Pty Ltd, Monster Sportfishing Adventures Pty Ltd, Lulamanzi Investments Pty Ltd, Millennial Charters Pty Ltd, Chapel Nominees Pty Ltd, Regalchoice Holdings Pty Ltd, Fawesome Expeditions Pty Ltd, On Strike Charters (Wa) Pty Ltd, The Great Escape Charter Company Pty Ltd, Aoa International Pty Ltd, Fire Tiger Pty Ltd.</p> <p>Activities have the potential to impact Gascoyne-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.</p>	Yes
Pilbara / Kimberley Recreational Marine Users	Pilbara/Kimberley-based dive, tourism and charter operators	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p>	Yes

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		<p>Willie Creek Pearl Farm Pty Ltd, Super Yachts Perth Pty Ltd, Silverado Charters Pty Ltd, Bloor Street Investments Pty Ltd, Lugger Enterprises Pty Ltd, Eco-Abrolhos Pty Ltd, C Emery Fishing Pty Ltd, Discovery Holiday Parks Pty Limited, Kimberley Marine Pty Ltd, Coral Princess Cruises (Nq) Pty Ltd, Marine Agents Australia Pty Ltd, Maritime Engineering Services Pty Ltd, G. C. Bass Nominees Pty Ltd, Coastway Investments Pty Ltd, Kcc Group Pty Ltd, Cm Ventures Pty Ltd, Lombadina Aboriginal Corporation, Australian Port And Marine Services Pty Ltd, Hartley Motorcycles Pty Ltd, Humbug Fishing Pty Ltd, Brefjen Nominees Pty Ltd, Melkit Pty Ltd, W.A Maritime Investments Pty Ltd, Blue Juice Tours Pty Ltd, Kw Marine Pty Ltd, L & S Family Holdings Pty Ltd, Bondall Pty Ltd, Lake Argyle Cruises Pty Ltd, Sealife Charters Pty Ltd, Mal Miles Adventures Pty Ltd, Mackerel Islands Pty Ltd, Diversity Charter Company Wa Pty Ltd, Split Tide Pty Ltd, Broome Tours Pty Ltd, North Star Cruises Australia Pty Ltd, Charter Express Pty Ltd, Sea 2 Pty Ltd, Hotel And Resort Investments Pty Ltd, L & S Family Holdings Pty Ltd, Down The Line Charters Pty Ltd, Kingfisher Island Resort Pty Ltd, Rstg Pty Limited, Sealife Charters Pty Ltd, Coral Princess Cruises (Nq) Pty Ltd, Kimberley Quest Adventures Pty Ltd, Monster Sportfishing Adventures Pty Ltd, Ocean Charters Pty Ltd, Lulamanzi Investments Pty Ltd, Millennial Charters Pty Ltd, Chapel Nominees Pty Ltd, Fawesome Expeditions Pty Ltd, The Great Escape Charter Company Pty Ltd, Aoa International Pty Ltd, Kimberley Getaway Cruises Pty Ltd, King Sound Resort Hotel Pty.</p> <p>Activities have the potential to impact Pilbara/Kimberley-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.</p>	
Shark Bay Recreational marine users	Shark Bay-based dive and charter operators	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay identified these Shark Bay marine operators as potentially relevant persons.</p> <p>Mac Attack Fishing Charters, Perfect Nature Cruises, Tidal Moon, Ocean Park.</p> <p>Woodside chose to contact the Shark Bay marine operators at its discretion consistent with Section 5.3.7.</p>	No
Recfishwest	Represents the interests of recreational fishers in WA.	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25A(1)(d) of the Environment Regulations.</p> <p>Activities have the potential to impact recreational fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.</p>	Yes

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Marine Tourism WA	Represents the interests of marine tourism in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. Activities have the potential to impact recreational fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
WA Game Fishing Association	Represents the interests of game fishers in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. Activities have the potential to impact game fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Titleholders and Operators			
Chevron Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Osaka Gas Gorgon	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA. Chevron has requested we consult its non-operator Joint Venture Participants via Chevron.	Yes
Tokyo Gas Gorgon	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA. Chevron has requested we consult its non-operator Joint Venture Participants via Chevron.	Yes
JERA Gorgon	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA. Chevron has requested we consult its non-operator Joint Venture Participants via Chevron.	Yes
Western Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations.	Yes

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		Titleholder or Operator's permit areas overlaps the EMBA.	
Exxon Mobil Australia Resources Company	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Shell Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
INPEX Alpha Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Carnarvon Energy Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
PE Wheatstone	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Kyushu Electric Wheatstone	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Eni Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Jadestone Energy	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
KATO Energy / KATO Corowa / KATO NWS / KATO Amulet	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes

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Finder Energy (No 9 /10 / 16 / 17)	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas does not overlap the revised EMBA. Nevertheless, to take an inclusive approach and to consult more widely, Woodside chose to consult the Titleholder based on overlap with the initial EMBA.	No
KUFPEC	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Coastal Oil and Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Bounty Oil and Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Vermilion Oil and Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
OMV Australia / Sapura OMV Upstream	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
JX Nippon O&G Exploration (Australia)	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas does not overlap the revised EMBA. Nevertheless, to take an inclusive approach and to consult more widely, Woodside chose to consult the Titleholder based on overlap with the initial EMBA.	No

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Peak Industry Representative bodies			
Australian Energy Producers (AEP) (previously APPEA)	Represents the interests of oil and gas explorers and producers in Australia.	Woodside has applied its methodology for 'Peak Industry Representative bodies' under regulation 25(1)(d) of the Environment Regulations. AEP's responsibilities are identified as having an intersect with Woodside's planned activities in the EMBA.	Yes
Traditional Custodians and nominated representative corporations			
Wanparta Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. Wanparta Aboriginal Corporation jointly manages 80 Mile Beach Marine Park which is adjacent to the EMBA.	Yes
Kariyarra Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Kariyarra native title claim, for which the Kariyarra Aboriginal Corporation is the Registered Native Title Body Corporate, overlaps the EMBA. The Kariyarra Aboriginal Corporation is party to the Kariyarra and State ILUA, which is coastally adjacent to the EMBA.	Yes
Murujuga Aboriginal Corporation (MAC)	Representative Aboriginal Corporation Local government and community representative groups or organisations (part of Karratha Community Liaison Group)	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. MAC is the Nominated Representative Corporation under the Burrup and Maitland Industrial Estates Agreement (BMIEA), which is coastally adjacent to the EMBA and underpins land access for the onshore component of the Scarborough Project. MAC was established to represent the members of competing Native Title claims over Murujuga, collectively known as the Ngarda Ngarli and comprising Mardudhunera, Ngarluma, Yaburara, Yindjibarndi and Wong-Goo-Tt-Oo people. The determination of the competing Native Title claims resulted in no native title being found over the lands subject to the BMIEA or below the low water mark. MAC also owns and co-manages the Murujuga National Park, is responsible for the Dampier Archipelago (including Burrup peninsula) National Heritage Place	Yes

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		<p>and is progressing the World Heritage nomination of the Murujuga Cultural Landscape. The EMBA does not overlap the Murujuga National Park, but does overlap the National Heritage Place. Woodside supports MAC as the relevant Traditional Owner group in relation to the Murujuga World Heritage nomination and is one of many parties MAC engages in this process.</p> <p>Woodside has consulted with MAC in regard to the Scarborough Project area generally since 2018 and MAC has been involved in ethnographic surveys that included the planned activities of this EP.</p> <p>As discussed further below, Woodside engaged with YMAC as the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia to confirm the best approach to confirm additional cultural values (if any) for the broader Scarborough Project, the scope of which included the proposed activity for this EP. YMAC advised that the most appropriate stakeholders for the Scarborough project generally are MAC and NAC, who are not represented by YMAC (refer to Table 2).</p>	
<p>Ngarluma Aboriginal Corporation (NAC)</p>	<p>Representative Aboriginal Corporation</p>	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The Ngarluma People's native title determined area does not overlap the EMBA. The determination, for which NAC is the Registered Native Title Body Corporate, is coastally adjacent to the EMBA.</p> <p>The historical Ngarluma/Yindjibarndi native title claim overlaps the EMBA.</p> <p>NAC is party to the Anketell Port, Infrastructure Corridor and Industrial Estates Agreement, which overlap the EMBA.</p> <p>NAC is party to the RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement), which is adjacent to the EMBA.</p> <p>The EMBA overlaps the Dampier Commonwealth Marine Park, over which the North-west Marine Parks Network Management Plan specifies NAC as representing people whose sea country extends into the marine park which is valued for cultural identity, health and wellbeing.</p> <p>As noted above (and discussed further below), Woodside sought guidance from YMAC as the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia to confirm the best approach to identify additional cultural values (if any) for the broader Scarborough Project, the scope of which included the proposed activity for this EP. YMAC advised that the most appropriate stakeholders for the Scarborough project generally are MAC and NAC, who are not represented by YMAC (refer to Table 2).</p>	<p>Yes</p>

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Wirrawandi Aboriginal Corporation (WAC)	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The Operational Area, where planned activities will occur, overlaps the Yaburara & Mardudhunera People's native title claim. In addition, the EMBA is either coastally adjacent or overlaps native title claims and ILUAs, as described below.</p> <p>The Yaburara & Mardudhunera People's native title claim, the determination for which WAC is the Registered Native Title Body Corporate, overlaps the EMBA.</p> <p>WAC is party to the KM & YM ILUA and Cape Preston Project Deed (YM Mardie ILUA), which overlap the EMBA.</p> <p>WAC is party to the Cape Preston West Export Facility ILUA, which is coastally adjacent to the EMBA.</p>	Yes
Yinggarda Aboriginal Corporation (YAC)	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25 (1)(d) of the Environment Regulations. The Operational Area, where planned activities will occur, is over 190 km from Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People's, native title determinations. However, the EMBA is either coastally adjacent or overlaps the claims, determinations and ILUAs, as described below.</p> <p>The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claims, the determinations for which NTGAC and YAC are the Registered Native Title Bodies Corporate, overlaps the EMBA.</p> <p>YAC is party to the Brickhouse and Yinggarda Aboriginal Corporation ILUA and Quobba – Yinggarda Pastoral ILUA, which are coastally adjacent to the EMBA.</p> <p>The YAC nominated representative was the YMAC and the YAC executive officer and contact officer pursuant to the Corporations (Aboriginal and Torres Strait Islander) Act 2006 is employed by YMAC. Woodside therefore consulted YAC, via YMAC. Woodside was advised that as of late April 2023, the nominated representative for YAC was Gumala Aboriginal Corporation.</p>	Yes
Yindjibarndi Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The historic Ngarluma/Yindjibarndi native title claim, the successor determinations for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Bodies Corporate, overlaps the EMBA.</p> <p>The EMBA overlaps the Dampier Commonwealth Marine Park, over which the North-west Marine Parks Network Management Plan specifies the Yindjibarndi</p>	Yes

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		Aboriginal Corporation as representing people whose sea country extends into the marine park which is valued for cultural identify, health and wellbeing.	
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Thalanyji native title claim does not overlap the EMBA. The claim, for which BTAC is the Registered Native Title Body Corporate, is coastally adjacent to the EMBA. BTAC is also party to the Macedon ILUA which is coastally adjacent to the EMBA.	Yes
Robe River Kuruma Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. There are no native title claims or determinations that the Robe River Kuruma Aboriginal Corporation is party to overlapping the EMBA or coastally adjacent to the EMBA. The Robe River Kuruma Aboriginal Corporation is party to the KM & YM ILUA, which overlaps the EMBA. The Robe River Kuruma Aboriginal Corporation is party to the RTIO Kuruma Marthudunera People ILUA, which is coastally adjacent to the EMBA.	Yes
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Operational Area, where planned activities will occur, is over 190 km from Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claims. However, the EMBA is either coastally adjacent or overlaps native title claims, determinations and ILUAs, as described below. The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claims, the determination of which NTGAC and YAC are the Registered Native Title Bodies Corporate, overlaps the EMBA. The NTGAC is also party, with the WA State Government, to the Ningaloo Conservation Estate Indigenous Land Use Agreement (the ILUA) which overlaps the EMBA. The NTGAC is responsible for the joint management of the Ningaloo Marine Park (State Waters) which is overlapped by the EMBA. The NTGAC is also party to the Gnarloo ILUA, which is coastally adjacent to the EMBA.	Yes

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		The NTGAC's nominated representative is the YMAC and the NTGAC executive officer and contact officer pursuant to the Corporations (Aboriginal and Torres Strait Islander) Act 2006 is employed by YMAC. Woodside has therefore consulted the NTGAC, via YMAC.	
Malgana Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The Malgana Part A native title claim, for which the Malgana Aboriginal Corporation is the Registered Native Title Body Corporate, is no longer adjacent to the revised EMBA.</p> <p>Malgana Aboriginal Corporation was relevant based on the original EMBA and had already been included as part of the consultation. Accordingly, to take an inclusive approach and to consult more widely, Woodside has included the Malgana Aboriginal Corporation in Table 3.</p>	No
Native Title Representative Bodies			
Yamatji Marlpa Aboriginal Corporation (YMAC)	Native Title Representative Body	<p>Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>YMAC is the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate but exist to assist native title claimants and holders.</p> <p>The NTGAC's nominated representative is YMAC. Woodside has therefore consulted the NTGAC via YMAC.</p> <p>YMAC was also the nominated representative for YAC. Woodside was advised that as of late April 2023, the nominated representative for YAC is now Gumala Aboriginal Corporation.</p> <p>Woodside contacted YMAC to seek guidance with respect to the appropriate Traditional Custodian group(s) to engage with respect to the proposed activity where this was not clear.</p> <p>YMAC's functions may be relevant to the proposed activity in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation.</p>	Yes

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Self-identified First Nations Groups			
<p>Ngarluma Yindjibarndi Foundation Ltd (NYFL)</p>	<p>Representative Aboriginal Corporation Local government and community representative groups or organisations (part of Karratha Community Liaison Group)</p>	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>In 1998 [prior to resolution of the Ngarluma and Yindjibarndi native title claim], Elders of the Ngarluma and Yindjibarndi people [native title claimants] signed an Agreement with the North West Shelf JV partners covering a number of matters including how payment would be made for land use on the Burrup Peninsula. The Ngarluma Yindjibarndi Foundation Ltd (NYFL) was formed and incorporated in 2000 to receive those payments. Subsequent to that, the Ngarluma people settled their native title claim and established their nominated representative corporation, the Ngarluma Aboriginal Corporation (NAC). The Yindjibarndi people also settled their native title claim and established their nominated representative corporation, the Yindjibarndi Aboriginal Corporation (Yindjibarndi). The Ngarluma Aboriginal Corporation and the Yindjibarndi Aboriginal Corporation are the appropriate representative bodies for consultation in relation to cultural interests.</p> <p>While the NYFL's members have been assessed as being relevant persons (and have been consulted on this EP), NYFL's own functions interests and activities were not considered to overlap with the EMBA for this EP and NYFL was therefore not assessed as being relevant for this EP. In the course of consultation, NYFL self-identified and has advised it is relevant for this EP. Woodside has therefore consulted with NYFL on this EP.</p>	<p>Yes</p>
Local government and elected Parliamentary representatives, community groups or organisations			
<p>City of Karratha</p>	<p>Local government governed by the Local Government Act 1995 representing the suburbs and localities of Baynton, Baynton West, Bulgarra, Cossack, Dampier, Gap Ridge, Karratha, Karratha Industrial Estate, Jingarri, Madigan, Millars Well, Nickol, Pegs Creek, Point Samson, Roebourne, Whim Creek and Wickham.</p>	<p>Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The City of Karratha's area of responsibility overlaps the EMBA.</p>	<p>Yes</p>

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Shire of Exmouth	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Exmouth, Learmonth and North West Cape.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Exmouth's area of responsibility overlaps the EMBA.	Yes
Shire of Ashburton	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Onslow, Pannawonica, Paraburdoo and Tom Price.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Ashburton's area of responsibility overlaps the EMBA.	Yes
Town of Port Hedland	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Cooke Point, Port Hedland, Pretty Pool, Redbank, South Hedland, Wedgefield and Yandeyarra.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Town of Port Hedland's area of responsibility does not overlap the EMBA. Woodside chose to contact the Town of Port Hedland at its discretion in line with Section 5.3.7 of the EP.	No
Shire of Carnarvon	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Babbage Island, Brockman, Browns Range, Carnarvon, Coral Bay, East Carnarvon, Greys Plain, Ingaarda, Kingsford, Morgantown, North Plantations, South Carnarvon, South Plantations.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Carnarvon's area of responsibility does not overlap the EMBA. Woodside chose to contact the Shire of Carnarvon at its discretion in line with Section 5.3.7 of the EP.	No
Shire of Shark Bay	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Billabong, Denham, Monkey Mia, Nanga, Overlander, Useless Loop	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay's area of responsibility does not overlap the EMBA. Woodside chose to contact the Shire of Shark Bay at its discretion in line with Section 5.3.7 of the EP.	No

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<p>Exmouth Community Liaison Group (Exmouth CLG)</p>	<p>The Exmouth CLG represents the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Exmouth region.</p>	<p>Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Base Marine, Bgahwan Marine, Cape Conservation Group Inc., DBCA, Department of Defence, Department of Transport, Exmouth Bus Charter, Exmouth Chamber of Commerce and Industry, Exmouth District High School, Exmouth Freight and Logistics, Exmouth Game Fishing Club, Exmouth Tackle and Camping Supplies, Exmouth Visitors Centre, Exmouth Volunteer Marine Rescue, Fat Marine, Gascoyne Development Commission, Gun Marine Services, Ningaloo Lodge, Offshore Unlimited, Shire of Exmouth, BHP Petroleum, Santos, Community Member</p> <p>The Exmouth CLG's area of responsibility under its terms of reference overlaps the EMBA.</p>	<p>Yes</p>
<p>Karratha Community Liaison Group (CLG)</p>	<p>The Karratha CLG is the recognised community group that represents the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Pilbara region.</p>	<p>Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>WA Police, Karratha Health Care, Development WA, Ngarluma Yindjibarndi Foundation Ltd (NYFL)*, Department of Education, Pilbara Ports Authority, Regional Development Australia, Pilbara Development Commission, Dampier Community Association, City of Karratha, Karratha & Districts Chamber of Commerce and Industry, Horizon Power, Murujuga Aboriginal Corporation (MAC)*, Department of Local Government, Sport and Cultural Industries</p> <p><i>*NFYL and MAC were consulted directly as described above.</i></p> <p>The Karratha CLG's area of responsibility under its terms of reference overlaps the EMBA.</p>	<p>Yes</p>
<p>Onslow Chamber of Commerce and Industry</p>	<p>Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Onslow and surrounding areas.</p>	<p>Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>The Onslow Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.</p>	<p>Yes</p>

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Carnarvon Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Carnarvon and surrounding areas.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Carnarvon Chamber of Commerce and Industry's interests do not have the potential to be impacted by the proposed activities based on the EMBA. Woodside chose to contact the Carnarvon Chamber of Commerce and Industry at its discretion in line with Section 5.3.7 of the EP.	No
Exmouth Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Exmouth and surrounding areas.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Exmouth Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Port Hedland Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Port Hedland and surrounding areas.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Port Hedland Chamber of Commerce and Industry's interests do not have the potential to be impacted by the proposed activities based on the EMBA. Woodside chose to contact the Port Hedland Chamber of Commerce and Industry at its discretion in line with Section 5.3.7 of the EP.	No
Karratha & Districts Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the City of Karratha and surrounding areas.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Karratha and Districts Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
RAC Monkey Mia Dolphin Resort	Accommodation provider within the Shark Bay World Heritage Area.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay identified RAC Monkey Mia Dolphin Resort as a potentially relevant person. Woodside chose to contact RAC Monkey Mia Dolphin Resort at its discretion in line with Section 5.3.7.	No

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Dirk Hartog Island	Tourism business operating accommodation and guided tours and providing four-wheel drive access to Dirk Hartog Island.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay identified Dirk Hartog Island as a potentially relevant person. Woodside chose to contact Dirk Hartog Island at its discretion in line with Section 5.3.7.	No
Shark Bay Community Resource Centre	Not-for-profit, community owned and managed organisation which produces a monthly community newspaper.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay identified Shark Bay Community Resource Centre as a potentially relevant person. Woodside chose to contact Shark Bay Community Resource Centre at its discretion in line with Section 5.3.7.	No
[Individual 1] MLA	State Member for North West Central	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay identified [Individual 1] MLA as a potentially relevant person. Woodside chose to contact [Individual 1] MLA at its discretion in line with Section 5.3.7.	No
Shark Bay Aviation	Shark Bay-based business offering air services across the Gascoyne, Pilbara, Murchison and Kimberley regions	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under Regulation 25(1)(d). The Shire of Shark Bay identified Shark Bay Aviation as a potentially relevant person. Woodside chose to contact Shark Bay Aviation at its discretion in line with Section 5.3.7.	No
Shark Bay Coastal Tours	Shark Bay-based tour company specialising in four-wheel drive tours.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay identified Shark Bay Coastal Tours as a potentially relevant person.	No

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		Woodside chose to contact Shark Bay Coastal Tours at its discretion in line with Section 5.3.7.	
Naturetime Tours	Shark Bay-based tour company offering four-wheel drive tours.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay identified Naturetime Tours as a potentially relevant person. Woodside chose to contact Naturetime Tours at its discretion in line with Section 5.3.7.	No
Wula Gula Nyinda Eco Cultural Tours	Shark Bay-based tour company offering tours and Indigenous experiences.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Shark Bay identified Wula Gula Nyinda Eco Cultural Tours as a potentially relevant person. Woodside chose to contact Wula Gula Nyinda Eco Cultural Tours at its discretion in line with Section 5.3.7.	No
Other non-government groups or organisations or individuals			
Conservation Council of Western Australia (CCWA)	Non-government organisation	During the course of preparing other Scarborough Energy project-related EPs, CCWA self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations. Woodside has assessed that CCWA's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).	Yes
Greenpeace Australia Pacific (GAP)	Non-government organisation	During the course of preparing other Scarborough Energy project-related EPs, GAP self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its	Yes

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		<p>methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Woodside has assessed that GAP's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	
Australian Conservation Foundation (ACF)	Non-government organisation	<p>During the course of preparing other Scarborough Energy project-related EPs, ACF self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Woodside has assessed that ACF's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	Yes
350 Australia (350A)	Non-government organisation	<p>During the course of preparing other Scarborough Energy project-related EPs, 350A self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Woodside has assessed that 350A's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	Yes
The Wilderness Society (TWS)	Non-government organisation	<p>During the course of preparing other Scarborough Energy project-related EPs, TWS self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Woodside has assessed that TWS's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	Yes

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Say No to Scarborough Gas (SNTSG)	Non-government organisation	<p>During the course of preparing other Scarborough Energy project-related EPs, SNTSG self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Woodside has assessed that SNTSG's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	Yes
Australian Marine Conservation Society (AMCS)	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(A)(1)(d) of the Environment Regulations to determine AMCS's relevance for the proposed activity.</p> <p>Woodside has assessed that AMCS's public website material demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	Yes
Doctors for the Environment Australia (DEA)	Non-government organisation	<p>During the course of preparing other Scarborough Energy project-related EPs, DEA self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Woodside has assessed that DEA's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	Yes
Friends of Australian Rock Art. Inc (FARA)	Non-government organisation	<p>During the course of preparing other Scarborough Energy project-related EPs, FARA self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Woodside has assessed that FARA's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts</p>	Yes

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		associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).	
Lock The Gate Alliance (LGA)	Non-government organisation	<p>During the course of preparing other Scarborough Energy project-related EPs, LGA self-identified, provided comment on the broader Scarborough Project and requested to be consulted on Scarborough EPs. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Woodside has assessed that LGA's public website material and previous feedback and topics of interest raised in relation to consultation on other Scarborough EPs, demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	Yes
Australasian Centre for Corporate Responsibility (ACCR)	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to determine ACCR's relevance for the proposed activity.</p> <p>ACCR describes itself as an organisation that uses its expertise in shareholder strategy to enable institutional investors to escalate their engagements with major, heavy-emitting companies in their portfolios. Based on this, ACCR has not been assessed as a relevant person because ACCR's functions, interests or activities are not considered to be impacted by the activity described in the EP.</p> <p>Further, Woodside has assessed that ACCR's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p> <p>Despite the assessment above, Woodside chose to contact ACCR at its discretion in line with Section 5.3.7.</p>	No
Extinction Rebellion WA (XRWA)	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to determine XRWA's relevance for the proposed activity.</p> <p>Woodside has assessed that XRWA's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p> <p>Despite the assessment above, Woodside chose to contact XRWA at its discretion in line with Section 5.3.7.</p>	No

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International Fund for Animal Welfare (IFAW)	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to determine IFAW's relevance for the proposed activity.</p> <p>Woodside has assessed that IFAW's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p> <p>Despite the assessment above, Woodside chose to contact IFAW at its discretion in line with Section 5.3.7.</p>	No
Market Forces	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to determine Market Forces' relevance for the proposed activity.</p> <p>Woodside has assessed that Market Forces' public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p> <p>Despite the assessment above, Woodside chose to contact Market Forces at its discretion in line with Section 5.3.7.</p>	No
Sea Shepherd Australia (SSA)	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to determine SSA's relevance for the proposed activity.</p> <p>Woodside has assessed that SSA's public website material demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p> <p>Despite the assessment above, Woodside chose to contact SSA at its discretion in line with Section 5.3.7.</p>	No
World Wildlife Fund (WWF) Australia	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to determine WWF's relevance for the proposed activity.</p> <p>Woodside has assessed that WWF's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4).</p>	No

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		Despite the assessment above, Woodside chose to contact WWF at its discretion in line with Section 5.3.7.	
Environs Kimberley	Non-government organisation	<p>During the course of preparing the EP, Environs Kimberley self-identified, provided comment on the proposed activity and requested to be consulted. Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Environs Kimberley's stated interests and those presented on its website relate specifically to the Kimberly region of Western Australia. The EMBA for this activity does not include the Kimberley region or the Kimberley coastline. Consultation beyond the EMBA is not required under the Regulations or case law.</p> <p>Woodside's assessment is that Environs Kimberley's functions, interests or activities are not likely to be affected by the activities to be carried out under this EP and Environs Kimberley has therefore not been assessed as a relevant person (as set out in Section 5.3.4 of the EP).</p>	No
Telstra	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Telstra's relevance for the proposed activity.</p> <p>There are known communication cables that intersect within the Operational Area.</p>	Yes
Vocus	Non-government organisation	<p>Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Vocus's relevance for the proposed activity.</p> <p>There are known communication cables that intersect within the Operational Area.</p>	Yes
[Individual 2]	Non-government groups, organisations or individuals	<p>Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations.</p> <p>During the course of preparing the EP [Individual 2] self-identified and requested to be consulted on Scarborough EPs.</p> <p>[Individual 2] has previously sent consultation correspondence to Woodside via an NGO organisation and Woodside, at its discretion, chose to consult with [Individual 2]</p>	Yes
Save Our Songlines (SOS) and/or [Individual 3] and/or [Individual 4]	Representatives of Non-Government Organisation Save Our Songlines	Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment	Yes

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	and/or [Individual 3] and/or [Individual 4]	<p>Regulations to determine Save Our Songlines (SOS) and/or [Individual 3] and/or [Individual 4] relevance for the proposed activity.</p> <p>During the course of preparing other Scarborough Energy Project-related EPs, Save Our Songlines and/or [Individual 3] and/or [Individual 4] self-identified and requested to be consulted on Scarborough EPs.</p> <p>Woodside has assessed that SOS and/or [Individual 3] and/or [Individual 4] feedback demonstrates a potential interest with the proposed activity.</p>	
Research institutes and local conservation groups or organisations			
University of Western Australia (UWA)	Research institute	<p>Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine UWA's relevance for the proposed activity.</p> <p>There is known research being undertaken by UWA that intersects within the EMBA.</p>	Yes
Western Australian Marine Science Institution (WAMSI)	Research institute	<p>Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine WAMSI's relevance for the proposed activity.</p> <p>There may be research being undertaken by WAMSI that intersects within the EMBA.</p> <p>Woodside chose to contact WAMSI at its discretion in line with Section 5.3.7.</p>	No
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	Research institute	<p>Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine CSIRO's relevance for the proposed activity.</p> <p>There is known research being undertaken by CSIRO that intersects within the EMBA.</p>	Yes
Murdoch University	Research institute	<p>Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>There may be research being undertaken by Murdoch University that intersects within the EMBA.</p>	No

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		Woodside chose to contact Murdoch University at its discretion in line with Section 5.3.7 of the EP.	
Edith Cowan University (ECU)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There may be research being undertaken by ECU that intersects within the EMBA. Woodside chose to contact ECU at its discretion in line with Section 5.3.7 of the EP.	No
Curtin University (Curtin)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d). There is known research being undertaken by Curtin University that intersects within the EMBA.	Yes
Australian Institute of Marine Science (AIMS)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine AIMS's relevance for the proposed activity. There is no known research being undertaken by AIMS that intersects within the EMBA. Woodside chose to contact AIMS at its discretion in line with Section 5.3.7.	No
Cape Conservation Group	Local conservation group focused on protecting the terrestrial and marine environment of the North West Cape	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine CCG's relevance for the proposed activity. CCG's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps North West Cape.	Yes
Protect Ningaloo	Local conservation group focused on protecting the Exmouth Gulf and Ningaloo Reef and Cape Range	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine CCG's relevance for the proposed activity. Protect Ningaloo's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps North West Cape and Ningaloo Reef.	Yes

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 49 of 919

Uncontrolled when printed. Refer to electronic version for most up to date information.

CONSULTATION ACTIVITIES

Scarborough Offshore Facility and Trunkline EP Consultation Activities

Woodside has been undertaking consultation with relevant persons and other parties related to this EP since at least February 2018. Preliminary consultation for the Scarborough OPP commenced with interested and affected stakeholders as part of a planned, integrated and consistent approach to stakeholder engagement for Woodside’s proposed opportunities.

A broad and extensive consultation process has been undertaken with relevant persons for the Operations EP. Consultation was designed to be inclusive, transparent, voluntary, respectful and two-way, and was undertaken considering a relevant person’s consultation preference (i.e. by email, letter, phone call and/or meeting).

Discharging Regulation 25 of the Environment Regulations

Woodside advertised the planned activities proposed for this EP in national, state and relevant local newspapers (see Record of Consultation, reference 3.2). Regional newspapers do not require subscription and are available (and in some cases delivered) directly to households. The aim was that communities within or adjacent to the EMBA had access to this information. Despite the broad ranging advertising, no direct comments or feedback were received on account of the advertisements.

Newspaper	Coverage	Publication dates
1. The Australian	National	9 August 2023
2. The West Australian	Regional (WA)	9 August 2023
3. Pilbara News	Local (WA)	9 August 2023
4. The Geraldton Guardian	Local (WA)	11 August 2023
5. Midwest Times	Local (WA)	9 August 2023
6. North West Telegraph	Local (WA)	9 August 2023
7. Koori Mail	Indigenous	9 August 2023
8. National Indigenous Times	Indigenous	29 August 2023

A Consultation Information Sheet was provided to relevant persons and persons Woodside chose to contact (see Section 5.3.4). The Consultation Information Sheet included an activity overview, maps, a summary of key risks and/or impacts and management measures (Record of Consultation, reference 1.1).

Since the commencement of the initial consultation period in August 2023, the Consultation Information Sheet has been available on Woodside’s website. It included a toll-free 1800 phone number and Woodside’s feedback email address (feedback@woodside.com) to enable persons to engage in consultation.

The Woodside [Consultation Activities](#) webpage is accessible on the Consultation Information Sheet, via a QR code, banners at community events, and via social media content and advertisements. It includes Consultation Information Sheets for the EPs on which Woodside is currently consulting, including this EP. The website page also features a “subscribe” field to enable people to elect to receive EP-focussed communications from Woodside.

Additional targeted information was provided to specific relevant persons as necessary. For example, targeted information was provided to relevant marine users including AHO and AMSA – Marine Safety (Record of Consultation, reference 1.10 and 1.11). This information included maps and additional information (GIS shape files) relevant to the specific category of persons. The relevant persons had a 30-day period in which to provide feedback.

Where appropriate, Woodside conducted phone calls and meetings with relevant persons.

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Where appropriate and to support consultation, proactive follow-up emails were sent to relevant persons who had not provided a response prior to the close of the consultation feedback period.

Woodside considered relevant person responses and assessed the merits and relevance of objections and claims about the potential adverse impact of the proposed activity set out in the EP, in accordance with the intended outcome of consultation (see Section 5.3.4).

Consultation activities undertaken with relevant persons are summarised at Appendix F, Table 2.

Engagement undertaken with persons or organisations Woodside assessed as not relevant but chose to contact or who self-identified and Woodside assessed as not relevant (see Section 5.3.4) are summarised at Appendix F, Table 3.

From May 2023 to January 2024, Woodside ran a geotargeted, sponsored social media campaign to raise awareness around general consultation on EPs (Record of Consultation, reference 3.4).

From 22 August 2023, Woodside ran an Operations EP specific geotargeted, sponsored social media campaign (Record of Consultation, reference 3.3) across regions within or coastally adjacent to the Operations EP EMBA. The campaign was designed to bring the proposed activity to the attention of persons who may be interested and advised persons or organisations on how they could find out about Woodside's proposed activities by visiting Woodside's website.

Platform	Geotargeted Reach	Post Dates	Impact
Facebook	Regional: Users 18+ located within 80kms of Carnarvon, Denham, Exmouth, Onslow, Port Hedland, and Karratha	22 August 2023 – 11 September 2023	Reach: 240,329 Frequency: 3.02 Impressions:726,563 Link clicks: 1941 CTR%: 0.27%
Instagram	Regional: Users 18+ located within 80kms of Carnarvon, Denham, Exmouth, Onslow, Port Hedland, and Karratha	22 August 2023 – 11 September 2023	Reach: 114,372 Frequency: 2.53 Impressions: 288,810 Link clicks: 257 CTR%: 0.09%

Proactive Consultation

Community Engagement

The Community Information Sessions or community events that Woodside has conducted or attended are outlined below and set out in more detail in Record of Consultation, reference 3.7. In order to provide broad capture of relevant or interested persons, Woodside published advertisements ahead of these sessions and events in relevant local newspapers and on social media to support attendance.

From September to October 2023, Woodside undertook a Community Consultation Roadshow on the Scarborough Energy Project and consulted on this EP (Record of Consultation, reference 3.7.4, 3.7.6, 3.7.7). Other community events included the Dampier Markets (Record of Consultation, reference 3.7.8) and Pilbara Consultation roadshow in March 2024 (Record of Consultation, reference 3.7.9). Woodside published advertisements ahead of community information sessions in relevant local newspapers and on social media to support attendance (Record of Consultation, reference 3.7).

Date	Location	Event (if applicable)
5 and 6 August 2023	Karratha	FeNaCING Festival
18 August 2023	Onslow	Passion of the Pilbara Festival
23 and 24 August 2023	Karratha	National Economic Development Conference

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18-20 September 2023	Karratha, Port Hedland and Roebourne	Community Consultation Roadshow
10-11 October 2023	Karratha	Pilbara Summit 2023
16-17 October 2023	Carnarvon and Denham	Community Consultation Roadshow
23 October 2023	Exmouth	Community Consultation Roadshow
4 November 2023	Dampier	Dampier Beachside Twilight Markets
22-24 March 2024	Roebourne, Karratha, Dampier	Community Consultation Roadshow
3 April 2024	NWS Visitors' Centre	Pop Up
19 May 2024	Exmouth	Community Markets
15 June 2024	Dampier	WA Day Celebrations
25-26 June 2024	Karratha	Pilbara Summit
26 July 2024	Karratha	Community pop-up at Lo's Café
3-4 August 2024	Karratha	FeNaCling Festival
26-28 August 2024	Karratha	Developing Northern Australian Conference
12 October 2024	Dampier	Dampier Beachside Markets
2 November 2024	Dampier	Dampier Beachside Markets
14 November 2024	Exmouth	Community Information Session

Community Liaison Group Engagement

The Exmouth and Karratha Community Liaison Groups (CLGs) represent the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Exmouth and Karratha region. Woodside regularly meets with the two CLGs to discuss a range of issues including consultation of specific EPs.

Let's Talk – EP Newsletter

In March 2024, Woodside launched its first EP-focussed newsletter as a new communication avenue to reach existing and potential stakeholders. Let's Talk editions were also published in April 2024 and July 2024.

Woodside is building on its existing consultation approach, and is providing additional resources to inform relevant persons about its EP consultation. The newsletter aims to provide periodic updates generally to interested persons and relevant persons about EP consultation activities, case studies on effective consultation with relevant persons and other EP focussed updates such as upcoming events where Woodside personnel will be consulting with the local community. It is distributed in a variety of locations (see Record of Consultation, reference 3.1.2) as well as across digital platforms including on woodside.com, and social media platforms. People are encouraged to subscribe to receive copies. (Record of Consultation, reference 3.1.2).

Let's Talk Newsletter social media campaign

Social Media Platform	Geotargeted Reach	Let's Talk Social Media Campaign Dates	Impact
Facebook and Instagram	18-70 year olds Pilbara – Karratha, Dampier, Roebourne Regional Fishing Marine users	18 March – 3 April 2024	Reach: 158,167 Frequency: 3.94 Impressions: 623,845 Link clicks: 854 CTR%: 0.14%

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	Traditional Custodians Local communities		
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Woodside also publishes the Karratha Community Update newsletter which includes a QR code and encourages people to go to the Woodside Consultation Activities webpage to subscribe and find information about EPs (Record of Consultation, reference 3.1.11).

NGOs and Save our Songlines and/or [Individual 3] and/or [Individual 4] Engagement

Woodside undertook additional proactive activities to provide sufficient information to relevant persons, raise awareness of the Operations EP consultation period, encourage participation in consultation and to facilitate consultation on the proposed activities.

On 27 November 2023 and 5-6 December 2023, Woodside proactively contacted stakeholders that had not responded to Woodside’s emails or who had not participated in consultation. For those who had previously consulted with Woodside on other Scarborough Energy Project EPs, Woodside proactively summarised previous feedback and topics of interest to those persons and advised of the consultation closing date for preparation of the Operations EP. Woodside also included offers to meet.

On 7 March 2024, Woodside further proactively engaged NGOs who had provided feedback on climate issues by providing an email and link to the Woodside Climate Transition and Action Plan and 2023 Progress Report. Woodside also proactively sent links to this EP when it was published on NOPSEMA’s website.

A high-level overview of consultation with NGOs and Save our Songlines and their public position to stop gas projects is in the table below. Further information including issues raised and addressed during consultation is included in Table 2 and 3.

Consultation with [Individual 3], [Individual 4] and Save our Songlines on the Operations EP began with the Summary Information Sheet and a bespoke email being sent directly, copying in the Environmental Defenders Office, on 3 September 2023. Proactive correspondence summarising past topics of interest, objections and feedback raised by [Individual 3], [Individual 4] and Save our Songlines was sent to [Individual 3], [Individual 4] and Save our Songlines on 27 November 2023.

Several attempts were made to meet with [Individual 3], [Individual 4] and Save our Songlines in the lead up and after consultation closed in preparation of the Operations EP on 20 December 2023 including offers to meet in late January-February. The last offer from Woodside to meet was made in late-March 2024. On 10 April 2024, EDO advised Woodside that [Individual 3] would engage in consultation in a written format going forward.

Figure 6: Summary of Operations EP Correspondence with NGOs and [Individual 4] /[Individual 3] /Save our Songlines

Organisation	Relevant Person	Number of correspondences exchanged	Proactive letter sent	Last response (Sender and date)	Public position to stop gas projects
Friends of Australian Rock Art	Yes	20	Yes	Woodside, 21 January 2025	<ul style="list-style-type: none"> • None
[Individual 2]	Yes	5	Yes	Woodside, 8 October 2024	<ul style="list-style-type: none"> • None
Greenpeace Australia Pacific	Yes	11	Not required	Woodside, 8 October 2024	<ul style="list-style-type: none"> • Correspondence with Woodside • Future Gas Strategy – Government submission • Public protests • Website • Media statements
Conservation Council of WA	Yes	21	Yes	Woodside, 17 January 2025	<ul style="list-style-type: none"> • Correspondence with Woodside • Future Gas Strategy – Government submission • Website • Media statements
350A	Yes	15	Not required	Woodside, 8 October 2024	<ul style="list-style-type: none"> • Correspondence with Woodside • Future Gas Strategy – Government submission • Website
Australian Conservation Foundation (ACF)	Yes	10	Yes	Woodside, 18 October 2024	<ul style="list-style-type: none"> • Correspondence with Woodside • Future Gas Strategy – Government submission • Website • Public petition
Doctors for the Environment	Yes	17	Yes	Woodside, 17 January 2025	<ul style="list-style-type: none"> • Future Gas Strategy – Government submission
Say No To Scarborough Gas	Yes	4	Yes	Woodside, 8 October 2024 <i>(Email sent, however SNTSG</i>	<ul style="list-style-type: none"> • Website

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				<i>email address no longer active)</i>	
Lock the Gate Alliance	Yes	4	Yes	Woodside, 8 October 2024	<ul style="list-style-type: none"> • Future Gas Strategy – Government submission • Website
The Wilderness Society	Yes	4	Yes	Woodside, 8 October 2024	<ul style="list-style-type: none"> • None
Australian Marine Conservation Society	Yes	5	Yes	Woodside, 20 December 2023	<ul style="list-style-type: none"> • Future gas Strategy – Government submission
Australasian Centre for Corporate Responsibility	No	6	No	Woodside, 8 October 2024	<ul style="list-style-type: none"> • Future Gas Strategy – Government submission
Extinction Rebellion WA	No	2	No	Woodside, 30 August 2023	<ul style="list-style-type: none"> • None
Sea Shepherd Australia	No	2	No	Woodside, 30 August 2023	<ul style="list-style-type: none"> • None
Market Forces	No	3	No	Woodside, 17 August 2023	<ul style="list-style-type: none"> • None
International Fund for Animal Welfare	No	2	No	Woodside, 30 August 2023	<ul style="list-style-type: none"> • None
World Wildlife Fund	No	2	No	Woodside, 30 August 2023	<ul style="list-style-type: none"> • None
Environs Kimberley	No	5	No	Woodside, 22 January 2025	<ul style="list-style-type: none"> • None
[Individual 4] / [Individual 3] / Save our Songlines	Yes	70	Yes	EDO, 7 October 2024	<ul style="list-style-type: none"> • Correspondence with Woodside • Website • Public protests • Media statements

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Extended Consultation

For a number of relevant persons, Woodside extended its Operations EP consultation period from 30 days to four and a half months, from September to December 2023. During that time, Woodside undertook additional proactive activities to provide sufficient information to relevant persons, raise awareness of the EP consultation period, and to facilitate consultation on the proposed activities.

In addition to an initial Operations EP geotargeted, sponsored social media campaign in August 2023, during November 2023 Woodside launched a second Operations EP geotargeted sponsored social media campaign promoting consultation (Record of Consultation, reference 3.4).

Throughout extended consultation period, Woodside continued to offer to meet with NGOs and [Individual 3], [Individual 4] and Save our Songlines.

Social Media Platform	Geotargeted Reach	Additional Social Media Campaign Dates	Impact
Facebook and Instagram	Metro and Regional: Users 18+ located within 80kms of Perth Metro, Broome, Carnarvon, Denham, Exmouth, Onslow, Port Hedland and Karratha	15 – 24 November 2023	Reach: 1,713,790 Frequency: 3.37 Impressions: 5,769,203 Link clicks: 6,969 CTR%: 0.12%

Self-Identification

Social Media Campaign – Are you a relevant person?

In October 2023, Woodside commenced a targeted social media campaign, both organic and sponsored, focusing on raising the awareness of community members of key towns within the Kimberley, Pilbara, Gascoyne and Murchison regions. The campaign delivered targeted information to several profiled relevant person groups via story and feed content with text and a short accessible video (Record of Consultation, reference 3.5).

The campaign aims to support self-identification and provides information about Woodside's consultation with relevant persons when preparing EPs and encourages participation in the consultation process.

Six different videos with specific information to potential relevant persons groups were launched on Facebook and Instagram:

- Local communities – volunteering
- Local communities - apprentices/trainees
- Commercial fishing
- Recreational fishing
- Recreational marine users
- Traditional Owners.

Results of first burst at February 2024 are as follows:

Categories	Reach	Frequency	Impressions	Clicks	Click-through rate %
Marine Users	389,383	4.37	1,701,418	2,298	0.14%

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Categories	Reach	Frequency	Impressions	Clicks	Click-through rate %
Commercial Fisheries Demersal	297,701	2.84	846,530	853	0.10%
Commercial Fisheries Crab	207,104	2.54	526,472	484	0.09%
Volunteering	172,750	2.11	364,635	373	0.10%
Apprentices & trainees	97,083	2.21	214,324	311	0.15%
Traditional Owner Groups	92,209	1.56	143,965	212	0.15%

Results of second burst at April 2024 are as follows:

Categories	Reach	Frequency	Impressions	Clicks	Click-through rate %
Marine Users	251,096	3.48	873,689	1342	0.15%
Commercial Fisheries Demersal	208,759	2.53	529,021	540	0.10%
Commercial Fisheries Crab	71,468	2.54	526,472	484	0.09%
Volunteering	46,354	1.54	71,335	114	0.16%
Apprentices & trainees	50,776	1.43	72,363	101	0.14%
Traditional Owner Groups	192,257	2.47	475,112	566	0.12%

The commercial fisheries, recreational fisheries and Traditional Owners videos are available on the Woodside [Consultation Activities](#) webpage.

Broad Understanding

Integrated Information Campaign - Scarborough Energy Project

From October 2023 to February 2024, Woodside launched an integrated advertising campaign to inform the general public about Woodside’s activities related to this EP and the broader Scarborough Energy Project (Record of Consultation, reference 3.6). The campaign encouraged stakeholders to visit the Woodside webpage for further information, which includes information on the Operations EP consultation.

Campaign advertisements were run in parallel to the Operations EP consultation advertisements across traditional media, online media and google display, social media and out of home (billboards and flyers).

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The dedicated Scarborough Energy Project webpage features on the Woodside website home page and the webpage displays links to the consultation activities webpage. The webpage provides information and resources that are in addition to the consultation information sheet such as information about managing emissions at the project, which was a topic of interest to a number of relevant persons who consulted in relation to this EP.

Traditional Custodian Specific Consultation

In addition to the approaches above including community information sessions, additional activities were undertaken with relevant Traditional Custodians. The activities were specifically designed to encourage engagement with Traditional Custodians and so that information was provided in a form that was readily accessible and appropriate (Record of Consultation, reference 1.2).

As noted above (see headings Consultation Approach; Relevancy Assessment; and Environment That May Be Affected (EMBA)), consultation was completed based on the extent of a broad EMBA. On the application of an industry-wide agreed approach to EMBA modelling, the EMBA area for this activity was reduced. This has meant Woodside originally engaged in a broader and more inclusive consultation basis than would have been necessary if Woodside had initially applied its methodology to the reduced EMBA. The consultation for affected stakeholders (for example, Malgana Aboriginal Corporation and Wanparta Aboriginal Corporation) was completed and is still included in Appendix F, but, as a result of the updated EMBA, they are now included in Table 3 as “chose to contact” rather than as a relevant person in Table 2.

Consultation undertaken specifically with Traditional Custodians for this Environment Plan included:

- Consultation with nominated representative bodies via the contact listed on the Office of the Registrar of Indigenous Corporations (ORIC) website, requesting advice on how they would like to be engaged and asking whether there are other members and/or individuals who should be consulted and requesting that information be shared with their members or any other Traditional Custodian groups or individuals they believe should receive the information and be consulted.
- Each relevant group was provided a Summary Consultation Information Sheet developed and reviewed by Indigenous representatives in collaboration with technical experts so as to make the content appropriate for Traditional Owners and groups.
- A First Nations team member was assigned as a focal person for EP consultation. That person was a dedicated contact person available for engagement in consultation and for building relationships who was available to be contacted, provide information and take feedback.

This resulted in:

- Various requests from Traditional Owners and offers from Woodside of resourcing to enable and support consultation
- Exchanges of written consultation feedback and correspondence
- Meetings with directors, PBC representatives, Elders and nominated representatives, by telephone and video conference, or in person on-Country. Those meeting were attended by Woodside representatives, subject matter experts and First Nations relations advisers with experience in community engagement. The meetings facilitated effective consultation including by:
 - Mutually agreed agendas (with an aim of avoiding ample time for information to be understood).
 - Provision of Woodside subject matter experts to answer questions and explain information.
 - Encouragement of Traditional Custodian attendees to control the pace of the meetings and pause at any time to ask questions, seek clarification or provide feedback.
 - Provision of visual aids such as presentations, videos and real-world pictures and footage.

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- Emphasis on potential planned and unplanned risks and impacts of the activity.
- Ample opportunity for questions and feedback.
- Discussion about ongoing relationship development and opportunities.
- Woodside providing reasonable costs to enable consultation such as sitting fees, travel costs, legal support, executive support and other reasonable support requests.

Ongoing consultation remains an important part of the relationship with Traditional Custodians and is informed by availability, cultural protocols and the preferred method of consultation for relevant Traditional Owners. In the case of the Scarborough Energy Project, Woodside has consulted with a number of Traditional Owners about the project including the whole project proposal OPP and specific activities under the four previous Scarborough EPs.

Woodside’s ongoing consultation with relevant Traditional Custodians is demonstrated by:

- Ongoing efforts to consult and develop relationships by a variety of methods such as by email, phone calls, alternative contacts, texts and where possible, face-to-face meetings at a location they nominate.
- Woodside advising groups that feedback would continue to be accepted for the life of the EP.

Indigenous Media and Publications

Woodside ran a wide-reaching campaign designed to bring the proposed activity to the attention of persons who may be interested and advised persons or organisations how they can find out about Woodside’s proposed activities by visiting Woodside’s website, which details the intent of consultation with relevant persons under the Regulations. The campaign reached more than two million people across various regions as shown in Record of Consultation, reference 3.4.

The campaign included:

- Advertising in Indigenous publications (Record of Consultation, reference 3.2).
- Advertising on Ngaarda radio, the only licensed Aboriginal broadcaster in the Pilbara (Record of Consultation, reference 3.8)

Newspaper	Coverage	Publication dates
Koori Mail	Indigenous	9 August 2023
National Indigenous Times	Indigenous	29 August 2023
Ngaarda Radio	Pilbara	26 August – 30 November 2024

- Woodside ran an Operations EP geotargeted, sponsored social media campaign (Record of Consultation, reference 3.4) for various communities that are coastally adjacent to the EMBA for the proposed activities.
- These social media posts were developed with input from Indigenous representatives. Social media is an effective means to engage Indigenous audiences as outlined in Indigenous Digital Life (Professor Carlson, 2021). Advertisements used language and information appropriate to Indigenous audiences. Feedback from community engagements indicates a high level of penetration for this technique.

Woodside has employed a diverse range of techniques to allow relevant persons to become aware of the proposed activity and how it may affect their functions, interests or activities, and to understand their ability to provide feedback. The combination of engagement meetings, traditional print media, social media and face-to face community interaction was designed with input from Indigenous representatives and adapted to the audience, so that it provides a wide-ranging opportunity to consult.

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TABLE 2: CONSULTATION REPORT WITH RELEVANT PERSONS OR ORGANISATIONS

The black numbering (N) in the *Summary of information provided and record of consultation for this EP* in Table 2 denotes an issue raised by a relevant person. The green numbering (N) in this section denotes Woodside's response to that issue.

Commonwealth and WA State Government Departments or Agencies – Marine

Australian Border Force (ABF)

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 9 August 2023, Woodside emailed ABF advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
<p>Summary Report – Consultation Complete</p> <p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with ABF for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:</p> <p>Sufficient Information</p> <p>Woodside has given ABF sufficient information to allow ABF to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:</p> <ul style="list-style-type: none"> The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to ABF on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included: <ul style="list-style-type: none"> The purpose of consultation and set out what was being sought through consultation. A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures. 		

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- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed ABF a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to ABF advising of consultation as well as when consultation would close for the purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed ABF 30 days for consultation. For consultation on EPs, 30 days is the usual period for ABF.
- In this context, Woodside allowed ABF a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with ABF is appropriate and adapted to the nature of ABF:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with ABF.
- Woodside sent a follow-up consultation email on 30 August 2023, reminding ABF of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as ABF did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on ABF's functions, interests or activities.

Australian Communications and Media Authority (ACMA)

Summary of information provided and record of consultation for this EP:

- On 7 December 2023, Woodside emailed ACMA advising of the proposed activity (Record of Consultation, reference 1.24) and provided a Consultation Information Sheet, a communications cable figure, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

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- On 19 December 2023, ACMA thanked Woodside for the opportunity to comment on this EP and stated it had reviewed the materials (SI Report, reference 53.1). In addition:
 - (1) ACMA noted that operational areas identified were not in the vicinity of any existing protection zones but appeared to be in the vicinity of submarine cables and as such, it encouraged Woodside to contact the owner of existing or planned cables within the projects areas.
 - (2) ACMA also noted that the map for this EP was similar to the North West Shelf and Julimar Exploration Wellhead Environmental Plan and the cable to the north of the operational areas marked as proposed appeared to be part of Vocus' Darwin Jakarta Singapore cable system which was active as of July 2023.
 - (3) ACMA recommended that Woodside contact the AHO for further assistance identifying submarine cables that may be impacted by the proposed activities.

Ongoing engagement:

- (1) On 27 December 2023, Woodside emailed AMCA and confirmed the operational areas for this EP were not in the vicinity of any existing protection zones, but did appear to be in the vicinity of submarine cables, so Woodside had been in contact with Telstra, the relevant owner of the submarine cables (existing or planned), since March 2020 (SI Report, reference 53.2).
- (2) Woodside was also aware that Vocus' Darwin Jakarta Singapore cable system was active.
- (3) Woodside noted that AHO could be contacted should further assistance be required to identify submarine cables.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) ACMA confirmed the operational areas were not in the vicinity of any existing protection zones but were in the vicinity of submarine cables and Woodside should contact the owners of those cables.</p>	<p>(1) Woodside assessment: Woodside noted ACMA's confirmation that the operational areas were not in the vicinity of existing protection zones but were in the vicinity of submarine cables. Woodside response: Woodside confirmed it had been in contact with Telstra, the relevant owner of the submarine cables. Woodside also consulted Vocus for this activity.</p>	<p>(1) Communications infrastructure located in the vicinity of the PAP is set out in Section 4.10.6 of the EP.</p>
<p>(2) ACMA noted the cable to the north of the operational areas marked as proposed appeared to be part Vocus' Darwin Jakarta Singapore cable system.</p>	<p>(2) Woodside assessment: Woodside acknowledges that the Darwin Jakarta Singapore cable system is active. Woodside response: Woodside confirmed it was aware that Vocus' Darwin Jakarta Singapore cable system was active. Woodside subsequently consulted Vocus for this EP.</p>	<p>(2) Consultation with Vocus is set out in Appendix F, Table 2 of the EP.</p>
<p>(3) ACMA recommended that Woodside contact the AHO for further assistance identifying cables.</p>	<p>(3) Woodside assessment: Woodside has consulted AHO for this EP and no feedback was provided on submarine cables. Woodside has sufficient geospatial information and has consulted the owners of the submarine cables, being Vocus and Telstra.</p>	<p>(3) Communications infrastructure located in the vicinity of the PAP is set out in Section 4.10.6 of the EP.</p>

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	Woodside response: Woodside noted the AHO could be contacted should further assistance be required to identify submarine cables.	
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with ACMA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient information

Woodside has given ACMA sufficient information to allow ACMA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to ACMA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations.
- In addition to the Consultation Information Sheet, Woodside provided ACMA with information tailored to ACMA by including a map of submarine communication cables.
- On 19 December 2023, ACMA consulted and shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable ACMA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information provided in the Consultation Information Sheet, Woodside provided ACMA with further information in response to ACMA’s feedback (email of 27 December 2023).

Reasonable Period

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Woodside allowed ACMA a reasonable period for consultation in the preparation of this EP because:

- Consultation for this EP commenced 17 months ago in August 2023.
- A consultation period was notified in the initial correspondence to ACMA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- As ACMA responded to Woodside within the timeframe provided, in this context, Woodside allowed ACMA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with ACMA is appropriate and adapted to the nature of interests of ACMA:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with ACMA.
- Woodside considers a reasonable opportunity was provided to ACMA as evidenced by its response on 19 December 2023 when it provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- ACMA provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from ACMA.
 - Made no changes or inclusions to the EP as a result of consultation with ACMA because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Australian Fisheries Management Authority (AFMA)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed AFMA advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 5 September 2023, AFMA thanked Woodside for the advice (SI Report, reference 20.1) and:
 - **(1)** Advised AFMA had no specific comments on the proposal.

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<ul style="list-style-type: none"> - (2) Encouraged Woodside, if it had not already done so, to engage directly with Commonwealth fishing operators in the area and included contact details for relevant industry associations. • (1, 2) On 10 September 2023, Woodside thanked AFMA for its feedback and confirmed information had been provided to relevant representative organisations and fishing operators (SI Report, reference 20.2). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) AFMA advised it had no specific comments on the proposal.	(1) Woodside assessment: Woodside accepts AFMA has no specific comments on the proposal. Woodside response: Woodside thanked AFMA for its feedback.	(1) Not required.
(2) AFMA encouraged Woodside to consult directly with fishing operators who have entitlements to fish within the proposed area.	(2) Woodside assessment: Woodside considered that consultation with fishing operators, based on overlap with the proposed area, may result in consultation fatigue. However, Woodside recognised AFMA's position recommending direct consultation with fishing operators. Woodside response: Woodside confirmed it had consulted individual Commonwealth fishing operators in the area, as well as relevant representative bodies and fishing industry associations.	(2) Woodside has assessed the potential for interaction with Commonwealth managed fisheries in Section 4.10.1 of this EP.
While feedback has been received, there were no objections or claims.	Woodside has consulted AFMA, DAFF – Fisheries, CFA and individual relevant licence holders. Woodside has assessed the merits of any each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside will provide notifications to AFMA (see Table 7-8 of this EP) ten days before activity commences, and following completion of activities, as referenced as PS 1.8.1 of this EP. No additional measures or controls are required.
Summary Report – Consultation Complete		

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AFMA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AFMA sufficient information to allow AFMA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information directly to AFMA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 5 September 2023, AFMA shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable AFMA to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- Woodside provided further information to AFMA on 10 September 2023 which addressed AFMA's topics of interest in response to feedback from AFMA.

Reasonable Period

Woodside allowed AFMA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to AFMA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed AFMA 30 days for consultation. For consultation on EPs, 30 days is the usual period for AFMA.
- In this context, Woodside allowed AFMA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with AFMA is appropriate and adapted to the nature of interests of AFMA:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with AFMA.

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- Woodside considers a reasonable opportunity was provided to AFMA as evidenced in their response on 1 September 2023 when they provided feedback.

Outcomes of Consultation:

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- AFMA provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to AFMA’s feedback.
 - Made no changes or inclusions to the EP as a result of consultation with AFMA because appropriate measures are already included in the EP but as standard practice will notify AFMA as per PS 1.8.1.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Australian Hydrographic Office (AHO)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed AHO advising of the proposed activity (Record of Consultation, reference 1.10 and 1.11) and provided a Consultation Information Sheet, shipping lanes map and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- **(1)** On 10 August 2023, AHO emailed Woodside advising it had received the email and that the data supplied would be registered, assessed, prioritised and validated in preparation for updating its Navigational Charting products. These adhere to International and Australian Charting Specifications and standards. These standards may result in some data generalisation or filtering due to the scale of existing charts, proximity to other features, and the level of risk a reported feature presents to mariner (SI Report, reference 3.1). **(1)** Woodside noted AHO’s feedback but no response was required.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) AHO acknowledged receipt of consultation email and advised on updates to its Navigational Charting products.</p>	<p>(1) Woodside assessment: Woodside acknowledges AHO has received data regarding the activity and has no specific feedback for this activity. Woodside response: Woodside noted AHO’s acknowledgement of its email and that it would use data supplied to update its Navigational Charting products.</p>	<p>(1) Not required.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p>	<p>Woodside will notify the AHO no less than four working weeks before operations commence, as referenced as C 1.5 in this EP. No additional measures or controls are required.</p>

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	<p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AHO for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AHO sufficient information to allow AHO to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to AHO on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:

- The purpose of consultation and set out what was being sought through consultation.
- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and measurement measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations.
- In addition to the Consultation Information Sheet, Woodside provided AHO with information tailored to AHO by including a map of shipping lanes relevant to the activity.
- On 10 August 2023, AHO shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable AHO to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.

Reasonable Period

Woodside allowed AHO a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to AHO advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed AHO 30 days for consultation. For consultation on EPs, 30 days is the usual period for AHO.
- In this context, Woodside allowed AHO a reasonable period for consultation in preparation of the EP.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with AHO is appropriate and adapted to the nature of interests of AHO:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA’s guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with AHO.
- Woodside considers a reasonable opportunity was provided to AHO as evidenced by their response on 10 September 2023 when they provided feedback.

Outcomes of Consultation:

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- AHO provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from AHO.
 - Made no changes or inclusions to the EP as a result of consultation with ACMA because appropriate measures are already included in the EP but as standard practice will notify AHO as per C 1.5 of the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Australian Maritime Safety Authority (AMSA) – Marine Safety

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed AMSA – Marine Safety advising of the proposed activity (Record of Consultation, reference 1.10 and 1.11) and provided a Consultation Information Sheet, shipping lanes map and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.2).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside will notify AMSA–Marine Safety at least 24-48 hours before operations commence and at the end of activities as referenced as PS 1.6.1 in the EP. Woodside will also provide updates to the AHO and JRCC should there be any changes to the activity. No additional measures or controls are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AMSA – Marine Safety for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AMSA – Marine Safety sufficient information to allow AMSA – Marine Safety to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to AMSA – Marine Safety on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided AMSA – Marine Safety with information tailored to AMSA – Marine Safety by including a map of shipping lanes relevant to the activity.

Reasonable Period

Woodside allowed AMSA – Marine Safety a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to AMSA – Marine Safety advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed AMSA – Marine Safety 30 days for consultation. For consultation on EPs, 30 days is the usual period for AMSA – Marine Safety.
- In this context, Woodside allowed AMSA – Marine Safety a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with AMSA – Marine Safety is appropriate and adapted to the nature of interests of AMSA – Marine Safety:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with AMSA – Marine Safety.
- Woodside proactively sent a follow-up consultation email reminding AMSA – Marine Safety of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as AMSA – Marine Safety did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on AMSA – Marine Safety's functions, interests or activities.

Australian Maritime Safety Authority (AMSA) – Marine Pollution

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed AMSA – Marine Pollution advising of the proposed activity (Record of Consultation, reference 1.10 and 1.11) and provided a Consultation Information Sheet, shipping lanes map and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.2).
- On 25 March 2024, Woodside emailed AMSA – Marine Pollution advising of the proposed activity and provided the Oil Pollution First Strike Plan (SI Report, reference 60.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has addressed oil spill preparedness and response strategy in Appendix H. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AMSA – Marine Pollution for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

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Woodside has given AMSA – Marine Pollution sufficient information to allow AMSA – Marine Pollution to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to AMSA – Marine Pollution on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the information in the Consultation Information Sheet, Woodside provided AMSA – Marine Pollution with the Oil Pollution First Strike Plan for the EP and reminded AMSA – Marine Pollution of the opportunity to provide feedback on the EP (email of 25 March 2024).

Reasonable Period

Woodside allowed AMSA – Marine Pollution a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to AMSA – Marine Pollution advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed AMSA – Marine Pollution 30 days for consultation. For consultation on EPs, 30 days is the usual period for AMSA – Marine Pollution consultation.
- In this context, Woodside allowed AMSA – Marine Pollution a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with AMSA – Marine Pollution is appropriate and adapted to the nature of interests of AMSA – Marine Pollution.

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA’s guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with AMSA – Marine Pollution.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding AMSA – Marine Pollution of the opportunity to provide feedback.
- Woodside again reminded AMSA – Marine Pollution of the opportunity to provide feedback when Woodside sent the Oil Pollution First Strike Plan (email of 25 March 2024).

Outcomes of Consultation

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Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as AMSA – Marine Pollution did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on AMSA – Marine Pollution’s functions, interests or activities.

Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DAFF – Fisheries advising of the proposed activity (Record of Consultation, reference 1.12) and provided a Consultation Information Sheet and link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.5).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted AFMA, DAFF – Fisheries, CFA and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with Commonwealth managed fisheries in Section 4.10.1 of this EP. Woodside will provide notifications to DAFF – Fisheries (see Table 7-8 of this EP) ten days before activity commences, and following completion of activities, as referenced as PS 1.8.1 of this EP. No additional controls or measures are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DAFF – Fisheries for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DAFF - Fisheries sufficient information to allow DAFF - Fisheries to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

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- The Consultation Information Sheet has been publicly available on the Woodside website since August 2023. Woodside provided this information to DAFF – Fisheries on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed DAFF - Fisheries a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to DAFF – Fisheries advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed DAFF – Fisheries 30 days for consultation. For consultation on EPs, 30 days is the usual period for DAFF – Fisheries.
- In this context, Woodside allowed DAFF – Fisheries a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with DAFF – Fisheries is appropriate and adapted to the nature of interests of DAFF - Fisheries:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA’s guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with DAFF - Fisheries.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding DAFF – Fisheries of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DAFF - Fisheries did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

- The measures and controls described in this EP address the potential impact from the proposed activity on DAFF – Fisheries’ functions, interests or activities.

Department of Defence (DoD)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DoD advising of the proposed activity (Record of Consultation, reference 1.13) and provided a Consultation Information Sheet, defence zone map and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.3).
- (1)** On 8 September 2023, DoD advised Woodside that a new person would be responsible for co-ordinating the Offshore Petroleum Inbox (SI Report, reference 21.1).
(1) Woodside updated its records as a result of DoD’s feedback but no further response was required from Woodside at that time.
- On 19 September 2023, DoD thanked Woodside for its email (SI Report, reference 21.2). DoD provided feedback regarding:
 - (2)** The location of the activity areas within an exercise area and restricted airspace.
 - (3)** Unexploded ordinances (UXOs) that may be present on and in the seafloor, and that Woodside must inform itself as to the risks associated with conducting activities in that area, with the Commonwealth of Australia taking no responsibility for reporting the UXO in the area, identifying or removing UXO from the area, or any loss or damage suffered or incurred by Woodside or any third party arising out of, or directly related to, UXO in the area.
 - (4)** DoD’s notification requirements including liaison with the Australian Hydrographic Service/Office (AHS/AHO).
- On 2 November 2023, Woodside thanked DoD for its feedback (SI Report, reference 21.3) and confirmed:
 - (2)** It had noted the location of activity areas and the presence of exercise areas and restricted airspace.
 - (3)** It had noted the advice regarding location, identification, removal or damage to equipment from unexploded ordinances (UXOs).
 - (4)** The Australian Hydrographic Service/Office (AHS/AHO) had been engaged for this activity and is part of the activity notification protocols.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
(1) Advised a new DoD contact for the Offshore Petroleum Inbox.	(1) Woodside assessment: Woodside noted that DoD had new contacts for its Offshore Petroleum Inbox. Woodside response: Woodside updated its records to reflect the new DoD contact information for ongoing consultation.	(1) Not required.
(2)	(2)	(2)

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Confirmed that activity areas are within North-West Exercise area and restricted airspace.	<p>Woodside assessment: Woodside acknowledged DoD's guidance on exercise areas and restricted airspace.</p> <p>Woodside response: Woodside noted DoD's advice on the location of activity areas within the North-West Exercise area and restricted airspace.</p>	Woodside has recorded the defence areas overlapping the PAA in Section 4.10.7 of this EP.
<p>(3) Advised on the risk of unexploded ordinance (UXO) on and in sea floor.</p>	<p>(3) Woodside assessment: Woodside acknowledged DoD's advice on the risk of UXO.</p> <p>Woodside response: Woodside confirmed it had noted DoD's advice with respect to the risk, location, identification, removal or damage from UXO on and in the sea floor.</p>	<p>(3) Woodside has recorded the defence areas overlapping the PAA in Section 4.10.7 of this EP.</p>
<p>(4) Woodside should continue liaising with AHS/AHO and ensure AHS/AHO is notified three weeks prior to the actual commencement of activities.</p>	<p>(4) Woodside assessment: Woodside acknowledged DoD's notification advice and the need to continue liaising with AHS/AHO.</p> <p>Woodside response: Woodside confirmed it had engaged AHS/AHO for these activities and it was included in Woodside's activity notification protocols.</p>	<p>(4) Woodside will notify the AHO no less than four working weeks before operations commence as referenced as C 1.5 in the EP.</p> <p>Where the activities overlap a defence area, DOD will be notified of the activity start date no less than five weeks before the scheduled commencement date, see C 1.9 in the EP.</p> <p>Notifying the AHO provides DoD with information of the PAP through maritime safety information.</p>
While feedback has been received, there were no objections or claims.	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DoD for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

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Sufficient Information

Woodside has given DoD sufficient information to allow DoD to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DoD on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided DoD with information tailored to DoD by including a map of defence zones relevant to the activity.
- On 19 September 2023, DoD consulted and shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable DoD to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided DoD with further information in response to DoD's feedback (email of 2 November 2023).

Reasonable Period

Woodside allowed DoD a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to DoD advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DoD 30 days of consultation.
- In this context, Woodside allowed DoD a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DoD is appropriate and adapted to the nature of interests of DoD:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding DoD of the opportunity to provide feedback.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with DoD.
- Woodside considers a reasonable opportunity was provided to DoD as evidenced in their response on 19 September 2023 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DoD provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from DoD.
 - As standard practice (and as requested by DoD during consultation), Woodside will provide activity notifications to AHO and DoD as referenced as C 1.5 and C 1.9.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Department of Primary Industries and Regional Development (DPIRD)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DPIRD advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- **(1)** On 11 August 2023, DPIRD emailed Woodside thanking it for the opportunity to be consulted but advised it had previously commented in February on the Scarborough project, in regard to a related Scarborough EP and their area of interest, and had no further comments (SI Report, reference 4.1).
- **(1)** On 17 August 2023, Woodside responded thanking DPIRD for its prompt response (SI Report, reference 4.2).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
(1) DPIRD advised it had no further comments at this time.	(1) Woodside assessment: Woodside accepts that DPIRD has no comments at this time. Woodside response: Woodside thanked DPIRD for its response and noted there were no further comments.	(1) Not required.
While feedback has been received, there were no objections or claims.	Woodside has consulted DPIRD, WAFIC, and individual licence holders (via WAFIC). Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. Woodside will provide notifications to AFMA, CFA, DAFF – Fisheries (see Table 7-8) ten days before activity commences, and following completion of activities., as referenced as PS 1.8.1 of this EP. No additional measures or controls are required.

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	accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DPIRD for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DPIRD sufficient information to allow DPIRD to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DPIRD on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 11 September 2023, DPIRD consulted and shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable DPIRD to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.

Reasonable Period

Woodside allowed DPIRD a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to DPIRD advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period and Woodside allowed DPIRD 30 days for consultation. DPIRD engaged in consultation and provided feedback during this period.
- In this context, Woodside allowed DPIRD a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with DPIRD is appropriate and adapted to the nature of interests of DPIRD:

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- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside considers a reasonable opportunity was provided to DPIRD as evidenced in their response on 11 August 2023 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DPIRD provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from DPIRD.
 - Made no changes or inclusions to the EP as a result of consultation with DPIRD because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Department of Transport (DoT)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DoT advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- **(1)** On 21 August 2023, DoT responded to Woodside's email and asked to be consulted if there was a risk of a spill impacting State waters (SI Report, reference 12.1).
- **(1)** On 28 August 2023, Woodside responded thanking DoT for its email and confirming DoT would be consulted if there was a risk of a spill impacting State waters from the proposed activities (SI Report, reference 12.2).

Ongoing engagement:

- On 25 March 2024, Woodside emailed DoT advising of the proposed activity and provided a copy of the Scarborough Offshore Facility and Trunkline Operations Oil Pollution First Strike Plan (SI Report, reference 12.3).
- On 3 May 2024, DoT emailed Woodside thanking it for the First Strike Plan (SI Report, reference 12.4). DoT also:
 - **(2)** Asked for clarification as to why there was a mention in the FSP to only notify DoT for a Level 2 or 3 spill incident in port waters.
- On 8 May 2024, Woodside emailed DoT thanking it for the feedback on the FSP (SI Report, reference 12.5). Woodside:
 - **(2)** Provided amended text that stated DoT would be notified for all spills that occurred within port waters.
- **(2)** On 9 May 2024, DoT responded to Woodside stating it was happy with the change and had no further comment (SI Report, reference 12.6).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) DoT requested to be consulted if there is a risk of a spill impacting State waters.</p>	<p>(1) Woodside assessment: Woodside will consult DoT if there is a risk of a spill impacting State waters. Woodside response: Woodside confirmed that if there was a risk of a spill impacting State waters, DoT would be consulted. Woodside will provide DoT with a copy of the accepted Oil Pollution First Strike Plan (Appendix I). Woodside will consult DoT if there is a spill impacting State waters from the proposed activity, as referenced in the OSPRMA (Appendix H).</p>	<p>(1) Woodside will consult DoT if there is a spill impacting State waters from the proposed activity, as referenced in the OSPRMA (Appendix H). Woodside will provide DoT with a copy of the accepted Oil Pollution First Strike Plan (Appendix I).</p>
<p>(2) DoT asked for clarification on why the FSP noted it would only be notified of Level 2 and 3 spills within port waters.</p>	<p>(2) Woodside assessment: Woodside acknowledged DoT's feedback regarding spill notifications and has incorporated the feedback into the notification requirements in the FSP. Woodside response: Woodside provided amended text to DoT, on which DoT had no further feedback, and Woodside updated the FSP accordingly.</p>	<p>(2) Woodside has updated the Oil Pollution First Strike Plan (Appendix I) to include notification to DoT of Level 1, 2 and 3 spills within port waters.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2) of this EP).</p>	<p>No additional measures or controls are required.</p>

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DoT for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DoT sufficient information to allow DoT to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DoT on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- Woodside also provided DoT with the Oil Pollution First Strike Plan for the EP and again reminded DoT of the opportunity to provide feedback on the EP (email of 25 March 2024).
- On 21 August 2023, 3 May 2024 and 9 May 2024, DoT shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable DoT to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.

Reasonable Period

Woodside allowed DoT a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to DoT advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DoT 30 days for consultation. DoT engaged in consultation and provided feedback in this period.
- In this context, Woodside allowed DoT a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DoT is appropriate and adapted to the nature of interests of DoT:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside considers a reasonable opportunity was provided to DoT as evidenced in their responses on 21 August 2023, 3 May 2024 and 9 May 2024 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DoT provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from DoT.

- Based on DoT's feedback, updated the Scarborough Offshore Facility and Trunkline Operations First Strike Plan to include Level 1 spills.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Department of Planning, Lands and Heritage (DPLH)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DPLH advising of the proposed activity (Record of Consultation, reference 1.14) and provided a Consultation Information Sheet, a list of shipwrecks in State waters within the EMBA, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.4).
- On 1 September 2023, DPLH emailed Woodside thanking it for the opportunity to comment on this EP (SI Report, reference 17.1). DPLH:
 - (1) Noted it had no comment on the installation of the Floating Production Unit, exploration wells or gas export trunkline.
 - (2) In addition, it stated that in relation to the shipwrecks Trial and Lady Ann, the Western Australian Museum (WAM) was the delegated authority and should be contacted for advice regarding any maritime archaeological impacts.
- On 6 September 2023, Woodside emailed DPLH thanking it for its feedback (SI Report, reference 17.2). Woodside:
 - (1) Acknowledged DPLH had no feedback on the activity.
 - (2) Confirmed shipwreck information had been sent to WAM.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) DPLH advised it had no feedback.</p>	<p>(1) Woodside assessment: Woodside accepts that DPLH has no feedback on the activity. Woodside response: Woodside noted DPLH had no feedback on the activity and thanked it for its response.</p>	<p>(1) Not required.</p>
<p>(2) DPLH advised that WAM is the delegated authority for the Trial and Lady Ann shipwrecks and should be contacted.</p>	<p>(2) Woodside assessment: Woodside recognises that WAM is the delegated authority for shipwrecks and has consulted WAM as a relevant person. Woodside response: Woodside confirmed shipwreck information had been sent to WAM.</p>	<p>(2) The EP demonstrates that there are no known underwater heritage sites or shipwrecks within the PAP and identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities (Section 4.9 of this EP). While impacts to underwater heritage sites or shipwrecks are possible in the event of an unplanned</p>

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		hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Appendix H
While feedback has been received, there were no objections or claims.	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DPLH for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DPLH sufficient information to allow DPLH to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DPLH on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 1 September 2023, DPLH consulted and shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable DPLH to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- In addition to the Consultation Information Sheet, Woodside provided further information to DPLH in response to its topics of interest and feedback (email of 6 September 2023).

Reasonable Period

Woodside allowed DPLH a reasonable period for consultation in the preparation of this EP because:

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- A consultation period was notified in the initial correspondence to DPLH advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DPLH 30 days for consultation. DPLH engaged in consultation and provided feedback within this period.
- In this context, Woodside allowed DPLH a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DPLH is appropriate and adapted to the nature of interests of DPLH:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding DPLH of the opportunity to provide feedback.
- Woodside considers a reasonable opportunity was provided to DPLH as evidenced in their response on 1 September 2023.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DPLH provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from DPLH.
 - Made no changes or inclusions to the EP as a result of consultation with DPLH because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Western Australian Museum (WAM)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed WAM advising of the proposed activity (Record of Consultation, reference 1.14) and provided a Consultation Information Sheet and a list of shipwrecks in State waters within the EMBA, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 21 August 2023, WAM responded thanking Woodside for the information (SI Report, reference 14.1). WAM:
 - **(1)** Advised that under the *Underwater Heritage Act 2018*, proponents should, in the first place, contact DCCEE as the Commonwealth regulator.

- (2) Directed Woodside to refer to the Commonwealth Government's Underwater Cultural Heritage (UCH) Guidance for Offshore Developments regarding UCH assessments and draft Guidelines for Working in the Near and Offshore Environment to Protect Underwater Cultural Heritage.
- (3) Recommended that Woodside engage a suitably qualified and experienced maritime archaeologist to undertake a UCH Desktop Assessment to identify Aboriginal and non-Aboriginal UCH within the project area.
- (4) Recommended that Woodside consult with Traditional Custodians where appropriate if the project involved seabed disturbance in water shallower than 130 metres.
- On 20 November 2023, Woodside responded and thanked WAM for its feedback (SI Report, reference 14.2). Woodside:
 - (1) Confirmed it had consulted the Commonwealth regulator, DCCEEW, for this EP.
 - (2) Confirmed it referred to the Commonwealth Government's Underwater Cultural Heritage Guidance for Offshore Developments regarding UCH assessments and draft Guidelines for Working in the Near and Offshore Environment to Protect Underwater Cultural Heritage.
 - Noted that this EP involved the Operations phase of the Scarborough facility and associated trunkline, which were being installed under other Environment Plans.
 - (3) Advised that during the assessment of the existing environment in support of Scarborough Project Environment Plans, Woodside engaged a qualified maritime archaeologist to complete desktop assessments using geophysical and geotechnical survey data, completed ethnographic surveys with Traditional Custodians and engaged the University of WA to conduct submerged heritage predictive modelling.
 - (4) Confirmed that Woodside had consulted with Traditional Owners in the course of preparing EPs since 2018 and also engaged in ongoing consultation subsequent to the approval of EPs.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Advised Woodside contact DCCEEW as the Commonwealth regulator under the <i>Underwater Cultural Heritage Act 2018</i>.</p>	<p>(1) Woodside assessment: Woodside understands that DCCEEW administers the <i>Underwater Cultural Heritage Act 2018</i> and identified DCCEEW as a relevant person. Woodside response: Woodside confirmed it had consulted DCCEEW for this EP.</p>	<p>(1) Consultation with DCCEEW is described in Appendix F, Table 2.</p>
<p>(2) Referred to the Commonwealth Government's Underwater Cultural Heritage Guidance for Offshore Developments regarding UCH assessments and draft Guidelines for Working in the Near and Offshore Environment to Protect Underwater Cultural Heritage.</p>	<p>(2) Woodside assessment: Woodside acknowledges and refers to the Underwater Cultural Heritage Guidance for Offshore Developments regarding UCH assessments and draft Guidelines for Working in the Near and Offshore Environment to Protect Underwater Cultural Heritage. Woodside response: Woodside confirmed for this EP, it referred to the Commonwealth Government's Underwater Cultural Heritage Guidance for Offshore Developments regarding UCH assessments and draft Guidelines</p>	<p>(2) Underwater cultural heritage assessments are addressed in Section 4.9 of this EP. While impacts to underwater heritage sites or shipwrecks are possible in the event of an unplanned hydrocarbon spill, Woodside adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Sections 6.8.3 to 6.8.7, and Appendix H of the EP.</p>

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	for Working in the Near and Offshore Environment to Protect Underwater Cultural Heritage.	
(3) Recommended Woodside engages a maritime archaeologist to undertake a UCH Desktop Assessment.	(3) Woodside assessment: Woodside recognised the need for a qualified maritime archaeologist to undertake a desktop review for the Scarborough Project of submerged heritage predictive modelling. Woodside response: Woodside confirmed that, as part of assessments for the Scarborough Project, it completed a desktop review by qualified and experienced maritime archaeologist, completed ethnographic surveys with Traditional Custodians, and engaged the University of WA to conduct submerged heritage predictive modelling.	(3) Section 4.9 of this EP outlines the underwater cultural heritage assessments undertaken by maritime archaeologists, for the Scarborough Project.
(4) Recommended Woodside consults Traditional Owners where appropriate if the project involves seabed disturbance in water shallower than 130m.	(4) Woodside assessment: Woodside consults with relevant Traditional Custodian groups guided by its assessment of relevance consultation methodology for all activities. Woodside response: Woodside confirmed it has consulted with Traditional Custodians from 2018 to present and has completed numerous activities to understand the potential for Traditional Custodians (and non-First Nations) Underwater Cultural Heritage to exist in areas where activities will be undertaken.	(4) Consultation with Traditional Custodians is described in Appendix F of the EP. New heritage information, where applicable to this proposed activity, will be addressed as part of ongoing consultation as referenced in Section 5.7 of the EP.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with WAM for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised above in the Consultation Approach above. Specifically:

Sufficient Information

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Woodside has given WAM sufficient information to allow WAM to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023 and emailed directly to WAM on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided WAM with information tailored to WAM by including a list of shipwrecks relevant to the EP in State waters.
- On 21 August 2023, WAM consulted and shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable WAM to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- In addition to the Consultation Information Sheet, Woodside provided further information to WAM addressing WAM's topics of interest and feedback (email of 20 November 2023).

Reasonable Period

Woodside allowed WAM a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to WAM advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed WAM 30 days for consultation. WAM engaged in consultation and provided feedback in this period.
- In this context, Woodside allowed WAM a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with WAM is appropriate and adapted to the nature of interests of WAM because:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside considers a reasonable opportunity was provided to WAM as evidenced in their response on 21 August 2023 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

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- WAM provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from WAM.
 - Made no changes or inclusions to the EP as a result of consultation with WAM because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Pilbara Ports Authority (PPA)

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> • On 9 August 2023, Woodside emailed PPA advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. • On 30 August 2023, as no response had been received, Woodside proactively sent a follow up email (Record of Consultation, reference 2.1). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with PPA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given PPA sufficient information to allow PPA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to PPA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.

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- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed PPA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to PPA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed PPA 30 days for consultation. For consultation on EPs, 30 days is the usual period for PPA.
- In this context, Woodside allowed PPA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with PPA is appropriate and adapted to the nature of interests of PPA:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding PPA of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were adopted as a result of consultation as PPA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on PPA's functions, interests or activities.

Commonwealth and WA State Government Departments or Agencies – Environment

Clean Energy Regulator (CER)

Summary of information provided and record of consultation for this EP:

- On 11 September 2024, Woodside telephoned CER to provide notification of consultation for this EP and confirm the best contact at CER for consultation information.

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- On 11 September 2024, Woodside emailed CER advising of the proposed activity (Record of Consultation, reference 1.38) and provided a Consultation Information Sheet, a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community* and a link to the EP on NOPSEMA’s website.
- On 17 September 2024, Woodside sent an email following up on consultation and offering to organise a meeting if CER preferred (SI Report, reference 67.1).
- On 26 September 2024, CER responded accepting a meeting in the week commencing 7 October 2024 (SI Report, 67.2).
- On 11 October 2024, Woodside met with CER to discuss consultation for this EP (SI Report, 67.3). During the meeting:
 - Woodside provided an overview of its consultation process, including a description of the EMBA and the purpose of consultation.
 - Woodside provided an overview of the activities, infrastructure and timeframe associated with the Scarborough Operations EP.
 - **(1)** CER asked for clarification on when Woodside would take control of the infrastructure and operations.
 - **(1)** Woodside advised that once the FPU was hooked up, commissioning would be done under Woodside’s permit and safety case, and this was anticipated in the second half of 2025.
 - **(2)** Woodside noted that its understanding was that the SGM regulations required the FPU to be a new facility, separate to Pluto.
 - **(2)** CER confirmed this was consistent with the regulations and provided further clarification on requirements for a new facility. CER acknowledged that this does not need to be reflected in the EP, as it falls under separate legislation.
 - **(3)** CER asked where the Scarborough facility ties in to onshore processing, whether it was into the Pluto trunkline or the Pluto LNG facility.
 - **(3)** Woodside responded that the Scarborough trunkline comes ashore at the existing Pluto LNG Plant, which is currently being expanded. It does not tie into the Pluto trunkline. Woodside also provided an overview of the process, including wells, subsea equipment, and trunkline using a schematic diagram.
 - **(4)** CER advised it had no additional comments regarding the project at this time but it appreciated the opportunity to discuss the project with Woodside. CER confirmed its main interest in the project would be reporting requirements once operational, and noted CER is confident in Woodside’s understanding of its obligations.
 - **(4)** Woodside acknowledged CER had no additional comments on the project at this stage and advised it would continue to accept feedback throughout the life of the EP.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
(1) Information on when Woodside would take control of operations.	(1) Woodside assessment: Woodside acknowledged and responded to CER’s request for information on timeframes and responsibilities. Woodside response: Woodside confirmed it would take control of the FPU from hook-up and this was anticipated in the second half of 2025.	(1) Not required.
(2) Requirements for a new facility.	(2) Woodside assessment: Woodside acknowledges the need for the FPU to be a new facility under SGM regulations. Woodside response: Woodside confirmed it would adhere to CER’s process for a new facility under SGM regulations.	(2) Information on the Federal SGM is set out in EP Section 6.7.6 under subheading <i>Management and Abatement</i> .

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<p>(3) Where the Scarborough facility ties into onshore processing.</p>	<p>(3) Woodside assessment: Woodside acknowledged and responded to CER's request for information on the process. Woodside response: Woodside provided an overview of the process for Scarborough gas including onshore processing, clarifying that the Scarborough trunkline ties in to the existing Pluto LNG Facility which is being expanded</p>	<p>(3) The EP describes that the Scarborough trunkline ties into the Pluto LNG Plant in Section 3.9.4</p>
<p>(4) No additional comments on the project.</p>	<p>(4) Woodside assessment: Woodside accepts that CER has no additional concerns or comments at this time and acknowledges CER's interest is primarily in compliance and reporting once the project is operational. Woodside response: Woodside noted CER had no comments and advised it would continue to accept feedback throughout the life of the EP.</p>	<p>(4) Not required.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with CER for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given CER sufficient information to allow CER to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided the information to CER on 11 September 2024, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.

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- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the information in the Consultation Information Sheet, Woodside provided CER with further information on CER's topics of interest (meeting of 11 October 2024).

Reasonable Period

Woodside allowed CER a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to CER advising when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed CER 30 days for consultation, including a meeting. CER engaged in consultation and provided feedback in this period.
- In this context, Woodside allowed CER a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with CER is appropriate and adapted to the nature of interests of CER:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with CER.
- Woodside also telephoned CER to advise of consultation and confirmed CER's preferred consultation method.
- Woodside considers a reasonable opportunity was provided to CER as evidenced by CER's response on 26 September 2024 and the meeting held between Woodside and CER on 11 October 2024.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- CER provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from CER.
 - Made no changes or inclusions to the EP as a result of consultation with CER because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DAFF – Biosecurity advising of the proposed activity (Record of Consultation, reference 1.12) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 August 2023, DAFF – Biosecurity emailed Woodside outlining the Department's biosecurity requirements (SI Report, reference 6.1). DAFF – Biosecurity also stated the following:
 - (1) Intended operating practices may expose domestic conveyances (support vessels and aircraft) to interactions with the Installation/PIV/MODU which may pose an unacceptable level of biosecurity risk.
 - (2) To have biosecurity risk status assessed, offshore installation projects must apply to the department at least two months prior to project commencement.
 - (3) Requested information must be submitted before the assessment can commence.
- On 27 November 2023, Woodside responded (SI Report, reference 6.2) as follows:
 - (1) Recognises the requirement to manage biosecurity risk to domestic conveyances, the attention drawn to requirements under the *Biosecurity Act 2015*, and the mechanism for exemption under the Biosecurity (Exposed Conveyances - Exceptions from Biosecurity Control) Determination 2016.
 - (2) Acknowledged the specified timeframes for pre-arrival reporting using the Maritime and Aircraft Reporting System (MARS), and for submission of the supplied "Questionnaire for Biosecurity Exemptions for Biosecurity Control Determination".
 - (3) Prior to the entry of the Floating Production Unit (FPU) into Australian waters, Woodside will ensure that all specified requirements are met and that all required reporting and documentation detailed in DAFF – Biosecurity's email are submitted to allow for timely assessment of the FPU as required under the *Biosecurity Act 2015*.
 - (3) Woodside will be the operator of the FPU but will not be the operator of other vessels described in the EP. Woodside continues to work closely with its contractors to ensure compliance with all requirements can be met as defined by DAFF – Biosecurity's 's email, and meet all requirements under Section 6 of the Biosecurity (Exposed Conveyances – Exceptions from Biosecurity Control) Determination 2016.
 - A third-party contractor has been negotiating, via phone calls and emails, the application for ballast water exemption for the temporary ballast water treatment system with DAFF – Biosecurity on behalf of Woodside. At submission of this EP this process was still underway.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Flagged that intended operating practices may expose domestic conveyancers to interactions which may pose an unacceptable level of biosecurity risk. Noted that an exposed conveyance may be eligible for an exception from biosecurity control if the department concludes that the level of risk associated with the survey vessel is low.</p>	<p>(1) Woodside assessment: Woodside recognises domestic conveyances could be exposed to biosecurity risks which will be managed in accordance with the <i>Biosecurity Control Act 2015</i>. Woodside response: Woodside confirmed it recognised the requirement to manage biosecurity risk to domestic conveyances, the attention drawn to requirements under the Biosecurity Control Act 2015, and the mechanism for</p>	<p>(1) Vessels will be assessed and managed to prevent the introduction of invasive marine species in accordance with Woodside's Invasive Marine Species Management Plan (see Section 6.8.12 of the EP). Vessels are required to comply with the Australian <i>Biosecurity Act 2015</i>, specifically the Australian Ballast Water Management Requirements (aligned with the International Convention for the Control and</p>

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	<p>exemption under the Biosecurity (Exposed Conveyances - Exceptions from Biosecurity Control) Determination 2016.</p>	<p>Management of Ships' Ballast Water and Sediments) to prevent introducing IMS. All vessels (including the FPU) are required biosecurity clearances/approvals per the <i>Biosecurity Act (2015)</i> prior to entering Australian waters. This process and risk management are handled by DAFF through their own procedures, independent of the EP processes.</p>
<p>(2) Noted to have biosecurity risk status assessed, offshore installation projects must apply to the Department at least two months prior to project commencement.</p>	<p>(2) Woodside assessment: Woodside acknowledges and accepts the biosecurity risk status assessment timeframe and will adhere to it. Woodside response: Woodside noted and will adhere to the specified timeframes for pre-arrival reporting using the Maritime and Aircraft Reporting System (MARS), and for submission of the supplied "Questionnaire for Biosecurity Exemptions for Biosecurity Control Determination".</p>	<p>(2) Vessels will be assessed and managed to prevent the introduction of invasive marine species in accordance with Woodside's Invasive Marine Species Management Plan (see Section 6.8.12 of the EP). Vessels are required to comply with the Australian <i>Biosecurity Act 2015</i>, specifically the Australian Ballast Water Management Requirements (aligned with the International Convention for the Control and Management of Ships' Ballast Water and Sediments) to prevent introducing IMS. All vessels (including the FPU) are required biosecurity clearances/approvals per the <i>Biosecurity Act (2015)</i> prior to entering Australian waters. This process and risk management are handled by DAFF through their own procedures, independent of the EP processes.</p>
<p>(3) Requested that all information must be submitted before the assessment can commence.</p>	<p>(3) Woodside assessment: Woodside acknowledged the information required for the biosecurity risk status assessment submission for the FPU. Woodside will need to work with contractors of other vessels to ensure compliance with DAFF – Biosecurity's request. Woodside response: Woodside advised that prior to the entry of the FPU into Australian waters, Woodside would ensure that all specified requirements are met and that all required reporting and documentation detailed in DAFF – Biosecurity's email are submitted to allow for timely assessment of the FPU as required under the <i>Biosecurity Act 2015</i>. For clarity, Woodside also advised that Woodside would be the operator of the offshore installation (being the FPU) but would not be the operator of other vessels described in the EP. Woodside continues to work closely with its contractors to ensure compliance with all requirements can be met as</p>	<p>(3) Vessels will be assessed and managed to prevent the introduction of invasive marine species in accordance with Woodside's Invasive Marine Species Management Plan (see Section 6.8.12 of the EP). All vessels (including the FPU) are required biosecurity clearances/approvals per the <i>Biosecurity Act (2015)</i> prior to entering Australian waters. This process and risk management are handled by DAFF through their own procedures, independent of the EP processes.</p>

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	defined by DAFF – Biosecurity’s email, and meet all requirements under Section 6 of the Biosecurity (Exposed Conveyances – Exceptions from Biosecurity Control) Determination 2016.	
While feedback has been received, there were no objections or claims.	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DAFF – Biosecurity for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DAFF - Biosecurity sufficient information to allow DAFF - Biosecurity to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DAFF – Biosecurity on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 11 August 2023, DAFF – Biosecurity consulted and shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable DAFF – Biosecurity to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- In addition to the Consultation Information Sheet, Woodside provided further information to DAFF – Biosecurity in response to DAFF – Biosecurity’s feedback (email of 27 November 2023).

Reasonable Period

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Woodside allowed DAFF - Biosecurity a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to DAFF – Biosecurity advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period and Woodside provided DAFF – Biosecurity with 30 days for consultation. DAFF – Biosecurity engaged in consultation and provided feedback in this period.
- In this context, Woodside allowed DAFF – Biosecurity a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with DAFF - Biosecurity is appropriate and adapted to the nature of interests of DAFF - Biosecurity:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA’s guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with DAFF - Biosecurity.
- Woodside considers a reasonable opportunity was provided to DAFF – Biosecurity as evidenced in their response on 21 August 2023 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DAFF – Biosecurity provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from DAFF – Biosecurity.
 - Made no changes or inclusions to the EP as a result of consultation with DAFF – Biosecurity because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Department of Climate Change, Energy, the Environment and Water Agriculture (DCCEEW)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DCCEEW advising of the proposed activity (Record of Consultation, reference 1.15) and provided a Consultation Information Sheet, Commonwealth Shipwrecks Information, and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.5).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DCCEEW for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DCCEEW sufficient information to allow DCCEEW to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DCCEEW on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed DCCEEW a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to DCCEEW advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed DCCEEW 30 days for consultation. For consultation on EPs, 30 days is the usual period for DCCEEW.
- In this context, Woodside allowed DCCEEW a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

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A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DCCEEW is appropriate and adapted to the nature of interests of DCCEEW:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with DCCEEW.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding DCCEEW of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DCCEEW did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on DCCEEW's functions, interests or activities.

Director of National Parks (DNP)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DNP advising of the proposed activity (Record of Consultation, reference 1.16) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.6).
- On 23 November 2023, in the absence of specific feedback from DNP, Woodside proactively sent a second follow-up email (Record of Consultation, reference 2.15). This email reviewed past feedback from DNP on the Scarborough D&C, SITI, Seismic and Subsea EPs which may be relevant to this EP and provided assessment and response as follows:
 - Activities identified and managed all impacts and risks on Australian marine park values (including ecosystem values) to an acceptable level and had considered all options to avoid or reduce them to ALARP.
 - Activities must not be inconsistent with marine park management plans.
 - Notification instructions in emergency response situations.
- On 7 December 2023, DNP responded thanking Woodside for consulting with it regarding this EP and apologised for the delayed reply (SI Report, reference 25.1). DNP advised it had the following objections or claims:
 - **(1)** For 24-hour operations within biologically important areas for sea turtles, applicable recommendations from the National Light Pollution Guidelines for Wildlife must be adopted.

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- (2) For routine and non-routine discharges relating to subsea operations and activities, that where possible, marine parks were avoided for this type of activity. If this type of activity could not be avoided, then the impacts of the discharge must be reduced to ALARP and comply with relevant regulatory requirements or frameworks (such as the Chemical Hazard Assessment and Risk Management model under the Offshore Chemical Notification Scheme).
- On 8 December 2023, Woodside responded thanking DNP for its email (SI Report, reference 25.2). Woodside:
 - (1) Confirmed it would apply applicable recommendations from the National Light Pollution Guidelines for Wildlife, for operations within 20km of turtle nesting beaches. Due to the remote location of the floating production unit (FPU), Woodside considered that potential impacts to turtles was limited to inspection, maintenance, monitoring and repair works. During activities within 20km of turtle nesting beaches, Woodside would implement controls such as:
 - Lighting be limited to minimum required for navigation and safe operational requirements.
 - Vessel crews trained in light reduction measures when operating within 20km of islands.
 - Use of block out blinds on accommodation quarters.
 - (2) Advised there were no planned discharges from the Scarborough trunkline in marine parks, and the only planned discharge associated with this PAP which could occur in the Montebello Marine Park Multiple Use Zone (MUZ) were those associated with usual vessel operations governed by MARPOL discharge requirements. Woodside further advised it would implement controls while operating in the Montebello MUZ to reduce potential impacts from routine and non-routine discharges, including:
 - Vessels would avoid making discharges including sewage, grey water and food waste until outside of the Montebello MUZ.
 - Chemicals intended or likely to be discharged into the marine environment would be approved through Woodside’s chemical assessment process.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) Provided recommendations from the National Light Pollution Guidelines for wildlife must be adopted for 24-hour operations within biologically important areas for sea turtles.</p>	<p>(1) Woodside assessment: Woodside referred to the National Light Pollution Guidelines for Wildlife given potential impacts of light pollution sea turtles and uses the guidelines in its impact assessment for this activity. Woodside response: Woodside confirmed it would apply applicable recommendations from the National Light Pollution Guidelines for Wildlife for operations within 20 km of turtle nesting beaches and will implement controls including lighting to be limited to the minimum required for navigation and safe operational requirements; vessel crews trained in light reduction measures; use of block out blinds on accommodation quarters.</p>	<p>(1) Impact and risk analysis, evaluation and Environment Performance Outcomes and Standards for routine light emissions are described in Section 6.7.3 of the EP. As confirmed to DNP in response to its feedback, lighting will be limited to that required for safe work/navigation, as referenced as C 3.1 of the EP.</p>
<p>(2) Included guidance on routine and non-routine discharges relating to subsea operations and advised that activities should, where possible, avoid marine parks.</p>	<p>(2) Woodside assessment: Woodside has referred to the guidance on routine and non-routine discharges and uses this guidance to ensure discharges avoid marine parks. Woodside response: Woodside advised there were no planned discharges from the trunkline in marine parks, and the only planned discharge which</p>	<p>(2) Impact and risk analysis, evaluation and Environment Performance Outcomes and Standards for routine and non-routine discharges are described in Sections 6.7.9 – 6.7.12 of the EP. As referenced as C 8.5 of the EP, vessel related discharges will be carried out outside of</p>

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	<p>may occur in the Montebello MUZ were those associated with usual vessel operations.</p> <p>Woodside will implement controls while in the Montebello MUZ to reduce potential impacts including ensuring that vessels would avoid making discharges including sewage, grey water and food waste until outside of the Montebello MUZ and chemicals likely to be discharged into the marine environment will be approved through Woodside's chemical assessment process.</p>	<p>the Montebello Marine Park unless vessel safety is compromised, and as referenced as C 8.4, chemicals will be selected with the lowest practicable environmental impacts and risks, subject to technical constraints,</p>
<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>The EP demonstrates that the risks and impacts of proposed planned activities within permitted areas of the Dampier Marine Park and Montebello Marine Park are reduced to ALARP and acceptable levels, including protection of Australian Marine Park values (Sections 6.7 and 6.8). While impacts to Commonwealth Marine Parks are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Section 6.8.3 and Section 6.8.4 and Appendix H.</p> <p>This EP demonstrates how Woodside will identify and manage all impacts and risks on Australian marine park values (including ecosystem values) to an ALARP and acceptable level and that the activity is not inconsistent with the management plans (Section 6).</p> <p>Woodside will ensure the DNP is made aware of any incidences within a marine park for the activity, as per the commitment in the Oil Pollution First Strike Plan (Appendix I).</p> <p>No additional measures or controls are required.</p>

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations consultation with DNP for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

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Woodside has given DNP sufficient information to allow DNP to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided DNP this information on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- When no response was received, Woodside proactively provided further information to DNP addressing its topics of interest and reminding DNP of the opportunity to provide feedback (email of 23 November 2023).
- On 7 December 2023, DNP shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable DNP to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- Woodside provided further information when it responded to feedback from DNP (email of 8 December 2023).

Reasonable Period

Woodside allowed DNP a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to DNP advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DNP 4 months for consultation.
- In this context, Woodside allowed DNP a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DNP is appropriate and adapted to the nature of interests of DNP:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with DNP.
- Woodside considers a reasonable opportunity was provided to DNP as evidenced in their response on 7 December 2023 when they provided feedback.

Outcomes of Consultation

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Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DNP provided feedback or objections or claims about the adverse impact of the activity to which the EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from DNP and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
 - A control to limit lighting to that required for safe work/navigation, as referenced as C 1. 3 in the EP, was already to be included in the EP and addresses feedback raised by DNP during consultation.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Department of Biodiversity, Conservation and Attractions (DBCA)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DBCA advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 1 September 2023, DBCA responded thanking Woodside for the email and consultation information (SI Report, reference 18.1). DBCA noted:
 - **(1)** The operations are in vicinity of reserves managed by DBCA under the CALM Act and given the ecological importance of areas potentially affected by a hydrocarbon release from the proposed activities, it is considered important that the baseline values and state of the potentially affected environment are appropriately understood and documented prior to operations commencing.
 - **(2)** It would like to have confidence that Woodside has established appropriate baseline survey data on the current state of areas supporting important ecological values and any current contamination if present within the area of potential impact of hydrocarbon releases.
 - **(3)** It undertakes monitoring in marine parks and reserves and published monitoring reports which are available on its website, however Woodside should be aware this monitoring is targeted to inform DBCA's values and objectives and is not necessarily suitable to provide baseline information for oil spill risk assessment and management planning.
 - **(4)** It recommends Woodside refer to the Department of Climate Change, Energy, the Environment and Water's National Light Pollution Guidelines for Wildlife as a best-practice industry standard for managing potential impacts of light pollution on marine fauna.
 - **(5)** In the event of a hydrocarbon release, it is requested that Woodside notify DBCA's Pilbara regional office as soon as practicable.
 - **(6)** It will not implement an oiled wildlife management response on behalf of a petroleum operator except as part of a whole of government response mandated by regulatory decision makers.
 - **(7)** Woodside should refer to the Department of Transport's web content regarding marine pollution and the Offshore Petroleum Industry Guidance Note of 2020 titled Marine Oil Pollution: Response and Consultation Arrangements. **(7)** Woodside refers to DoT's resources regarding marine pollution.
- On 30 October 2023, Woodside responded thanking DBCA for its feedback (SI Report, reference 18.2). Woodside:

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- (1) Confirmed it maintained knowledge and an understanding of areas of ecological importance within and adjacent to operational areas.
 - (2, 3) Advised its oil spill scientific monitoring program would provide for a quantitative assessment of the overall environmental impacts in the event of an unplanned hydrocarbon release.
 - (4) Confirmed it had considered DCCEEW's National Light Pollution Guidelines with respect to vessel activities. The impact assessment determined that the impacts of lighting were as low as reasonably practicable.
 - (5) Advised it had incorporated the DBCA Pilbara regional office telephone number as part of the notifications listed in the Oil Pollution First Strike Plan, which describes the incident management structure, notification and reporting requirements, the Operational Area, activity specific credible spill scenarios, and the hydrocarbon spill response strategies available.
 - (6) Noted that DBCA would not implement an oiled wildlife management response on behalf of a petroleum operator.
- On 31 October 2023, Woodside emailed DBCA Shark Bay consultation information on this EP and other unrelated EPs (Record of Consultation 1.4).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Areas of ecological importance are in the vicinity of the proposed operations and could be potentially affected by a hydrocarbon release. Baseline values should be understood and documented prior to commencement of activities.</p>	<p>(1) Woodside assessment: Woodside referred to and accepted DBCA's points about ecologically important areas including marine parks and island conservation reserves being located within the EMBA and the potential for them to be affected by unplanned activities. Woodside response: Woodside reaffirmed that areas of ecological importance in the proximity of the EP Operational Areas would not be impacted by planned activities.</p>	<p>(1) The EP demonstrates that the proposed activities are outside the boundaries of a proclaimed State Marine Park and identifies that there are no credible impacts to the values of any State Marine Parks as a result of planned activities (Section 4.8 and Section 6.7 of the EP). While impacts to Commonwealth Marine Parks are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Sections 6.8.3, 6.8.4 and Appendix H of the EP.</p>
<p>(2) The establishment of appropriate baseline survey data on the current state of the areas.</p>	<p>(2) Woodside assessment: Woodside maintains knowledge of areas of ecological importance adjacent to the Operational Areas and assesses the existing environment that may be affected in the EP. Woodside response: Woodside confirmed it maintained knowledge and an understanding of areas of ecological importance adjacent to Operational Areas. It utilises an information system to track current existing environment knowledge that is regularly updated. Woodside advised its oil spill scientific</p>	<p>(2) Under the Oil Spill Scientific Monitoring Program preparedness, an annual review and update to environmental baseline studies database is completed and documented as described in Section 7.10.1.3 of this EP.</p>

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	monitoring program provides for a quantitative assessment of overall impacts in the event of an unplanned hydrocarbon release.	
(3) Encouragement of Woodside to acquire the necessary information to implement a Before-After Control Impact (BACI) framework.	(3) Woodside assessment: Woodside reviewed the request about implementing a BACI framework. Woodside response: Woodside advised its oil spill scientific monitoring program (SMP) would provide for a quantitative assessment of the overall environmental impacts in the event of an unplanned hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors.	(3) Under the Oil Spill Scientific Monitoring Program preparedness, an annual review and update to environmental baseline studies database is completed and documented as described in Section 7.10.1.3 of this EP.
(4) Recommended Woodside refer to DCCEEW's National Light Pollution Guidelines for Wildlife.	(4) Woodside assessment: Woodside referred to the DCCEEW's National Light Pollution Guidelines for Wildlife. Woodside response: Woodside confirmed it had considered DCCEEW's National Light Pollution Guidelines for Wildlife and that lighting associated with this EP is required as a priority for safe operation.	(4) Woodside's impact assessment for light emissions is based on recommendations of the National Light Pollution Guidelines for Wildlife (see Section 6.7.3). Lighting will be limited to that required for safe work/navigation, as referenced as C 3.1 of the EP.
(5) Regarding its Incidents and Emergency process, Woodside should notify DBCA's Pilbara office as soon as practicable in the event of a hydrocarbon release.	(5) Woodside assessment: Woodside has incorporated the DBCA Pilbara number into its First Strike Plan. Woodside response: Woodside confirmed the DBCA Pilbara number had been incorporated as part of the Oil Pollution First Strike Plan.	(5) DBCA's Pilbara phone number has been incorporated into the Oil Pollution First Strike Plan for this EP (see Appendix I).
(6) DBCA will not implement an oiled wildlife management response except as part of a mandated government response.	(6) Woodside assessment: Woodside accepts that DBCA would not implement an oiled wildlife management response. Woodside response: Woodside noted that DBCA would not implement an oiled wildlife management response on behalf of a petroleum operator.	(6) Woodside's Oiled Wildlife Response is included in the Oil Spill Preparedness and Response Mitigation Assessment for this EP (see Appendix H).
(7) Woodside should refer to the DoT's web content regarding marine pollution and the Guidance Note Marine Oil Pollution: Response and Consultation Arrangements.	(7) Woodside assessment: Woodside refers to DoT's resources regarding marine pollution and the Offshore Petroleum Industry Guidance Note of 2020 titled Marine Oil Pollution: Response and Consultation Arrangements. Woodside response: Woodside referred to DoT's web content regarding marine pollution and the Offshore Petroleum Industry Guidance Note of 2020 titled Marine Oil Pollution: Response and Consultation Arrangements.	(7) Not required.

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<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DBCA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DBCA sufficient information to allow DBCA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. This information was provided to DBCA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 1 September 2023, DBCA shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable DBCA to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- In addition to the Consultation Information Sheet, Woodside provided DBCA with further information in response to DBCA’s feedback (email of 30 October 2023).

Reasonable Period

Woodside allowed DBCA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to DBCA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.

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- Woodside’s methodology allows a 30-day consultation period and Woodside allowed DBCA 30 days for consultation. DBCA engaged in consultation and provided feedback in this period.
- In this context, Woodside allowed DBCA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with DBCA is appropriate and adapted to the nature of interests of DBCA:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside considers a reasonable opportunity was provided to DBCA as evidenced in their response on 1 September 2023 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DBCA provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from DBCA.
 - Made no changes or inclusions to the EP as a result of consultation with DBCA because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Ningaloo Coast World Heritage Advisory Committee (NCWHAC)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed NCWHAC advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with NCWHAC for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given NCWHAC sufficient information to allow NCWHAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to NCWHAC on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and measurement measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed NCWHAC a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to NCWHAC advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed NCWHAC 30 days for consultation. For consultation, 30 days is the usual period for NCWHAC.
- In this context, Woodside allowed NCWHAC a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with NCWHAC is appropriate and adapted to the nature of interests of NCWHAC:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding NCWHAC of the opportunity to provide feedback.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as NCWHAC did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on NCWHAC’s functions, interests or activities.

Commonwealth and WA State Government Departments or Agencies – Industry

Department of Industry, Science and Resources (DISR)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DISR advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DISR for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DISR sufficient information to allow DISR to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DISR on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:

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- The purpose of consultation and set out what was being sought through consultation.
- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed DISR a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to DISR advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed DISR 30 days for consultation. For consultation on EPs, 30 days is the usual period for DISR.
- In this context, Woodside allowed DISR a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DISR is appropriate and adapted to the nature of interests of DISR:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with DISR.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding DISR of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DISR did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on DISR's functions, interests or activities.

Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DEMIRS advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside will provide notifications to DEMIRS at least 10 days prior to commencement of activities, as referenced at Table 7.8 in the EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DEMIRS for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DEMIRS sufficient information to allow DEMIRS to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DEMIRS on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed DEMIRS a reasonable period for consultation in the preparation of this EP because:

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- A consultation period was notified in the initial correspondence to DEMIRS advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed DEMIRS 30 days for consultation. For consultation on EPs, 30 days is the usual period for DEMIRS.
- In this context, Woodside allowed DEMIRS a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with DEMIRS is appropriate and adapted to the nature of interests of DEMIRS:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding DEMIRS of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DEMIRS did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on DEMIRS’ functions, interests or activities.

Commonwealth Commercial Fisheries and Peak Representative Bodies

North West Slope and Trawl Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed North West Slope and Trawl Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
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<p>No feedback, objection or claim about the adverse impact of the activity received despite follow-up.</p>	<p>Woodside has consulted AFMA, DAFF – Fisheries, CFA and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth managed fisheries in Section 4.10.1 of this EP.</p> <p>No additional measures or controls are required.</p>
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with North West Slope and Trawl Fishery for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable period have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to North West Slope and Trawl Fishery on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- A consultation period was notified in the initial correspondence to North West Slope and Trawl Fishery advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed North West Slope and Trawl Fishery with 30 days for consultation. For consultation on EPs, 30 days is the usual period for North West Slope and Trawl Fishery.
- In this context, Woodside allowed North West Slope and Trawl Fishery a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

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A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with North West Slope and Trawl Fishery is appropriate and adapted to the nature of interests of North West Slope and Trawl Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding North West Slope and Trawl Fishery of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as North West Slope and Trawl Fishery did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on North West Slope and Trawl Fishery’s functions, interests or activities.

Western Deepwater Trawl Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Western Deepwater Trawl Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted AFMA, DAFF – Fisheries, CFA and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2).	Woodside has assessed the potential for interaction with Commonwealth managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Western Deepwater Trawl Fishery for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Western Deepwater Trawl Fishery sufficient information to allow Western Deepwater Trawl Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. This information was provided to Western Deepwater Trawl Fishery on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Western Deepwater Trawl Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Western Deepwater Trawl Fishery advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Western Deepwater Trawl Fishery 30 days for consultation. For consultation on EPs, 30 days is the usual period for Western Deepwater Trawl Fishery.
- In this context, Woodside allowed Western Deepwater Trawl Fishery a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Western Deepwater Trawl Fishery is appropriate and adapted to the nature of interests of Western Deepwater Trawl Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding Western Deepwater Trawl Fishery of the opportunity to provide feedback.

Outcomes of Consultation

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Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Western Deepwater Trawl Fishery did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Western Deepwater Trawl Fishery’s functions, interests or activities.

Commonwealth Fisheries Association (CFA)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed CFA advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, Woodside sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted CFA, AFMA, DAFF – Fisheries and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with Commonwealth managed fisheries in Section 4.10.1 of this EP. Woodside will provide notifications to AFMA, CFA, DAFF – Fisheries, (see Table 7-8) ten days before activity commences, and following completion of activities, as referenced as PS 1.8.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with CFA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given CFA sufficient information to allow CFA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to CFA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:

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- The purpose of consultation and set out what was being sought through consultation.
- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed CFA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to CFA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed CFA 30 days for consultation. For consultation on EPs, 30 days is the usual period for CFA.
- In this context, Woodside allowed CFA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with CFA is appropriate and adapted to the nature of interests of CFA:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding CFA of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as CFA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on CFA's functions, interests or activities.

State Commercial Fisheries and Peak Representative Bodies

Mackerel Managed Fishery – Pilbara (Area 2)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside sent a letter to Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet and referred to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9).
- Woodside consulted relevant individual fishery licence holders in Mackerel Managed Fishery – Pilbara (Area 2). On 11 September 2023, WAFIC, on behalf of Woodside, emailed Mackerel Managed Fishery (Area 2) individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders regarding the activity (SI Report, reference 40.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Mackerel Managed Fishery – Pilbara (Area 2) sufficient information to allow Mackerel Managed Fishery – Pilbara (Area 2) to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. This information was provided to Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.

- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Mackerel Managed Fishery – Pilbara (Area 2) a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders 60 days for consultation.
- In this context, Woodside allowed Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Mackerel Managed Fishery – Pilbara (Area 2) is appropriate and adapted to the nature of interests of Mackerel Managed Fishery – Pilbara (Area 2):

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Mackerel Managed Fishery – Pilbara (Area 2) of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside – sent an email to Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Mackerel Managed Fishery – Pilbara (Area 2) individual licence holders' functions, interests or activities.

Pilbara Crab Managed Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside sent a letter to Pilbara Crab Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet and referred to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9).
- Woodside consulted relevant individual fishery licence holders in Pilbara Crab Managed Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed Pilbara Crab Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Pilbara Crab Managed Fishery individual licence holders regarding the activity (SI Report, reference 41.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Pilbara Crab Managed Fishery individual licence holders for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically

Sufficient Information

Woodside has given Pilbara Crab Managed Fishery sufficient information to allow Pilbara Crab Managed Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided information to Pilbara Crab Managed Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.

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- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Pilbara Crab Managed Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Pilbara Crab Managed Fishery individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Pilbara Crab Managed Fishery individual licence holders 60 days for consultation.
- In this context, Woodside allowed Pilbara Crab Managed Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Pilbara Crab Managed Fishery is appropriate and adapted to the nature of interests of Pilbara Crab Managed Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email, reminding Pilbara Crab Managed Fishery individual licence holders of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside – sent an email to Pilbara Crab Managed Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Pilbara Crab Managed Fishery individual licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Pilbara Crab Managed Fishery individual licence holders' functions, interests or activities.

Marine Aquarium Managed Fishery

Summary of information provided and record of consultation for this EP:

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- On 9 August 2023, Woodside sent a letter to Marine Aquarium Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet and referred to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9).
- Woodside consulted relevant individual fishery licence holders in Marine Aquarium Managed Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed Marine Aquarium Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Marine Aquarium Managed Fishery individual licence holders regarding the activity (SI Report, reference 39.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Marine Aquarium Managed Fishery individual licence holders for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Marine Aquarium Managed Fishery sufficient information to allow Marine Aquarium Managed Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided information to Marine Aquarium Managed Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

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Reasonable Period

Woodside allowed Marine Aquarium Managed Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Marine Aquarium Managed Fishery individual licence holders advising when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Marine Aquarium Managed Fishery individual licence holders 60 days for consultation.
- In this context, Woodside allowed Marine Aquarium Managed Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Marine Aquarium Managed Fishery is appropriate and adapted to the nature of interests of Marine Aquarium Managed Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Marine Aquarium Managed Fishery individual licence holders of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside – sent an email to Marine Aquarium Managed Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Marine Aquarium Managed Fishery individual licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Marine Aquarium Managed Fishery individual licence holders' functions, interests or activities.

West Coast Deep Sea Crustacean Managed Fishery

Summary of information provided and record of consultation for this EP:

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<ul style="list-style-type: none"> On 9 August 2023, Woodside sent a letter to West Coast Deep Sea Crustacean Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet and referred to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 31 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9). Woodside consulted relevant individual fishery licence holders in West Coast Deep Sea Crustacean Managed Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed West Coast Deep Sea Crustacean Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet. (1) On 12 October 2023, WAFIC advised Woodside it had received feedback from a licence holder in the West Coast Deep Sea Crustacean Managed Fishery (SI Report, reference 42.1). The licence holder advised that while they were currently south of the operations, they had previously been working north of Exmouth and appreciated still being consulted for activities in the Pilbara. (1) Woodside noted WAFIC’s feedback but no response was required. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) A licence holder provided feedback via WAFIC that they appreciated the continuing consultation from Woodside.</p>	<p>(1) Woodside assessment: Woodside reviewed the update from WAFIC from a license holder. Woodside response: Woodside noted one licence holder had responded that they appreciated the continuing consultation.</p>	<p>(1) Not required.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.</p>
<p>Summary Report – Consultation Complete</p>		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with West Coast Deep Sea Crustacean Managed Fishery individual licence holders for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised above in the Consultation Approach. Specifically:</p>		

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Sufficient Information

Woodside has given West Coast Deep Sea Crustacean Managed Fishery sufficient information to allow West Coast Deep Sea Crustacean Managed Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided information to West Coast Deep Sea Crustacean Managed Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 12 October 2023, WAFIC, on behalf of a licence holder in the West Coast Deep Sea Crustacean Managed Fishery shared feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable licence holders to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.

Reasonable Period

Woodside allowed West Coast Deep Sea Crustacean Managed Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to West Coast Deep Sea Crustacean Managed Fishery individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed West Coast Deep Sea Crustacean Individual Managed Fishery individual licence holders 60 days for consultation.
- In this context, Woodside allowed West Coast Deep Sea Crustacean Managed Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with West Coast Deep Sea Crustacean Managed Fishery is appropriate and adapted to the nature of interests of West Coast Deep Sea Crustacean Managed Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up email reminding West Coast Deep Sea Crustacean Managed Fishery of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside - sent an email to West Coast Deep Sea Crustacean Managed Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

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- Woodside considers a reasonable opportunity was provided to West Coast Deep Sea Crustacean Managed Fishery individual licence holders as evidenced by the response on 12 August 2023 when feedback was received from a licence holder.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- A licence holder in the West Coast Deep Sea Crustacean Managed Fishery provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from West Coast Deep Sea Crustacean Managed Fishery.
 - Made no changes or inclusions to the EP as a result of consultation with West Coast Deep Sea Crustacean Managed Fishery because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Specimen Shell Managed Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside sent a letter to Specimen Shell Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information referred to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9).
- Woodside consulted relevant individual fishery licence holders in Specimen Shell Managed Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed Specimen Shell Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Specimen Shell Managed Fishery individual licence holders regarding the activity (SI Report, reference 43.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations consultation with Specimen Shell Managed Fishery individual licence holders for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Specimen Shell Managed Fishery sufficient information to allow Specimen Shell Managed Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided information to Specimen Shell Managed Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description and receiving environment, impacts and risks associated with the PAP, proposed mitigation and measurement measures.
 - A clear timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Specimen Shell Managed Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Specimen Shell Managed Fishery individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Specimen Shell Managed Fishery individual licence holders 60 days for consultation.
- In this context, Woodside allowed Specimen Shell Managed Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Specimen Shell Managed Fishery is appropriate and adapted to the nature of interests of Specimen Shell Managed Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Specimen Shell Managed Fishery individual licence holders of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside - sent an email to Specimen Shell Managed Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Specimen Shell Managed Fishery individual licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Specimen Shell Managed Fishery individual licence holders' functions, interests or activities.

Onslow Prawn Managed Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Onslow Prawn Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- Woodside consulted relevant individual fishery licence holders in Onslow Prawn Managed Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed Onslow Prawn Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Onslow Prawn Managed Fishery individual licence holders regarding the activity (SI Report, reference 44.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.
Summary Report – Consultation Complete		

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Onslow Prawn Managed Fishery individual licence holders for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Onslow Prawn Managed Fishery sufficient information to allow Onslow Prawn Managed Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Onslow Prawn Managed Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Onslow Prawn Managed Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Onslow Prawn Managed Fishery individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Onslow Prawn Managed Fishery individual licence holders 60 days for consultation.
- In this context, Woodside allowed Onslow Prawn Managed Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Onslow Prawn Managed Fishery is appropriate and adapted to the nature of interests of Onslow Prawn Managed Fishery:

- Woodside published 8 advertisements in national, state, and relevant local newspapers (see Consultation Activities).
- Woodside ran 2 targeted social media campaigns (see Consultation Activities)
- Woodside proactively sent a follow-up consultation email reminding Onslow Prawn Managed Fishery individual licence holders of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside - sent an email to Onslow Prawn Managed Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as Onslow Prawn Managed Fishery individual licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Onslow Prawn Managed Fishery individual licence holders' functions, interests or activities.

Western Australian Sea Cucumber Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside sent a letter to Western Australian Sea Cucumber Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet and referred to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9).
- Woodside consulted relevant individual fishery licence holders in Western Australian Sea Cucumber Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed Western Australian Sea Cucumber Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Western Australian Sea Cucumber Fishery individual licence holders regarding the activity (SI Report, reference 46.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Western Australian Sea Cucumber Fishery individual licence holders for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

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Sufficient Information

Woodside has given Western Australian Sea Cucumber Fishery sufficient information to allow Western Australia Sea Cucumber Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::

- The Consultation Information Sheet publicly available on the Woodside website since August 2023. Woodside provided this information to Western Australian Sea Cucumber Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Western Australia Sea Cucumber Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Western Australian Sea Cucumber Fishery individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Western Australian Sea Cucumber Fishery individual licence holders 60 days for consultation.
- In this context, Woodside allowed Western Australian Sea Cucumber Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity to Provide Feedback

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Western Australian Sea Cucumber Fishery is appropriate and adapted to the nature of interests of Western Australian Sea Cucumber Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Western Australian Sea Cucumber Fishery individual licence holders of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside - sent an email to Western Australian Sea Cucumber Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

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Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Western Australian Sea Cucumber Fishery individual licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Western Australian Sea Cucumber Fishery individual licence holders' functions, interests or activities.

Pilbara Trawl Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Pilbara Trawl Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- Woodside consulted relevant individual fishery licence holders in Pilbara Trawl Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed Pilbara Trawl Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 23 September 2023, WAFIC sent a follow-up email (Record of Consultation, reference 2.11).
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Pilbara Trawl Fishery individual licence holders regarding the activity (SI Report, reference 47.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Pilbara Trawl Fishery individual licence holders for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

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Sufficient Information

Woodside has given Pilbara Trawl Fishery sufficient information to allow Pilbara Trawl Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Pilbara Trawl Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Pilbara Trawl Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Pilbara Trawl Fishery individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside provided Pilbara Trawl Fishery individual licence holders with a more than 30-day consultation period in the preparation of the EP.
- In this context, Woodside allowed Pilbara Trawl Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Pilbara Trawl Fishery is appropriate and adapted to the nature of interests of Pilbara Trawl Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Pilbara Trawl Fishery individual licence holders of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside - sent an email to Pilbara Trawl Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

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Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Pilbara Trawl Fishery individual licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Pilbara Trawl Fishery individual licence holders' functions, interests or activities.

Pilbara Trap Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Pilbara Trap Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- Woodside consulted relevant individual fishery licence holders in Pilbara Trap Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed Pilbara Trap Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 23 September 2023, WAFIC sent a follow-up email (Record of Consultation, reference 2.11).
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Pilbara Trap Fishery individual licence holders regarding the activity (SI Report, reference 48.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Pilbara Trap Fishery individual licence holders for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

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Sufficient Information

Woodside has given Pilbara Trap Fishery sufficient information to allow Pilbara Trap Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Pilbara Trap Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Pilbara Trap Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Pilbara Trap Fishery individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Pilbara Trap Fishery 60 days for consultation.
- In this context, Woodside allowed Pilbara Trap Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Pilbara Trap Fishery is appropriate and adapted to the nature of interests of Pilbara Trap Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Pilbara Trap Fishery individual licence holders of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside - sent an email to Pilbara Trap Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

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- No additional measures were considered as a result of consultation as Pilbara Trap Fishery individual licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Pilbara Trap Fishery individual licence holders' functions, interests or activities.

Pilbara Line Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Pilbara Line Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- Woodside consulted relevant individual fishery licence holders in Pilbara Line Fishery. On 11 September 2023, WAFIC, on behalf of Woodside, emailed Pilbara Line Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.
- On 23 September 2023, WAFIC sent a follow-up email (Record of Consultation, reference 2.11).
- On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Pilbara Line Fishery individual licence holders regarding the activity (SI Report, reference 49.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Pilbara Line Fishery individual licence holders for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

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Woodside has given Pilbara Line Fishery sufficient information to allow Pilbara Line Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Pilbara Line Fishery individual licence holders on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Pilbara Line Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Pilbara Line Fishery individual licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Pilbara Line Fishery 60 days for consultation.
- In this context, Woodside allowed Pilbara Line Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Pilbara Line Fishery is appropriate and adapted to the nature of interests of Pilbara Line Fishery:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Pilbara Line Fishery individual licence holders of the opportunity to provide feedback (email of 31 August 2023).
- In line with WAFIC's guidelines on consultation with State fisheries, WAFIC - on behalf of Woodside - sent an email to Pilbara Line Fishery individual licence holders offering an additional opportunity to provide feedback (email of 11 September 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were adopted as a result of consultation as Pilbara Line Fishery individual licence holders did not provide feedback for this EP.

- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Pilbara Line Fishery individual licence holders' functions, interests or activities.

Western Australian Fishing Industry Council (WAFIC)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed WAFIC advising of the proposed activity (Record of Consultation, reference 1.9) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 16 August 2023, Woodside emailed WAFIC following a phone call earlier that day and confirmed a meeting for 28 August 2023. Woodside also provided an outline of previous, current and upcoming consultation on EPs including this one (SI Report, reference 10.1).
- On 25 August 2023, Woodside sent a letter to WAFIC acknowledging the volume of consultation under consideration by WAFIC and offering to meet to improve consultation outcomes (SI Report, reference 10.2).
- On 28 August 2023, Woodside met with WAFIC and gave a presentation on EPs (SI Report, reference 10.3).
- On 28 August 2023, following a phone call earlier that day regarding consultation on upcoming EPs, Woodside emailed WAFIC regarding consultation information to be sent via WAFIC on Woodside's behalf as per the fee-for-service agreement for this EP (and for two other EPs) (SI Report, reference 10.4).
- **(1) (1)** On 31 August 2023, following a phone call on 30 August 2023 where it was agreed that WAFIC and Woodside would enter into an agreement around EP consultation, Woodside emailed WAFIC and asked that WAFIC circulate consultation material for this EP and another EP under the fee-for-service option 1 (SI Report, reference 10.5).
- **(2)** On 31 August 2023, WAFIC emailed Woodside seeking clarification on the identification of fisheries in the Operational Area for the activities that are the subject of this EP and confirmed that WAFIC would not be distributing consultation information to licence holders in the EMBA as they do not represent Commonwealth fisheries. WAFIC also advised it would consider a longer-term approach to consultation (SI Report, reference 10.6).
- **(2)** On 1 September 2023, Woodside spoke to WAFIC and sent a follow-up email confirming which fisheries needed to be consulted for this EP (SI Report, references 10.7 and 10.8).
- On 11 September 2023, WAFIC emailed relevant commercial fishing licence holders for this activity (SI Report, reference 10.9). The email provided information about this activity and stated that WAFIC was working with Woodside to strategically streamline consultation with the commercial fishing industry. WAFIC requested that any feedback specific to the proposed activity was provided to them.
- **(3)** On the same day, WAFIC confirmed it had delivered consultation notification for this EP to licence holders in the relevant fisheries (SI Report, reference 10.10).
- **(4)** On 12 October 2023, WAFIC advised it had received feedback from one licence holder in the West Coast Deep Sea Crustacean Fishery, stating they were currently south of the operations but as they had been working north of Exmouth in previous years, they appreciated the consultation information. WAFIC advised it had no further concerns regarding the proposed activities (SI Report, reference 10.12).
- **(3, 4)** On 13 October 2023, Woodside responded to WAFIC's email of 12 October and thanked WAFIC for its advice that it had no further concerns regarding the proposed activities (SI Report, reference 10.13).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Need for a fee-for-service agreement to address the volume of consultation required for EPs.</p>	<p>(1) Woodside assessment: Woodside considered and agreed with WAFIC feedback regarding the volume of consultation required for its EPs. Woodside response: Woodside agreed a fee-for-service agreement with WAFIC was appropriate to facilitate best practice consultation for this EP. Woodside and WAFIC negotiated an initial fee-for-service agreement for this and two other EPs.</p>	<p>(1) Not required.</p>
<p>(2) Clarification sought on Operational Area fisheries and confirmation WAFIC would not distribute consultation information to licence holders in the EMBA.</p>	<p>(2) Woodside assessment: Woodside accepted that WAFIC would not distribute consultation information to licence holders in the EMBA. Woodside response: Woodside accepted WAFIC's advice that WAFIC would not distribute consultation information to licence holders in the EMBA and confirmed which fisheries needed to be consulted.</p>	<p>(2) Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.10.1 of this EP.</p>
<p>(3) WAFIC confirmed it had delivered consultation material to relevant fisheries.</p>	<p>(3) Woodside assessment: Woodside reviewed WAFIC's update on outreach to relevant fisheries which gave them sufficient information to make an informed assessment of possible consequences of the activity on their functions, interests or activities per regulation 25 of the Environment Regulations. Woodside response: Woodside noted consultation information had been distributed to relevant fisheries via WAFIC.</p>	<p>(3) Not required.</p>
<p>(4) WAFIC advised it had no further concerns regarding the proposed activities, and that it had received one response from a licence holder advising that they appreciated the consultation information.</p>	<p>(4) Woodside assessment: Woodside notes WAFIC has no further comments. Woodside response: Woodside noted WAFIC had no further comments and that while one licence holder had responded following consultation, there were no objections or claims from that relevant fishery.</p>	<p>(4) Not required.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p>	<p>Woodside will provide notifications to WAFIC (see Table 7-8) no less than ten days prior to commencement and following completion of activities, as referenced as PS 1.8.1 of this EP.</p>

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	<p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with WAFIC for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given WAFIC sufficient information to allow WAFIC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to WAFIC on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 12 October 2023, WAFIC shared feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable WAFIC to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.

Reasonable Period

Woodside allowed WAFIC a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to WAFIC advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period and Woodside allowed WAFIC 60 days for consultation.
- In this context, Woodside allowed WAFIC a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

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A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with WAFIC is appropriate and adapted to the nature of interests of WAFIC:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside adapted its consultation approach in line with WAFIC’s guidelines in response to feedback from WAFIC regarding fishery licence holders’ consultation fatigue.
- Woodside considers a reasonable opportunity was provided to WAFIC as evidenced in their response on 12 October 2023 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- WAFIC provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from WAFIC and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
 - Made no changes or inclusions to the EP as a result of consultation with WAFIC because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Recreational Marine Users and Peak Representative Bodies

Karratha Recreational Marine Users

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> • On 9 August 2023, Woodside emailed Karratha Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 1.5) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. • On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Karratha Recreational Marine Users for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Karratha Recreational Marine Users sufficient information to allow Karratha Recreational Marine Users to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Karratha Recreational Marine Users on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Karratha Recreational Marine Users a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Karratha Recreational Marine Users advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Karratha Recreational Marine Users 30 days for consultation. For consultation on EPs, 30 days is the usual period for Karratha Recreational Marine Users.
- In this context, Woodside allowed Karratha Recreational Marine Users a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Karratha Recreational Marine Users is appropriate and adapted to the nature of interests of Karratha Recreational Marine Users:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Karratha Recreational Marine Users of the opportunity to provide feedback (email of 31 August 2023).

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- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Karratha Recreational Marine Users did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Karratha Recreational Marine Users' functions, interests or activities.

Exmouth Recreational Marine Users

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Exmouth Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 1.5) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Exmouth Recreational Marine Users for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Exmouth Recreational Marine Users sufficient information to allow Exmouth Recreational Marine Users to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Exmouth Recreational Marine Users on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description and receiving environment, impacts and risks associated with the PAP, proposed mitigation and measurement measures.
 - A clear timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Exmouth Recreational Marine Users a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Exmouth Recreational Marine Users advising when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Exmouth Recreational Marine Users 30 days for consultation. For consultation on EPs, 30 days is the usual period for Exmouth Recreational Marine Users.
- In this context, Woodside allowed Exmouth Recreational Marine Users a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Exmouth Recreational Marine Users is appropriate and adapted to the nature of interests of Exmouth Recreational Marine Users:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Exmouth Recreational Marine Users of the opportunity to provide feedback (email of 30 August 2023).
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures considered as a result of consultation as Exmouth Recreational Marine Users did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Exmouth Recreational Marine Users' functions, interests or activities.

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Gascoyne Recreational Marine Users

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 9 August 2023, Woodside sent a letter to Gascoyne Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 1.6) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 31 August 2023, as no response had been received, Woodside proactively sent a follow-up letter (Record of Consultation, reference 2.12). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>No feedback, objection or claim about the adverse impact of the activity received despite follow-up.</p>	<p>Woodside has consulted Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>
<p>Summary Report – Consultation Complete</p>		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Gascoyne Recreational Marine Users for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:</p> <p>Sufficient Information</p> <p>Woodside has given Gascoyne Recreational Marine Users sufficient information to allow Gascoyne Recreational Marine Users to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:</p> <ul style="list-style-type: none"> The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Gascoyne Recreational Marine Users on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included: <ul style="list-style-type: none"> The purpose of consultation and set out what was being sought through consultation. A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures. A timeframe for consultation and the provision of feedback. A link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans</i>. Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations). 		

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Reasonable Period

Woodside allowed Gascoyne Recreational Marine Users a reasonable period for consultation in the preparation of this EP because:

- A clear consultation period was stated in the initial correspondence to Gascoyne Recreational Marine Users advising when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Gascoyne Recreational Marine Users 30 days for consultation. For consultation on EPs, 30 days is the usual period for Gascoyne Recreational Marine Users.
- In this context, Woodside allowed Gascoyne Recreational Marine Users a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Gascoyne Recreational Marine Users is appropriate and adapted to the nature of interests of Gascoyne Recreational Marine Users:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation letter reminding Gascoyne Recreational Marine Users of the opportunity to provide feedback (email of 30 August 2023).
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Gascoyne Recreational Marine Users did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Gascoyne Recreational Marine Users' functions, interests or activities.

Pilbara/Kimberley Recreational Marine Users

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside sent a letter to Pilbara/Kimberley Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 1.6) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 August 2023, as no response had been received, Woodside proactively sent a follow-up letter (Record of Consultation, reference 2.12).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	<p>Woodside has consulted Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Pilbara/Kimberley Recreational Marine Users for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Pilbara/Kimberley Recreational Marine Users sufficient information to allow Pilbara/Kimberley Recreational Marine Users to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Pilbara/Kimberley Recreational Marine Users on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Pilbara/Kimberley Recreational Marine Users a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Pilbara/Kimberley Recreational Marine Users advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Pilbara/Kimberley Recreational Marine Users 30 days for consultation. For consultation on EPs, 30 days is the usual period for Pilbara/Kimberley Recreational Marine Users.

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- In this context, Woodside allowed Pilbara/Kimberley Recreational Marine Users a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Pilbara/Kimberley Recreational Marine Users is appropriate and adapted to the nature of interests of Pilbara/Kimberley Recreational Marine Users:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation letter reminding Pilbara/Kimberley Recreational Marine Users of the opportunity to provide feedback (email of 30 August 2023).
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Pilbara/Kimberley Recreational Marine Users did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Pilbara/Kimberley Recreational Marine Users' functions, interests or activities.

Recfishwest

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Recfishwest advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 August 2023, Recfishwest emailed thanking Woodside for the consultation (SI Report, reference 5.1) and stated:
 - (1) It was unlikely this project would have a high impact on recreational fishing and that it had no concerns based on the information provided.
 - (2) Recfishwest looked forward to further updates as the project progressed.
- (1, 2) On 17 August 2023, Woodside thanked Recfishwest for its response (SI Report, reference 5.2).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1)	(1)	(1)

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<p>Recfishwest had no objection to the proposed activities.</p>	<p>Woodside assessment: Woodside accepted Recfishwest had no objections to the proposed activities given it was unlikely activities would have a high impact on recreational fishing.</p> <p>Woodside response: Woodside thanked Recfishwest for its prompt response.</p>	<p>Not required.</p>
<p>(2) Recfishwest requested to be kept informed as activities progress, given the areas surrounding the operations are accessed by recreational fishers.</p>	<p>(2) Woodside assessment: Woodside acknowledges Recfishwest's request to be informed as activities progress.</p> <p>Woodside response: Woodside confirmed it would keep Recfishwest informed as the activities progressed, given that the areas surrounding the operation is accessed by recreational fishers</p>	<p>(2) Woodside will provide notifications to Recfishwest (see Table 7-8) ten days before activity commences, and following completion of activities, as referenced as PS 1.8.1 of this EP.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has consulted Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users.</p> <p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations **and** consultation with Recfishwest for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Recfishwest sufficient information to allow Recfishwest to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Recfishwest on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
- The purpose of consultation and set out what was being sought through consultation.

- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Recfishwest a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Recfishwest advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Recfishwest 30 days for consultation. Recfishwest engaged in consultation and provided feedback in this period.
- In this context, Woodside allowed Recfishwest a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Recfishwest is appropriate and adapted to the nature of interests of Recfishwest:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Recfishwest of the opportunity to provide feedback (email of 30 August 2023).
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Recfishwest provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from Recfishwest.
 - Based on Recfishwest's feedback, updated C 1.8.1 to include provision of Start of Activity notifications to Recfishwest.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Marine Tourism WA

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Marine Tourism WA advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted Marine Tourism WA, Recfishwest, WA Game Fishing Association and individual recreational marine users. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Marine Tourism WA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Marine Tourism WA sufficient information to allow Marine Tourism WA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Marine Tourism WA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A clear timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Marine Tourism WA a reasonable period for consultation in the preparation of this EP because:

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- A consultation period was stated in the initial correspondence to Marine Tourism WA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Marine Tourism WA 30 days for consultation. For consultation on EPs, 30 days is the usual period for Marine Tourism WA.
- In this context, Woodside allowed Marine Tourism WA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Marine Tourism WA is appropriate and adapted to the nature of interests of Marine Tourism WA:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Marine Tourism WA of the opportunity to provide feedback (email of 30 August 2023).
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Marine Tourism WA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Marine Tourism WA's functions, interests or activities.

WA Game Fishing Association

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed WA Game Fishing Association advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside has consulted Recfishwest, WA Game Fishing Association, Marine Tourism WA and individual recreational marine users. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with WA Game Fishing Association for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given WA Game Fishing Association sufficient information to allow WA Game Fishing Association to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to WA Game Fishing Association on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed WA Game Fishing Association a reasonable period for consultation in the preparation of this EP because::

- A consultation period was stated in the initial correspondence to WA Game Fishing Association advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed WA Game Fishing Association 30 days for consultation. For consultation on EPs, 30 days is the usual period for WA Game Fishing Association.

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- In this context, Woodside allowed WA Game Fishing Association a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with WA Game Fishing Association is appropriate and adapted to the nature of interests of WA Game Fishing Association:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding WA Game Fishing Association of the opportunity to provide feedback (email of 30 August 2023).
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because::

- No additional measures were considered as a result of consultation as WA Game Fishing Association did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on WA Game Fishing Association's functions, interests or activities.

Titleholders and Operators

Chevron Australia (including Osaka Gas Gorgon, Tokyo Gas Gorgon, JERA Gorgon)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Chevron Australia advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 1 October 2024, Woodside emailed Chevron advising that in addition to consultation regarding this EP in August 2023, Woodside was seeking to confirm adjacent titleholder understanding of the proposed activity (SI Report, reference 62.1). Woodside attached a GIS shape file and a map of adjacent titleholders. Woodside noted that:
 - Part of the PAP for the EP included gravimetry surveys and the Operational Area included a radius of 1000m around the outermost concrete pads.
 - Vessel surface activity may temporarily occur within titles adjacent to two Woodside titles due to the proximity of the pads to the title boundary. All survey activities on the seabed would be undertaken within Woodside-operated titles.

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<ul style="list-style-type: none"> - The gravimetry surveys may take up to 55 days and were currently planned to take place every 2-3 years. - To reduce impact on adjacent titleholders, Woodside was proposing to include titleholders in Start of Activity notifications related to gravimetry surveys, and was seeking feedback on any other control measures Chevron may have related to vessel movements for gravimetry surveys on the periphery of its titles. • On 15 October 2024, Chevron thanked Woodside for its email (SI Report, reference 62.2). Chevron: <ul style="list-style-type: none"> - (1) Noted there were no known conflicts at the time of sending but requested to be notified of any start of activity that had the potential to cross the title boundary. - (2) An ingress arrangement could also be required but this would be subject to further discussion when the notification was provided. • On 17 October 2024, Woodside responded thanking Chevron for its feedback (SI Report, reference 62.3). Woodside: <ul style="list-style-type: none"> - (1) Noted there were no known conflicts at this time and confirmed it would provide Chevron with Start of Activity notifications where activities had the potential to cross the title boundary, including gravimetry surveys. - (2) Acknowledged further discussions may be required regarding an ingress arrangement. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) No known conflicts but requested Start of Activity notifications.</p>	<p>(1) Woodside assessment: Woodside acknowledges Chevron has no known conflicts at this time and commits to providing Start of Activity notifications to Chevron. Woodside response: Woodside noted Chevron had no known conflicts at this time and confirmed Woodside would provide Start of Activity notifications relating to activities where there was a potential to cross the title boundary.</p>	<p>(1) Woodside will notify Chevron of gravimetry survey activities that involve vessel overlap with adjacent title areas, as referenced as C 1.11 in Section 6.7.1, and set out in the ongoing consultation program in Table 7-8.</p>
<p>(2) Ingress arrangement may be required.</p>	<p>(2) Woodside assessment: Woodside notes that Chevron may require an ingress arrangement and that further discussions may be needed at the time a notification is provided. Woodside response: Woodside acknowledged that further discussions may be required regarding an ingress arrangement.</p>	<p>(2) Not required.</p>
<p>Woodside has addressed claims and objections as noted above.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Chevron Australia for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Chevron sufficient information to allow Chevron to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Chevron Australia on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided Chevron with additional tailored information regarding the potential impacts of the project on its functions, interests and activities (email of 1 October 2024).

Reasonable Period

Woodside allowed Chevron a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Chevron advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside provided Chevron 30 days for consultation. For consultation on EPs, 30 days is the usual period for Chevron Australia.
- Woodside provided Chevron with an additional consultation period when Woodside sent updated information on the activity (email of 1 October 2024).
- In this context, Woodside allowed Chevron Australia a reasonable period for consultation in preparation of the EP, as evidenced by its response on 15 October 2024.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Chevron is appropriate and adapted to the nature of interests of Chevron:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

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- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding Chevron Australia of the opportunity to provide feedback.
- Woodside provided Chevron with further information on the activity on 1 October 2024, providing another opportunity for Chevron to provide feedback.
- Woodside considers a reasonable opportunity was provided to Chevron as evidenced in their response on 15 October 2024 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Chevron provided feedback or objections or claims about the adverse impact of the activity to which the EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from Chevron and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
 - Based on Chevron's feedback, adopted a control in Section 6.7.1 of the EP, as referenced as C 1.11, to notify Chevron of gravimetry survey activities that have the potential to overlap its title boundary.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Western Gas

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Western Gas advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, Woodside as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 1 October 2024, Woodside emailed Western Gas advising that in addition to consultation regarding this EP in August 2023, Woodside was seeking to confirm adjacent titleholder understanding of the proposed activity (SI Report, reference 63.1). Woodside attached a GIS shape file and a map of adjacent titleholders. Woodside noted that:
 - The PAP for the EP included gravimetry surveys and the Operational Area included a radius of 1000m around the outermost concrete pads, therefore vessel surface activity may temporarily occur within titles adjacent to two Woodside titles due to the proximity of the pads to the title boundary. All survey activities on the seabed would be undertaken within Woodside-operated titles.
 - To reduce impact on adjacent titleholders, Woodside was proposing to include titleholders in Start of Activity notifications related to gravimetry surveys and was seeking feedback on any other control measures Western Gas may have related to vessel movements for gravimetry surveys on the periphery of its titles.
- On 11 October 2024, Woodside emailed Western Gas following up on the information provided regarding gravimetry surveys and seeking to confirm if Western Gas had any further feedback (SI Report, reference 63.2).
- On 11 October 2024, Western Gas responded thanking Woodside for the notification (SI Report, reference 63.3). Western Gas:

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- (1) Confirmed it had no issues with the activities and that it was looking forward to receiving Start of Activity notifications.
- (1) On 14 October 2024, Woodside responded thanking Western Gas for its feedback and confirming Woodside would provide Start of Activity notifications relating to gravimetry surveys for this EP (SI Report, reference 63.4).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Receiving Start of Activity notifications relating to gravimetry surveys.</p>	<p>(1) Woodside assessment: Woodside commits to notifying Western Gas of gravimetry survey activities that involve vessel overlap with adjacent title areas. Woodside response: Woodside confirmed it would provide Western Gas with Start of Activity notifications relating to gravimetry surveys for this EP.</p>	<p>(1) Woodside will notify Western Gas of gravimetry survey activities that involve vessel overlap with adjacent title areas, as referenced as C 1.11 in Section 6.7.1, and set out in the ongoing consultation program in Table 7-8.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations **and** consultation with Western Gas for the purpose of regulation 25 **is** complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Western Gas sufficient information to allow Western Gas to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because: Woodside has given Western Gas sufficient information to allow Western Gas to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Western Gas on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
- The purpose of consultation and set out what was being sought through consultation.
- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.

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- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided Western Gas with additional tailored information regarding the potential impacts of the project on its functions, interests and activities (email of 1 October 2024).

Reasonable Period

Woodside allowed Western Gas a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Western Gas advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Western Gas 30 days for consultation. For consultation on EPs, 30 days is the usual period for Western Gas.
- Woodside provided Western Gas with an additional consultation period when Woodside sent updated information on the activity (email of 1 October 2024).
- In this context, Woodside allowed Western Gas a reasonable period for consultation in preparation of the EP, as evidenced by its response on 11 October 2024.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Western Gas is appropriate and adapted to the nature of interests of Western Gas:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email on 30 August 2023, reminding Western Gas of the opportunity to provide feedback.
- Woodside provided Western Gas with further information on the activity on 1 October 2024, providing another opportunity for Western Gas to provide feedback.
- Woodside considers a reasonable opportunity was provided to Western Gas as evidenced in their response on 11 October 2024 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Western Gas provided feedback or objections or claims about the adverse impact of the activity to which the EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from Western Gas and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
 - Based on Western Gas's feedback, adopted a control in Section 6.7.1 of the EP, as referenced as C 1.11, to notify Western Gas of gravimetry survey activities that have the potential to overlap its title boundary.

- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Exxon Mobil Australia

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Exxon Mobil Australia advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Exxon Mobil Australia for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Exxon Mobil Australia sufficient information to allow Exxon Mobil Australia to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Exxon Mobil Australia on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*. Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

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Woodside allowed Exxon Mobil Australia a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Exxon Mobil Australia advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Exxon Mobil Australia with 30 days for consultation. For consultation on EPs, 30 days is the usual period for Exxon Mobil Australia.
- In this context, Woodside allowed Exxon Mobil Australia a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with Exxon Mobil Australia is appropriate and adapted to the nature of interests of Exxon Mobil Australia:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Exxon Mobil Australia of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Exxon Mobil Australia did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Exxon Mobil Australia’s functions, interests or activities

Shell Australia

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Shell Australia advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
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<p>No feedback, objection or claim about the adverse impact of the activity received despite follow-up.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Shell Australia for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Shell Australia sufficient information to allow Shell Australia to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Shell Australia on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Shell Australia a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Shell Australia advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Shell Australia 30 days for consultation. For consultation on EPs, 30 days is the usual period for Shell Australia.
- In this context, Woodside allowed Shell Australia a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with Shell Australia is appropriate and adapted to the nature of interests of Shell Australia:

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- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Shell Australia of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Shell Australia did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Shell Australia's functions, interests or activities

INPEX Alpha

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed INPEX Alpha advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with INPEX Alpha for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

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Woodside has given INPEX Alpha sufficient information to allow INPEX Alpha to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to INPEX Alpha on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed INPEX Alpha a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to INPEX Alpha advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed INPEX Alpha 30 days for consultation. For consultation on EPs, 30 days is the usual period for INPEX Alpha.
- In this context, Woodside allowed INPEX Alpha a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with INPEX Alpha is appropriate and adapted to the nature of interests of INPEX Alpha:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding INPEX Alpha of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as INPEX Alpha did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

- The measures and controls described in this EP address the potential impact from the proposed activity on INPEX Alpha's functions, interests or activities.

Carnarvon Energy

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Carnarvon Energy advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Carnarvon Energy for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Carnarvon Energy sufficient information to allow Carnarvon Energy to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Carnarvon Energy on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

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Reasonable Period

Woodside allowed Carnarvon Energy a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Carnarvon Energy advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Carnarvon Energy 30 days for consultation. For consultation on EPs, 30 days is the usual period for Carnarvon Energy.
- In this context, Woodside allowed Carnarvon Energy a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Carnarvon Energy is appropriate and adapted to the nature of interests of Carnarvon Energy:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Carnarvon Energy of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Carnarvon Energy did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Carnarvon Energy's functions, interests or activities

PE Wheatstone (PEW)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed PE Wheatstone advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Outcomes of Consultation

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with PE Wheatstone for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given PE Wheatstone sufficient information to allow PE Wheatstone to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to PE Wheatstone on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed PE Wheatstone a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to PE Wheatstone advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed PE Wheatstone 30 days for consultation. For consultation on EPs, 30 days is the usual period for PE Wheatstone.
- In this context, Woodside allowed PE Wheatstone a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

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A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with PE Wheatstone is appropriate and adapted to the nature of interests of PE Wheatstone:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding PE Wheatstone of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as PE Wheatstone did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on PE Wheatstone’s functions, interests or activities.

Kyushu Electric Wheatstone (KEW)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Kyushu Wheatstone advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Kyushu Wheatstone for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

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Sufficient Information

Woodside has given Kyushu Wheatstone sufficient information to allow Kyushu Wheatstone to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Kyushu Wheatstone on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Kyushu Wheatstone a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Kyushu Wheatstone advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Kyushu Wheatstone 30 days for consultation. For consultation on EPs, 30 days is the usual period for Kyushu Wheatstone.
- In this context, Woodside allowed Kyushu Wheatstone a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Kyushu Wheatstone is appropriate and adapted to the nature of interests of Kyushu Wheatstone:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Kyushu Wheatstone of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Kyushu Wheatstone did not provide feedback for this EP.

- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Kyushu Wheatstone's functions, interests or activities

Eni Australia

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Eni Australia advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Eni Australia for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Eni Australia sufficient information to allow Eni Australia to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Eni Australia on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.

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- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Eni Australia a reasonable period for consultation in the preparation of this EP because::

- A consultation period was stated in the initial correspondence to Eni Australia advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Eni Australia 30 days for consultation. For consultation on EPs, 30 days is the usual period for Eni Australia.
- In this context, Woodside allowed Eni Australia a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Eni Australia is appropriate and adapted to the nature of interests of Eni Australia:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Eni Australia of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Eni Australia did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Eni Australia's functions, interests or activities.

Jadestone Energy

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Jadestone Energy advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Jadestone Energy for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Jadestone Energy sufficient information to allow Jadestone Energy to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Jadestone Energy on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Jadestone Energy a reasonable period for consultation in the preparation of this EP because::

- A consultation period was stated in the initial correspondence to Jadestone Energy advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Jadestone Energy 30 days for consultation. For consultation on EPs, 30 days is the usual period for Jadestone Energy.
- In this context, Woodside allowed Jadestone Energy a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

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A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with Jadestone Energy is appropriate and adapted to the nature of interests of Jadestone Energy:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Jadestone Energy of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Jadestone Energy did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Jadestone Energy’s functions, interests or activities.

KATO Energy

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed KATO Energy advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with KATO Energy for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

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Sufficient Information

Woodside has given KATO Energy sufficient information to allow KATO Energy to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to KATO Energy on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed KATO Energy a reasonable period for consultation in the preparation of this EP because::

- A consultation period was stated in the initial correspondence to KATO Energy advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed KATO Energy 30 days for consultation. For consultation on EPs, 30 days is the usual period for KATO Energy.
- In this context, Woodside allowed KATO Energy a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with KATO Energy is appropriate and adapted to the nature of interests of KATO Energy:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding KATO Energy of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as KATO Energy did not provide feedback for this EP.

- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on KATO Energy's functions, interests or activities.

KUFPEC

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed KUFPEC advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with KUFPEC for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given KUFPEC sufficient information to allow KUFPEC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to KUFPEC on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

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Reasonable Period

Woodside allowed KUFPEC a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to KUFPEC advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed KUFPEC 30 days for consultation. For consultation on EPs, 30 days is the usual period for KUFPEC Energy.
- In this context, Woodside allowed KUFPEC a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with KUFPEC is appropriate and adapted to the nature of interests of KUFPEC:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding KUFPEC of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as KUFPEC did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on KUFPEC's functions, interests or activities.

Santos

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Santos advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- **(1)** On 4 September 2023, Santos responded thanking Woodside for its email and advising it had no objections or comments at that time (SI Report, reference 19.1).

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<ul style="list-style-type: none"> (1) On 6 September 2023, Woodside responded thanking Santos for its email (SI Report, reference 19.2). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Santos advised it had no objections or comments.	(1) Woodside assessment: Woodside accepts Santos has no objections or comments regarding this EP. Woodside response: Woodside thanked Santos for its response and noted it had no objections or comments regarding this EP.	(1) Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Santos for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Santos sufficient information to allow Santos to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Santos on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.

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- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 4 September 2023, Santos shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable Santos to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.

Reasonable Period

Woodside allowed Santos a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Santos advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Santos 30 days for consultation. Santos engaged in consultation and provided feedback in this period.
- In this context, Woodside allowed Santos a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Santos is appropriate and adapted to the nature of interests of Santos:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Santos of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Santos provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from Santos.
 - Made no changes or inclusions to the EP as a result of consultation with Santos because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Coastal Oil and Gas

Summary of information provided and record of consultation for this EP:

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<ul style="list-style-type: none"> On 9 August 2023, Woodside emailed Coastal Oil and Gas advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Coastal Oil and Gas for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:</p> <p>Sufficient Information</p> <p>Woodside has given Coastal Oil and Gas sufficient information to allow Coastal Oil and Gas to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::</p> <ul style="list-style-type: none"> The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Coastal Oil and Gas on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included: <ul style="list-style-type: none"> The purpose of consultation and set out what was being sought through consultation. A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures. A timeframe for consultation and the provision of feedback. A link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans</i>. Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations). <p>Reasonable Period</p> <p>Woodside allowed Coastal Oil and Gas a reasonable period for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> A consultation period was stated in the initial correspondence to Coastal Oil and Gas advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission. Consultation for this EP commenced 17 months ago in August 2023. 		

- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Coastal Oil and Gas 30 days for consultation. For consultation on EPs, 30 days is the usual period for Coastal Oil and Gas.
- In this context, Woodside allowed Coastal Oil and Gas a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with Coastal Oil and Gas is appropriate and adapted to the nature of interests of Coastal Oil and Gas:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Coastal Oil and Gas of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Coastal Oil and Gas did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Coastal Oil and Gas’s functions, interests or activities.

Bounty Oil and Gas

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Bounty Oil and Gas advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Bounty Oil and Gas for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Bounty Oil and Gas sufficient information to allow Bounty Oil and Gas to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Bounty Oil and Gas on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Bounty Oil and Gas a reasonable period for consultation in the preparation of this EP because::

- A consultation period was stated in the initial correspondence to Bounty Oil and Gas advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Bounty Oil and Gas 30 days for consultation. For consultation on EPs, 30 days is the usual period for Bounty Oil and Gas.
- In this context, Woodside allowed Bounty Oil and Gas a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Bounty Oil and Gas is appropriate and adapted to the nature of interests of Bounty Oil and Gas:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Bounty Oil and Gas of the opportunity to provide feedback (email of 30 August 2023).

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Bounty Oil and Gas did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Bounty Oil and Gas’s functions, interests or activities.

Vermilion Oil and Gas

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Vermilion Oil and Gas advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Vermilion Oil and Gas for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Vermilion Oil and Gas sufficient information to allow Vermilion Oil and Gas to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Vermilion Oil and Gas on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.

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- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Vermilion Oil and Gas a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Vermilion Oil and Gas advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Vermilion Oil and Gas 30 days for consultation. For consultation on EPs, 30 days is the usual period for Vermilion Oil and Gas.
- In this context, Woodside allowed Vermilion Oil and Gas a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Vermilion Oil and Gas is appropriate and adapted to the nature of interests of Vermilion Oil and Gas:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding Vermilion Oil and Gas of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Vermilion Oil and Gas did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Vermilion Oil and Gas's functions, interests or activities.

OMV Australia / Sapura OMV Upstream (WA) (OMV)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed OMV Australia / Sapura OMV Upstream (WA) (OMV) advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with OMV for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given OMV sufficient information to allow OMV to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to OMV on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed OMV a reasonable period for consultation in the preparation of this EP because::

- A consultation period was stated in the initial correspondence to OMV advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.

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- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed OMV 30 days for consultation. For consultation on EPs, 30 days is the usual period for OMV.
- In this context, Woodside allowed OMV a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with OMV is appropriate and adapted to the nature of interests of OMV:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside proactively sent a follow-up consultation email reminding OMV of the opportunity to provide feedback (email of 30 August 2023).

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as OMV did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on OMV’s functions, interests or activities.

Peak Industry Representative Bodies

Australian Energy Producers (AEP)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed AEP advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be	No additional measures or controls are required.

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assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Summary report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with AEP for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AEP sufficient information to allow AEP to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because::

- Consultation Information Sheet publicly available on the Woodside website since August 2023. Woodside provided this information to AEP on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed AEP a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to AEP advising of consultation as well as when consultation would close for the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period and Woodside allowed AEP 30 days consultation. For consultation on EPs, this is the usual period for AEP.
- During the consultation period, Woodside sent a follow-up email to AEP to remind AEP of consultation and timeframes (email of 30 August 2023).
- In this context, Woodside allowed AEP a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with AEP is appropriate and adapted to the nature of AEP:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

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- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with AEP.
- Woodside sent a follow-up consultation email on 30 August 2023, reminding AEP of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as AEP did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on AEP's functions, interests or activities.

Traditional Custodians and Nominated Representative Corporations

The 'Summary of information provided and record of consultation for this EP' section demonstrates that consultation for the purpose of regulation 25 of the Environment Regulations is complete. Woodside's commitment to ongoing consultation with Traditional Custodians includes a Program of Ongoing Engagement, as summarised in Appendix G "Program of Ongoing Engagement with Traditional Custodians."

Kariyarra Aboriginal Corporation (KAC)

Context

Kariyarra is established under the *Native Title Act 1993* (Cth) by Kariyarra people to represent the Kariyarra people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with KAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining long-term relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to KAC on 26 July 2023). Woodside has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with KAC who is responsible for building a consultative relationship and is readily available to provide information and take feedback. Aside from regular consultation about EPs, Woodside invites KAC to monthly luncheons.

For consultation on this EP, Woodside contacted the KAC CEO offering an opportunity to present to the KAC Board. Woodside asked KAC how it wished to be consulted, if it required support to participate in consultation, if there were other relevant persons or groups that KAC considered should be consulted and requested that all information shared with KAC be cascaded to its members.

KAC has engaged legal representatives who led aspects of the consultation for KAC. In some instances, items raised by the legal representatives (for example in relation to amount and transfer of funds) did not fall within Woodside's policies and procedures and Woodside confirmed it would not action those. Woodside received notice from KAC (in August 2024) that the legal representative was no longer engaged by KAC.

Woodside notes that during the course of consultation for this EP, there were a number of administrative changes at KAC. Woodside was advised by KAC in August 2024 that it had appointed a new CEO and Woodside updated its contact details so as to engage with the new CEO. KAC also advised that it changed legal representation during the consultation.

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As part of its ongoing consultation and relationship building, Woodside provided KAC with a consultation framework agreement which sought from KAC, confirmation as to how KAC would like to be consulted, including KAC's views on what constituted sufficient information, a reasonable period of time and a reasonable opportunity for consultation (see emails from 29 November 2023). While an agreement like this is useful to outline consultation norms for KAC, Woodside has noticed that there appears to be limited appetite from groups like KAC to enter in a framework agreement that sets this position out in an agreement form. While Woodside has continued to attempt to progress the framework agreement, despite numerous approaches, it remains in a draft form and has not been progressed. We note, however, that this has not prevented consultation progressing in parallel to discussions on the framework agreement. (See in particular, exchanges of correspondence between January 2024 and March 2024). We also note that in August 2024, following administrative changes and change of legal advisor, KAC has requested discussions "start fresh" on the consultation framework agreement.

This context and process demonstrates that Woodside's consultation approach with KAC is appropriate and adapted to the nature and interests of KAC.

Historical Information

- On 18 July 2023 Woodside emailed KAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* This email also requested that KAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed KAC Woodside's *Program of Ongoing Engagement with Traditional Custodians*.

Please see *Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report)* for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 29 August 2023, Woodside emailed KAC advising of the proposed activity (Record of Consultation, reference 1.26) and provided a Consultation Summary Information Sheet (including a link to the Consultation Information Sheet on Woodside's website). The email requested information on the interests that KAC and its members may have within the EMBA, information on how KAC would like to engage, and requested that KAC provide information to other individuals as required. The email requested feedback from KAC by 29 September 2023.
- On 31 August 2023, KAC emailed Woodside apologising for not responding earlier. KAC noted that recent events at the Corporation had been challenging (SI Report, reference 37.1)
- On 31 August 2023, Woodside emailed KAC acknowledging its response (SI Report, reference 37.2).
- (1) On 31 August 2023, KAC via its legal representative emailed Woodside requesting information about this activity, including the summary document, maps and timelines. The legal representative also asked for confirmation from Woodside that KAC's costs, including legal costs would be met by Woodside. (SI Report, reference 37.3).
- (1) On 10 September 2023, Woodside and KAC's legal representative exchanged emails relating to Woodside covering the costs of consultation meetings (SI Report, references 37.4, 37.5).
- (1) On 13 September 2023, KAC's legal representative emailed Woodside advising he was meeting KAC that morning and advised amongst other things that further consultation would be required now that KAC had legal advice to support consultation and raised the concept of joint environmental management for this project. The representative also suggested that KAC had Sea Rights referenced in its Native Title claim (SI Report, reference 37.6).
- On 13 September 2023, KAC via its legal representative emailed Woodside requesting a copy of the Summary Information Sheet for this EP previously provided by Woodside to KAC (SI Report, reference 37.7).
- (1) On 13 September 2023, Woodside emailed KAC via its legal representative the Summary Information Sheet for this EP and confirmed that Woodside wanted to have a positive relationship with KAC (SI Report, reference 37.8).

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- **(1)** On 13 September 2023, Woodside emailed KAC via its legal representative confirming that Woodside agreed in principle to funding KAC, noting that reasonable quotes applicable to each line item were required and reiterating that Woodside sought a positive relationship with KAC (SI Report, reference 37.9).
- On 22 September 2023, KAC via its legal representative emailed Woodside attaching a letter and Woodside policy documents (SI Report, reference 37.10). The letter:
 - Requested a meeting with KAC at a suitable time with an agreed agenda to be arranged, including preparation of a “co-management agreement”.
 - **(2)** Proposed an agreement which provided the tools for effective and ongoing consultation by Woodside with KAC.
 - Noted that KAC’s asserted Sea Country in its native title claim.
 - **(1)** Proposed an agreed budget to fund (among other things) preparation of the agreement, meetings, and specialist advice.
 - Provided contact protocols going forward.
- **(1)** On 28 September 2023, KAC via its legal representative emailed Woodside an approximate quote for consultation. (SI Report, reference 37.11).
- On 20 October 2023, several emails were exchanged between Woodside and KAC in relation to funding. (SI Report, references 37.12, 37.13, 37.14, 37.15, 37.16)
- **(1)** On 23 October 2023, Woodside emailed KAC’s legal representative a detailed response to its funding request (SI Report, reference 37.17). The letter included that in order to enable consultation, Woodside offered to pay sitting fees for Traditional Owner groups. Those fees were reasonable and reflective of standard industry rates based on prior consultations, industry benchmarks and experience. Woodside wanted to ensure that Traditional Owner groups such as KAC were adequately resourced to enable them to meaningfully participate in meetings and consultation.
- **(1)** On 26 October 2023, KAC via its legal representative emailed Woodside in relation to a meeting with KAC about EPs and again raised the topic of funding (SI Report, reference 37.18).
- On 14 November 2023, KAC via its legal representative emailed Woodside again in relation to costs for consultation meetings (SI Report, reference 37.19).
- On 22 November 2023, Woodside emailed KAC via its legal representative (SI Report, reference 37.20). Woodside:
 - Confirmed its position on provision of reasonable costs for sitting fees relating to consultation and that Woodside’s antibribery and corruption and other policies firmly state Woodside’s position in relation to provision of funds.
 - Confirmed it was progressing with environmental controls to reduce or remove any potential impacts to Kariyarra Sea Country.
 - Requested a full day meeting between Woodside and KAC to:
 - Present on EPs (including this one), activities and impacts.
 - **(2)** Sign the consultation protocol.
- **(2)** On 23 November 2023, KAC via its legal representative emailed Woodside agreeing to the process outlined in Woodside’s previous email of 22 November 2023. The legal representative requested a draft protocol and suggested several dates for a meeting between KAC and Woodside. The legal representative noted that KAC staff sitting fees were higher than those Woodside proposed to fund (SI Report, reference 37.21).
- **(1)** On 23 November 2023, KAC via its legal representative emailed Woodside about an administrative matter relating to costs (SI Report, reference 37.22).
- On 29 November 2023, KAC via its legal representative emailed Woodside following a phone conversation with Woodside (SI Report, reference 37.23). The legal representative confirmed a meeting of 5 December 2023 in Karratha with KAC and provided details about meeting costs.

- **(2)** On 29 November 2023, KAC via its legal representative emailed Woodside (SI Report, reference 37.24). The email:
 - Requested that the quote for the meeting on 5 December 2023 be confirmed to ensure invoicing is progressed.
 - Noted that KAC had already incurred flight costs for attendees.
 - Provided details of the meeting with KAC.
 - Requested a draft copy of the proposed consultation protocol.
 - Suggested an agenda for the meeting.
- **(1, 2)** On 29 November 2023, Woodside emailed KAC via its legal representative (SI Report, reference 37.25). Woodside:
 - Confirmed the quote for the meeting on 5 December 2023.
 - Proposed a revised agenda, with more time to present about EPs and take feedback on cultural values.
 - Attached its Program of Ongoing Consultation. The program outlined:
 - A request from Woodside for KAC to set out how KAC would like to consult, the basic procedure for initial and ongoing consultation in relation to activities.
 - Agreement as to how Woodside would provide KAC information.
 - How KAC would provide feedback and how Woodside would represent that in submissions.
 - An agreed schedule of rates.
 - How the outputs of consultation would be managed.
- On 29 November 2023, KAC via its legal representative emailed Woodside with an updated agenda which included an allocation of time for Woodside to provide an overview of current projects (SI Report, reference 37.26).
- On 5 December 2023, Woodside and KAC met in Port Hedland (SI Report, reference 37.27). During the meeting:
 - KAC stated it wished to have its views and concerns added to the EPs discussed (including this one). Plans were made for a workshop in late February/early March 2024 for Woodside to understand KAC's concerns (this workshop did not eventuate despite Woodside's support).
 - **(3)** KAC gave a presentation about its Sea Country Rights and Duties. This included:
 - Having access to Sea Country for fishing, trapping, crabbing, catching turtle and collecting shellfish.
 - Visiting offshore islands at low tide.
 - Hunting dugong and taking stingray barbs for spears
 - Having duties to look after and protect Sea Country, noting Yinta is associated with Sea Country and can be dangerous.
 - **(2)** KAC outlined its consultation requirements with Woodside which included:
 - An agreement that includes resourcing.
 - **(4)** Ongoing funding for sea rangers.
 - **(5)** A direct agreement in the case of an oil spill.

- (2) KAC’s legal representative was complimentary of the Program of Ongoing Consultation document provided by Woodside.
- (2) On 13 December 2023, KAC via its legal representative emailed Woodside with outcomes of the 5 December 2023 meeting describing it as “very positive”. The email confirmed availability for a workshop in March 2024 and that KAC and Woodside aim to reach agreement on an engagement protocol by mid-2024 (SI Report, reference 37.28).
- On 20 December 2023, Woodside emailed KAC via its legal representative (SI Report, reference 37.29). Woodside:
 - Confirmed Woodside’s processes for ongoing engagement, clarifying that, once accepted, EPs are not resubmitted, rather information is addressed by applying its Management of Change and Revision processes.
 - Confirmed that this EP would be submitted in January 2024.
 - (3) Confirmed the cultural values raised by KAC and that environmental controls to protect these values would be assessed and implemented (as relevant) in the EP.
 - (5) Clarified that Woodside engages relevant cultural authorities in the event of an oil spill.
 - (2) Woodside also noted it looked forward to reaching agreement with KAC on a consultation framework agreement.
- On 20 December 2023, KAC via its legal representative emailed Woodside (SI Report, reference 37.30), noting further information KAC wished noted within this EP:
 - (6) Impacts on coastal landforms and coastal native vegetation. (6) Woodside noted this and included it in the EP.
 - (7) Tangible and intangible heritage associated with the coast and the ocean. (7) Woodside noted this and included it in the EP.
- On 20 December 2023, KAC via its legal representative emailed Woodside acknowledging it looked forward to progressing an agreement in 2024 between KAC and Woodside (SI Report, reference 37.31).

Ongoing engagement:

- (1) On 13 January 2024, KAC via its legal representative emailed Woodside a letter outlining proposed costs for preparation of a draft agreement with the KAC board (SI Report, reference 37.32).
- On 21 February 2024, Woodside emailed KAC via its legal representative regarding the framework consultation agreement and set out reasons why the funding request from KAC was not compliant with Woodside’s policies and procedures (SI Report, reference 37.33). (2) Woodside also included a draft consultation agreement for KAC’s consideration.
- (2) On 22 February 2024, KAC via its legal representative exchanged emails with Woodside requesting a word version of the document (SI Report, reference 37.34) to which Woodside responded and supplied (SI Report, reference 37.35).
- (2) On 10 March 2024, KAC via its legal representative emailed Woodside (SI Report, reference 37.36) with a 7-page draft agreement between KAC and Woodside for Woodside to review.
- On 12 March 2024, Woodside emailed KAC via its legal representative (SI Report, reference 37.37) acknowledging receipt of the draft agreement and noting it would review it and reply to KAC as soon as able.
- On 26 March 2024, KAC via its legal representative emailed Woodside responding to an email on another activity to advise that KAC would await the consultation agreement for this and other activities (SI Report, reference 37.38).
- (2) On 4 April 2024, Woodside emailed KAC via its legal representative advising Woodside had reviewed the draft agreement, provided some amendments for KAC’s consideration and requested the date for the next Board meeting (SI Report 37.39).

- **(2)** On 4 April 2024, KAC's legal representative emailed Woodside and advised he needed to seek further instructions from KAC about the consultation agreement (SI Report, reference 37.40).
- **(2)** On 26 June 2024, Woodside emailed KAC's legal representative to follow-up whether the legal representative had received further instructions from KAC (SI Report, reference 37.41).
- **(2)** On 3 July 2024, KAC's legal representative emailed Woodside and advised that the consultation agreement and recent Woodside EPs would be addressed by KAC's in-house counsel. The in-house counsel would revert to Woodside about the proposed agreement and EP consultation (SI Report, reference 37.42).
- On 3 July 2024, Woodside emailed KAC's legal representative and requested contact details for KAC's in-house counsel (SI report, reference 37.43).
- On 30 July 2024, KAC's consultant emailed Woodside about a different EP and advised KAC's Board of Directors would be meeting on 7 August (SI Report, reference 37.44).
- On 28 August 2024, KAC's in-house counsel emailed Woodside about a different EP, in the email KAC confirmed it was no longer represented by its former legal representative. The in-house counsel enquired about Woodside's availability for a phone call or online meeting to discuss and plan next steps (SI Report, reference 37.45).
- On 28 August 2024, Woodside emailed KAC and provided information about availability to speak over the phone or meet in person (SI Report reference 37.46).
- On 29 August 2024, Woodside spoke to KAC on the phone (SI Report, reference 37.47). During the conversation:
 - Woodside confirmed its commitment to building meaningful relationships with First Nations groups.
 - KAC confirmed it had recruited a new CEO.
 - KAC expressed interest in negotiating a consultation agreement.
 - Woodside advised that negotiation of the consultation agreement work would run in parallel with EP consultation.
 - Woodside confirmed availability to consult and willingness to travel for meetings.
 - KAC confirmed it wanted to "start fresh" and requested a copy of the draft agreement.
 - KAC requested an online meeting on 3 September 2024.
 - Woodside offered to provide a copy of its presentation ahead of time to allow KAC to review and distribute it to its Board prior to the meeting.
 - KAC requested information about Woodside assets and Woodside advised it has no assets within the determination.
 - Woodside explained how EMBA's are used as part of the methodology to ascertain and contact relevant people.
- On 3 September 2024, Woodside emailed its presentation to KAC for a meeting that day (SI Report, reference 37.48). Matters relevant to this EP that were discussed included:
 - Woodside's current projects including Scarborough.
 - Woodside's commitment to working with First Nations communities.
 - How Woodside consults with First Nations communities, including ongoing consultation on EPs.
- On 3 September 2024, Woodside and KAC met virtually (SI Report, reference 37.49). Matters discussed included the following:
 - KAC advised a recent internal restructure resulting in a new CEO, General Counsel and Native Title Representative.
 - Woodside projects (a map was presented which included the location of the Scarborough Project which incorporates this EP).

- The 7-page draft consultation agreement.
- Woodside's commitment to consultation, that consultation could be customised to suit KAC and that field experts could be made available to provide high-level technical information if desired.
- (2) On 3 September 2024, Woodside provided KAC with a copy of the draft consultation agreement originally provided in February 2024. KAC acknowledged receipt of the email. (SI Report, references 37.50).
- On 4 September 2024 Woodside travelled from Karratha to South Hedland to meet KAC in-person (SI Report, reference 37.51). Matters relevant to this EP that were discussed included:
 - (5) KAC stated that oil spill responses should consider natural impacts, eg cyclones. (5) Woodside confirmed this consideration was part of the process.
 - (3) KAC was asked about Sea Country Values and confirmed that mitigation measures need to be put in place for:
 - Sea turtle nesting
 - Impacts to food sources
 - Impacts to whale migration as Elders have a connection to whale migration through Songlines.
 - (3) Woodside responded that other Traditional Owner groups had similar concerns and that mitigation and avoidance measures are included within EPs.
 - (7) KAC confirmed that surveys would need to be done should Woodside ever plan to place an asset within KAC's determination due to significant sites underwater.
 - Woodside presented a map of its assets on the WA coastline including Scarborough.
 - (2) KAC expressed a desire to finalise the consultation agreement.
 - (2) Woodside confirmed that consultation agreement negotiations run in parallel to EP consultations and that consultation for this EP is complete, but negotiation of the consultation framework agreement can continue.
 - Woodside also confirmed that feedback is open for the life of an EP.
 - (8) KAC confirmed that Wanparta was another relevant group that Woodside should consult with. (8) Woodside replied that it was consulting with Wanparta.
 - (4) KAC said it would like to discuss opportunities with Woodside to support its Ranger Program. (4) Woodside replied that it was looking into a ranger assistance program.
 - Woodside offered to make environmental or heritage experts available to KAC. KAC thanked Woodside for the offer and were open to holding meetings for more technical discussions at a later date.
- On 9 September 2024, Woodside emailed KAC an invite to share stories and receive updates from Woodside at its monthly luncheon for Traditional Owners (SI Report, reference 37.52).
- On 3 October 2024, Woodside emailed KAC an invite to share stories and receive updates from Woodside at its monthly luncheon for Traditional Owners (SI Report, reference 37.53)

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
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<p>(1) KAC requires costs to be met for KAC to be engaged in consultations with Woodside.</p>	<p>(1) Woodside assessment: The proposed Framework Agreement (See Point (2) below), would be an effective mechanism to address resourcing for consultation. Woodside response: Woodside supports reasonable requests for resourcing. Woodside has agreed to fund reasonable costs and funded the 5 December 2023 meeting. Woodside will fund future consultation meetings on an agreed costs basis to be set out in the draft agreement, sent to KAC in February 2024.</p>	<p>(1) Not required.</p>
<p>(2) KAC has noted it wants to engage on matters with Woodside and would like to develop an Engagement Protocol for (among other things) ongoing input into EPs and a collaborative relationship with Woodside.</p>	<p>(2) Woodside assessment: An agreement with KAC aligns with Woodside's Program of Ongoing Engagement with Traditional Custodians and will frame ongoing consultation processes. Woodside response: Woodside agrees to further discussions on the draft consultation agreement with KAC which was sent to KAC in February 2024. Once agreed, it will be useful as a frame for consultation on EPs.</p>	<p>(2) Woodside's program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on EPs is currently being implemented. The draft agreement with KAC (among other things) will set out the process for consultation and ongoing engagement. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G). Woodside will continue to consult following acceptance of the EP, as set out in Section 7.10.5 of the EP.</p>
<p>(3) KAC has advised Woodside it has a duty to look after and protect Sea Country and secret habitat totems. KAC has mentioned fishing, trapping, crabbing catching turtle, hunting dugong, and using stingray barbs for spears and collecting shellfish.</p>	<p>(3) Woodside assessment: Woodside acknowledges KAC's feedback about Sea Country. Woodside response: Woodside has noted KAC's asserted values and interests in Sea Country in Section 4.9. Woodside understands cultural and environmental values are intrinsically linked; in addition to the specific controls for cultural features and heritage values, the controls and performance standards in Section 6 will reduce impacts to cultural features and heritage values, including marine species and habitats.</p>	<p>(3) Woodside acknowledges KAC's asserted connection to Sea Country (Section 4.9). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6.10 of the EP.</p>

<p>(4) KAC would like to discuss opportunities for Woodside to support its ranger program</p>	<p>(4) Woodside assessment: Woodside acknowledges the value in having trained rangers available in the highly unlikely event of an oil spill and agrees it would be beneficial to an immediate response in an emergency situation. Woodside response: Woodside is reviewing a ranger assistance program and will provide details to KAC once this has matured.</p>	<p>(4) The Program for Ongoing Engagement with Traditional Custodians (Appendix G) includes commitments to social investment to support Indigenous Ranger programs, and support for Indigenous oil spill response capabilities.</p>
<p>(5) KAC sought a direct agreement with Woodside in the case of an oil spill.</p>	<p>(5) Woodside assessment: Woodside notes KAC's concerns about the unlikely event of an oil spill. Woodside's Oil Spill Preparedness and Response Mitigation Assessment is in Appendix H of the EP. Woodside's Oil Pollution First Strike Plan is in Appendix I of the EP. Woodside response: Woodside informed KAC on 20 December 2023 that it engages relevant cultural authorities in the event of oil spills.</p>	<p>(5) Woodside's Oil Spill Preparedness and Response Mitigation Assessment is in Appendix H of the EP. Woodside's Oil Pollution First Strike Plan is in Appendix I of the EP.</p>
<p>(6) KAC's legal representative requested Woodside include measures to avoid impacts to coastal landforms and coastal native vegetation.</p>	<p>(6) Woodside assessment: Assessment of the impacts and risks associated with the PAP is undertaken in accordance with and consistent with national and international standards and law and policies. Woodside response: Woodside has implemented controls to reduce potential risks and impacts on the environment to ALARP and to an acceptable level.</p>	<p>(6) Woodside acknowledges KAC's asserted connection to Sea Country (Section 4.9). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6.10 of the EP.</p>
<p>(7) KAC's legal representative requested Woodside include measures to avoid impacts to tangible and intangible Aboriginal cultural heritage associated with the coast and the ocean.</p>	<p>(7) Woodside assessment: Woodside seeks to avoid damage or disturbance to cultural heritage (including intangible heritage) and assesses cultural heritage impacts, including both direct and indirect impacts and risks associated with PAPs. Mitigation can include any measure or control aimed at supporting the viability of the intangible cultural heritage and its intergenerational transmission. Woodside response: Woodside understands cultural and environmental values are intrinsically linked; in addition to the</p>	<p>(7) Woodside acknowledges KAC's asserted connection to Sea Country (Section 4.9). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6.10 of the EP.</p>

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	specific controls for cultural features and heritage values, the controls and performance standards in Section 6 will reduce impacts to cultural features and heritage values, including marine species and habitats, to ALARP and an acceptable level.	
(8) KAC has stated that Wanparta Aboriginal Corporation is a relevant group that Woodside should consult with.	(8) Woodside assessment: Woodside welcomes feedback from Traditional Owners about additional people for Woodside to approach for consultation. Woodside response: Woodside has consulted with Wanparta Aboriginal Corporation (see Table 3). Woodside has informed KAC that it is also consulting with Wanparta.	(8) No action required.
Woodside has addressed objections and claims as noted above.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside has addressed the objections or claims raised by KAC. No additional measures or controls are required.
Summary Report: Consultation Complete		
Woodside has discharged its obligations for consultation under Regulation 25 of the Environment Regulations and consultation with KAC for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically: Sufficient Information Sufficient information has been provided because:		
<ul style="list-style-type: none"> Woodside has given KAC relevant consultation documents, including NOPSEMA's <i>Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information</i> (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 18 July 2023). 		

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- In August 2023, Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- On 29 August 2023, Woodside commenced consultation with KAC on this EP. Woodside gave to KAC:
 - A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing.
 - Maps showing the location and EMBA.
 - A summary of the risks and impacts of the activity.
 - Diagrams.
 - Details about how to provide feedback.
 - The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of KAC's interests and how the activity could impact those interests.
 - That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
 - Woodside asked KAC to forward the information to its members.
 - Woodside offered to provide more specific information, maps and images to KAC if required.
- Woodside provided further information to KAC addressing its functions, interests and activities during a meeting on 5 December 2023 and correspondence on the 20 December 2023. Information relevant to this EP was also discussed on 3 and 4 September 2024.
- Woodside sought direction on KAC's preferred method of consultation. This resulted in a face-to-face meeting on 5 December 2023. During the meeting:
 - Woodside presented information in a format and style that was readily accessible and appropriate.
 - Woodside provided KAC with an environmental subject matter expert to answer questions and provide specific environmental information as well as a Woodside First Nations team focal point.
 - Woodside confirmed the purpose of consultation and set out in detail what information it was seeking.
 - KAC provided Woodside with information about Sea Country Values, demonstrating an understanding of the project, outcomes of the consultation process and information shared.
 - Woodside discussed its Program of Ongoing Consultation Document. KAC's legal representative was complimentary of this document.
 - KAC advised it would like Woodside to attend an on-Country workshop to be organised and facilitated by KAC. Woodside notes it is still open to attend this style of workshop although it has not been progressed further by KAC and when following up on progress, Woodside understands that this is something KAC no longer wishes to pursue.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with KAC in August 2023 and provided information on the EP on that date. Since then, Woodside and KAC have engaged in consultation for 17 months, demonstrating a "reasonable period" of consultation, where a two-way dialogue has occurred through both written and face-to-face exchanges on this activity.

- A consultation period was communicated to KAC during Woodside's initial email on 29 August 2023. KAC was asked to provide feedback by 29 September 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- A further email was sent on 20 December 2023 advising the EP was proposed to be submitted in January 2024.
- Woodside provided KAC with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside asked for KAC's input into how KAC would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for over 17 months. This has included publishing advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (See section 3.2).
- Woodside ran two targeted social media campaigns which provided a broad awareness of the activity and EP (See section 3.4). Woodside notes KAC regularly uses social media.
- Woodside's initial email about this EP on 29 August 2023:
 - Included a general email address and telephone number for Woodside as well as direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
 - Offered for Woodside to speak with KAC members as well as the KAC Board.
 - Asked KAC to advise how it would like Woodside to engage and whether KAC required further information.
- Woodside met with KAC on 5 December 2023. The meeting was attended by Woodside's First Nations Engagement team focal person and an environmental subject matter expert who answered questions and provided specialist information on this EP.
- Woodside asked KAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. KAC identified Wanparta Aboriginal Corporation as a relevant group.
- Woodside considers a reasonable opportunity was provide to KAC as evidenced by the information KAC provided Woodside about its cultural values and other matters during a meeting on 5 December 2023 and subsequent correspondence on 13 and 20 December.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- On 5 December 2023, KAC advised Woodside it has a duty to look after Sea Country and secret habitat totems. Woodside has incorporated this feedback in the EP (Section 4.9). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6.10 of the EP.
- On 20 December 2023, KAC through its legal representative requested Woodside include measures to avoid impacts to coastal landforms and coastal native vegetation. Woodside has incorporated this feedback in the EP (Section 4.9). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6.10 of the EP.
- On 20 December 2023, KAC's legal representative requested Woodside include measures to avoid impacts to tangible and intangible Aboriginal cultural heritage associated with the coast and the ocean. Woodside incorporated this feedback in the EP (Section 4.9). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6.10 of the EP.

- Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Murujuga Aboriginal Corporation (MAC)

Context

MAC is established under the Burrup and Maitland Industrial Estates Agreement and is the representative body for the Traditional Custodians for Murujuga being the Ngarluma, the Mardudhunera, the Yaburara, the Yindjibarndi, and the Wong-Goo-Tt-Oo peoples (collectively Ngarda-Ngarli). MAC is the cultural authority for Murujuga and is responsible for the management and protection of its cultural values.

Woodside has an existing relationship with MAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to MAC on 26 July 2023). Woodside has assigned a First Nations Engagement team member as a focal point for EP consultation with MAC who is responsible for building a consultative relationship and is readily available to provide information and take feedback.

On 27 August 2018, MAC and the WA Government announced it was pursuing World Heritage Listing for the Murujuga Cultural Landscape. As such, Woodside considers MAC the appropriate body to consult with about matters relating to Murujuga as a potential World Heritage site.

For consultation on this EP, Woodside contacted MAC's acting CEO offering an opportunity to present to the MAC Board. Woodside asked MAC how it wished to be consulted, if it required support to participate in consultation, if there were any additional groups that MAC believed should be consulted and requested that all information shared with MAC be cascaded to its members.

Woodside has also, in the course of consultation, referred matters to MAC for confirmation. For example, questions related to Elder status and cultural information to which MAC provided confirmations (see emails dated 21 August 2023 and 1 September 2023 and telephone calls on 4 October 2023).

Aside from regular consultation about EPs, Woodside invites MAC to Woodside's Quarterly Heritage Meetings and monthly Community Luncheons. Woodside provides regular updates about the Scarborough Project to MAC including a weekly update for the Scarborough Seabed Intervention activities. Woodside has continually confirmed it is open to receiving or being notified of feedback, claims or objections on EPs during its engagement with MAC.

This context and process demonstrates that Woodside's consultation approach with MAC is appropriate and adapted to the nature and interests of MAC.

Historical Engagement:

- Woodside has been consulting with MAC on the Scarborough Project area generally since 2018, including over the area for which this EP relates. Woodside discussed the Floating Production Unit in a number of previous meetings and confirmed it was to be considered as part of this Operations EP.
- On 1 May 2019, cultural authorities nominated by MAC attended an ethnographic survey in conjunction with other Ngarda Ngarli People (the traditional custodians of Murujuga, comprising the Ngarluma, Mardudhunera, Wong-Goo-Tt-Oo, Yaburara and Yindjibarndi people) and both male and female heritage consultants consistent with industry standard practice. While this survey was conducted for the Scarborough project's development footprint, a landscape-scale approach was undertaken, to better understand the submerged landscape. The survey found no ethnographic values within the Operational Area or EMBA. Participants in this ethnographic survey had an opportunity to input and contributed to the findings and recommendations of Mott 2019 which are detailed in the EP (Section 4.9.4.2) and included:

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- Onshore heritage sites were identified, beyond the Operational Area and EMBA of this EP.
- No known sites or values were identified beyond the low water mark. The potential for cultural values to exist was identified and further work was offered by Woodside (although this has not been taken up).
- Recommendation to keep Traditional Custodians informed including through existing quarterly meetings.
- Recommendation to engage with researchers on options to identify submerged heritage. Woodside continues to provide this opportunity although it has not been taken up.
- Recommendation for cultural awareness training for contractors.
- Recommendations for the management of onshore heritage sites beyond the Operational Area and EMBA of this EP. On 22 June 2023, Woodside met with the MAC Board and Circle of Elders and presented on the Scarborough Project (including D&C, SITI, Seismic and Subsea EPs) noting that development of Scarborough would include the installation of a floating production unit (the activity relating to this EP).
- On 18 July 2023, Woodside emailed MAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. Woodside requested that MAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed MAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 21 August 2023, Woodside emailed MAC seeking MAC's cultural clarifications about information in relation to Elder status and whether cultural information about Murujuga can be held by individuals and not known to others.

Please see *Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report)* for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 1 September 2023, Woodside emailed MAC advising of the proposed activity (Record of Consultation, reference 1.27) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that MAC and its members may have within the EMBA, information on how MAC would like to engage, and requested that MAC provide information to other individuals as required. The email requested feedback from MAC by 2 October 2023.
- **(1)** On 1 September 2023, MAC emailed a letter to Woodside (SI Report, reference 35.1), noting the following:
 - In response to Woodside's email of 21 August 2023, MAC consulted with women appointed to its Circle of Elders.
 - MAC is comfortable that the women in the Circle of Elders are the right people to be consulted about these matters.
 - MAC notes that it would be extremely unusual for knowledge to be held by an individual without surrounding groups knowing about it.
 - The Circle of Elders themselves represent the Ngarda-Ngarli; the collective term for the Traditional Custodians who look after Murujuga Country.
- **(1)** On 4 October 2023, Woodside phoned MAC to discuss the cultural appropriateness of a visit to Rosemary Island. Woodside was advised not to undertake the trip due to cultural safety concerns.
- **(1)** On 4 October 2023, MAC emailed Woodside thanking it for the call and informing Woodside that it is MAC's expectation that Woodside continues to request advice regarding cultural safety prior to such trips being undertaken (SI Report, reference 35.2).
- **(1)** On 4 October 2023 Woodside responded to MAC's email, confirming it had cancelled a trip to Rosemary Island and thanking MAC and its Circle of Elders for providing cultural advice (SI Report, reference 35.3).

- In October 2023, Woodside became aware of ongoing cultural matters in the Pilbara community which required Woodside to pause its communication with local groups as a sign of respect (SI Report, reference 35.4).
- On 5 January 2024, Woodside emailed MAC (SI Report, reference 35.5). The email:
 - Provided MAC with a table of EP consultations with MAC including this EP.
 - Provided MAC a link to the detailed information sheet on Woodside's website.
 - Asked MAC to respond at its earliest convenience.
 - Offered to meet with MAC to discuss EPs.

Ongoing engagement:

- On 23 April 2024, Woodside emailed MAC (SI Report, reference 35.6), in response to earlier correspondence. Woodside acknowledged MAC's workload and offered to work with MAC to manage this. Woodside provided MAC another copy of the table displaying EPs, including this one, originally sent on 5 January 2024.
- On 2 August 2024, MAC emailed Woodside a letter relating to another EP (SI Report, reference 35.7). Matters relating to this EP include:
 - **(2)** MAC's advice that activities that could potentially affect the natural movement or behaviour of marine species may impact cultural values.
 - **(3)** MAC's request that the protection of environmental values be assessed separately from the protection of cultural values.
 - **(4)** That MAC expects to be consulted about any activity located near Murujuga and informed if there is an environmental incident whereby Murujuga falls within the possible impact zone.
- **(4)** On 2 August 2024, Woodside responded to MAC's email confirming it would inform MAC of all projects located near Murujuga and in the very unlikely case of an environment incident (SI report 35.8).
- On 9 September 2024, Woodside invited MAC to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners (SI Report, reference 35.9).
- On 17 September 2024, Woodside emailed MAC responses to matters raised in correspondence on 2 August 2024 (SI Report, reference 35.10). The letter stated:
 - **(2,3)** Woodside assesses potential cultural impacts on marine species including controls for mammal migration paths and behaviour collaboratively with environmental impacts.
 - **(4)** Woodside actively seeks ongoing engagement and consultation with MAC on its cultural interests, activities and functions.
 - Woodside is available to meet with MAC.
- On 25 September 2024, MAC attended Woodside's monthly luncheon for Traditional Owners (SI Report, reference 35.11). During the luncheon Woodside requested feedback from all attendees about EPs and provided information about the consultation process.
- On 3 October 2024, Woodside emailed MAC an invitation to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners (SI Report, reference 35.12).
- On 23 October 2024, MAC attended Woodside's community luncheon for Traditional Owners in Roebourne. During the lunch Woodside requested feedback from all attendees about EPs and provided information about the consultation process (SI Report, reference 35.13)
- On 21 November 2024, NYFL emailed Woodside a letter advising that due to the passing of a Senior Elder, grieving protocols were underway in the Roebourne area. This is relevant to consultation with MAC to whom this also applies (SI Report, reference 35.14).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) MAC has informed Woodside that its Circle of Elders are the right people to be consulted about Scarborough matters. The Circle of Elders represent the Traditional Custodians who look after Murujuga Country.</p>	<p>(1) Woodside assessment: Woodside respects MAC's advice that its Circle of Elders represent the Traditional Custodians who look after Murujuga Country. Woodside response: Woodside confirms it will consult MAC about matters relating to Murujuga Country. An example is Woodside consulting MAC on 4 October 2023 about the cultural appropriateness of a proposed visit to Rosemary Island.</p>	<p>(1) No action required.</p>
<p>(2) During ongoing engagement, MAC advised Woodside that any activities that could potentially affect the natural movement or behaviour of marine species may impact cultural values.</p>	<p>(2) Woodside assessment: When developing EPs, Woodside considers potential cultural impacts on marine species including impacts and associated controls for marine mammal migration paths and behaviour. Woodside response: Woodside recognises that whales and other species of totemic importance need to be protected, including their populations and migration patterns. As assessed in Section 6, Woodside considers that when the impacts and risks to marine species, including potential totemic species, have been reduced to ALARP and an acceptable level in offshore areas, the potential impacts and risks to cultural values associated with coastal Indigenous connection with, or traditional uses of marine species and associated ecosystems in nearshore coastal waters are also reduced to ALARP and an acceptable level.</p>	<p>(2) Woodside has assessed impacts and risks to marine species in Section 6 of the EP. Items relating to MAC appear in table 4.20 in section 4.9.4.</p>
<p>(3) During ongoing engagement, MAC stated that the protection of environmental values should be assessed separately from the protection of cultural values in EPs.</p>	<p>(3) Woodside assessment: Woodside undertakes assessments for both environmental and cultural values. These are considered individually and collaboratively. Woodside response: Woodside has responded to MAC and informed it that environmental and cultural impacts have been assessed both individually and collaboratively.</p>	<p>(3) Woodside's Impact and Risk Assessment of cultural values is outlined in Section 6.10.</p>

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<p>(4) During ongoing engagement MAC stated that it expects to be consulted about any activity located near Murujuga and contacted in the event of an environmental incident whereby Murujuga falls within the possible impact zone.</p>	<p>(4) Woodside assessment: Woodside acknowledges MAC's advice that it should be consulted about any activity located near Murujuga and in the unlikely case of an environmental incident. Woodside response: Woodside has advised MAC that it will inform MAC of projects proposed on Murujuga.</p>	<p>(4) Under Woodside's methodology for identifying relevant persons, MAC is considered a relevant person for EPs with an EMBA covering/in proximity to Murujuga. Woodside's Oil Spill Preparedness and Response Mitigation Assessment is in Appendix H of the EP. Woodside's Oil Pollution First Strike Plan is in Appendix I of the EP Section 1 (Table 1-1): has notifications details to relevant cultural authorities and specifically refers to MAC as a required notification in event of a spill.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls required.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environment Regulations and consultation with MAC for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has been consulting with MAC on the Scarborough Project area generally since 2018, including over the area for which this EP relates. There have been numerous meetings with MAC and the Circle of Elders on this project since that time.
- Woodside has given information to MAC about the Scarborough Project through the ethnographic survey work over the project footprint.
- Woodside has given MAC relevant consultation documents, including NOPSEMA's Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 18 July 2023).

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- In August 2023, Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- Woodside provided information to MAC on 1 September 2023 (when Woodside commenced consulting with MAC on this EP) and subsequently on 5 January 2024. Woodside provided MAC:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing
 - Maps showing the location and EMBA
 - A summary of the risks and impacts of the activity
 - Diagrams
 - Details about how to provide feedback.
 - The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of MAC's interests and how the activity could impact those interests.
 - That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
 - Woodside asked MAC to forward the information to its members.
 - Woodside offered to provide more specific information, maps and images to MAC if required.
- Woodside provided contact information for Woodside and NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with MAC in September 2023 and provided information on the EP on that date. Since then, Woodside and MAC have engaged in consultation for 16 months, demonstrating a "reasonable period" of consultation.
- A consultation period was communicated to MAC during Woodside's initial email on 1 September 2023. MAC was asked to provide feedback by 2 October 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside provided MAC with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.
- Woodside first met with MAC to discuss the broader Scarborough Project in August 2020. Woodside has addressed and responded to MAC for more than three years on the Scarborough Project and 16 months on this EP, demonstrating a "reasonable period" of consultation.
- Woodside notes that during consultation, it also respectfully paused consultation in periods when MAC was observing Sorry Business or cultural matters (see October 2023).

Reasonable Opportunity

- A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:
- Woodside asked for MAC's input into how MAC would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.

- In 2019, cultural authorities nominated by MAC attended an ethnographic survey which considered the Scarborough project's development footprint. This provided opportunity for MAC to input on the survey and Scarborough Project, particularly from a cultural values perspective.
- Woodside has made information on this EP publicly available for over 17 months. This has included publishing eight advertisements in national, state, local newspapers including Indigenous newspapers, The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (See section 3.2).
- Woodside ran two targeted social media campaigns which provided a broad awareness of the activity and EP (See section 3.4).
- Woodside's initial email about this EP on 1 September 2023:
 - Included a general email address and telephone number for Woodside as well as direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
 - Offered for Woodside to speak with MAC members as well as the MAC Board.
 - Asked MAC to advise how it would like Woodside to engage and whether MAC required further information.
- Woodside has offered to meet with MAC on a number of occasions.
- Woodside has provided a reasonable opportunity for input as evidenced by its initial email to MAC about the activity on 1 September 2023 and follow-up email on 5 January 2024. A genuine two-way dialogue has occurred via Scarborough Project meetings and written exchanges to further understand the environment in which the activity will take place. Woodside's ongoing relationship with MAC is evidenced by MAC's letter to Woodside on 2 August 2024 in which MAC provided relevant information about cultural values and consultation requirements. Woodside has accepted this feedback and has incorporated it into the EP.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- MAC advised Woodside that any activities that could potentially affect the natural movement or behaviour of marine species may impact cultural values. Woodside has assessed impacts and risks to marine species in Section 6 of the EP. Items relating to MAC appear in table 4.20 in section 4.9.4.
- Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Ngarluma Aboriginal Corporation (NAC)

Context

NAC is established under the *Native Title Act 1993* (Cth) by the Ngarluma people to represent the Ngarluma people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with NAC which extends prior to consulting on this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to NAC on 26 July 2023). Woodside has assigned a First

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Nations Engagement team member as a dedicated focal point for EP consultation with NAC who is responsible for building a consultative relationship and is available to provide information and take feedback.

For consultation on this EP, Woodside contacted NAC offering an opportunity to present to the NAC Board. Woodside asked NAC how it wished to be consulted, if it required support to participate in consultation, whether there are additional persons that NAC believed should be consulted and requested that all information shared with NAC be cascaded to its members.

During consultation for this EP, Woodside became aware that NAC was experiencing staff turnover and structural change. This ultimately meant that consultation with NAC involved Woodside communicating with two different CEOs and two different acting CEOs. Woodside understands that NAC has fewer than five staff members and that NAC engages consultants and contractors to engage in EP consultation and conduct other business activities on NAC's behalf. During the consultation period (and following), Woodside's focus has been on supporting NAC through the period of change whilst enabling NAC to consult and remain informed about Woodside's, activities including activities proposed to be undertaken for this EP.

In September 2023, NAC proposed the formation of a Working Group to consult with Woodside on EPs, including this EP, demonstrating an understanding of the consultation requirements. Woodside agreed to the proposal (while specific details were being worked on) and agreed to reasonable funding for the group to convene. The group is yet to be established and Woodside continues to support it and seek updates from NAC to progress it.

As part of its ongoing consultation and relationship building, Woodside provided NAC with a consultation framework agreement which sought from NAC, confirmation as to how NAC would like to be consulted, including NAC's views on what constituted sufficient information, a reasonable period of time and a reasonable opportunity for consultation. It has become clear during engagements with NAC that this framework agreement is not a priority and negotiation of it will likely continue into the future. Consultation for this EP has occurred in parallel to discussions around the framework consultation agreement (which remain ongoing).

On 17 April 2024, Woodside was notified of a tragic passing in the Roebourne community and that the cultural protocols associated with Sorry Business were in place. Woodside understood that this would impact NAC and, out of respect, did not contact NAC during this time.

In addition to consultation for specific EPs relevant to NAC, Woodside meets NAC regularly during Quarterly Heritage Meetings, monthly community luncheons and monthly relationship building meetings. Woodside has continually confirmed it is open to receiving or being notified of feedback, claims or objections on EPs at these meetings.

This context and process demonstrates that Woodside's consultation approach with NAC is appropriate and adapted to the nature and interests of NAC.

Historical Engagement:

- On 1 May 2019, cultural authorities nominated by NAC attended an ethnographic survey in conjunction with other Ngarda Ngarli People (the Traditional Custodians of Murujuga, comprising the Ngarluma, Mardudhunera, Wong-Goo-Tt-Oo, Yaburara and Yindjibarndi people) and both male and female heritage consultants consistent with industry standard practice. This survey was conducted for the Scarborough project's development footprint. A landscape-scale approach was undertaken, in order to better understand the submerged landscape. This survey found no ethnographic values within the Operational Area or EMBA. Participants in this ethnographic survey had an opportunity to input and contributed to the findings and recommendations of Mott 2019 which are detailed in the EP (Section 4.9.4.2) and included:
 - Identification of onshore heritage sites, beyond the Operational Area and EMBA of this EP.
 - No known sites or values identified beyond the low water mark. The potential for cultural values to exist was identified and further work was offered by Woodside although this has not been taken up.
 - A recommendation to keep Traditional Custodians informed including through existing quarterly meetings (see below).
 - A recommendation to engage with researchers on options to identify submerged heritage. Woodside continues to provide this opportunity although it has not been taken up.
 - A recommendation for cultural awareness training for contractors.

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- Recommendations for the management of onshore heritage sites beyond the Operational Area and EMBA of this EP.
- Following the recommendations of Mott 2019, Woodside conducted further work to identify submerged heritage values (refer to Section 4.9.4), kept NAC informed of the progress of the Scarborough Project through quarterly meetings (see below), and where appropriate ensured employees and contractors have completed cultural awareness training through NAC.
- On 17 May 2023, Woodside met with NAC and provided a high-level overview of the Scarborough project noting it would return to speak about the Floating Production Unit (information relevant to this EP).
- On 18 July 2023, Woodside emailed NAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information This email also reiterated Woodside's request that NAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed NAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 11 August 2023, NAC and Woodside met. During the meeting NAC confirmed that it wanted to understand which EPs were to be prioritised and it noted it needed support capacity-wise.

Please see *Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report)* for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 1 September 2023, Woodside emailed NAC advising of the proposed activity (Record of Consultation, reference 1.28) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that NAC and its members may have within the EMBA, information on how NAC would like to engage, and requested that NAC provide information to other individuals as required. The email asked NAC to provide feedback before 2 October 2023.
- On 18 September 2023, NAC emailed Woodside (SI Report, reference 36.1). In the email NAC:
 - Acknowledged Woodside's planned and future activities (including Scarborough) would be extensive in scope and take place over the coming decades.
 - **(1)** Proposed the establishment of Joint Working Group to manage the consultation process for EPs.
 - **(1)** Sought a draft protocol/agreement with Woodside to cover the joint working group arrangements and costs for the next 12 months.
 - Proposed monthly working group meetings to start in October.
 - Noted that arrangements would be needed to cover future scope of consultations with NAC.
- On 28 September 2023, NAC and Woodside held telephone discussions about the Joint Working Group (SI Report, references 36.2, 36.3).
- In October 2023, Woodside became aware of ongoing cultural matters in the Pilbara community which required Woodside to pause its communication with local groups as a sign of respect (SI Report, reference 36.4)
- On 10 October 2023, Woodside emailed NAC (SI Report, reference 36.5). In the email Woodside:
 - **(1)** Gave in principle approval for the working group.
 - Enquired about NAC's availability to meet.
 - **(1)** Asked if NAC would provide a first draft of the protocol/agreement or would prefer Woodside prepare one as a starting point.

- On 19 October 2023, Woodside exchanged emails with NAC about the progress of the working group and draft protocol/agreement (SI Report, references 36.6, 36.7).
- On 2 and 3 November 2023, Woodside and NAC exchanged emails. Woodside provided NAC a list of EPs it wished to consult on, including this one, and included links to Summary Information sheets. Woodside requested NAC's availability to meet. (SI Report, references 36.8, 36.9).
- **(1)** On 3 November 2023, NAC emailed Woodside a draft consultation protocol and information about NAC's working group (SI Report, references 36.10, 36.11).
- **(1)** On 13 November 2023, NAC emailed Woodside advising its Working Group would not be available until the week of 25 November to meet and asked for confirmation that consultation on EPs would be covered (SI Report, reference 36.12).
- On 13 November 2023, Woodside emailed NAC (SI Report, reference 36.13). Woodside:
 - Acknowledged NAC was unavailable for consultation until 25 November 2023
 - Clarified that Woodside needed to meet with NAC to discuss two separate matters – EP Consultation and a separate project not related to this EP.
 - Reiterated that the consultation protocol would be finalised as soon as possible.
- **(1)** On 13 November 2023, NAC emailed Woodside noting there were no other urgent EP consultations, noting this EP (among others) had previously been flagged for consultation and requiring the engagement protocol be in place prior to any meetings occurring (SI Report, reference 36.14).

Ongoing engagement:

- **(1)** On 1 March 2024, Woodside emailed NAC with a 7-page letter setting out the draft terms of an agreement between NAC and Woodside (SI Report, reference 36.15). The purpose of the agreement was to seek input from NAC on its preferred method of consultation. The agreement (among other things) included the following:
 - Confirmation of what is sufficient information for NAC for consultation.
 - Confirmation of what is a reasonable period for consultation.
 - NAC's preferred method for provision of information.
 - NAC's preferred method of providing objections or claims.
 - How information is to be published in the EP.
 - Cost and termination of the agreement.
- On 17 April 2024, NYFL emailed Woodside (SI Report, reference 36.16) to advise there had been a tragic passing in the Roebourne community, the cultural protocols associated with Sorry Business were in place, and that consultation may be impacted as PBC's support affected families. Woodside understood this would impact consultation with NAC.
- On 26 April and 20 May 2024, Woodside emailed NAC to follow-up on the draft consultation agreement and requested an update on its review of the consultation agreement (SI Report, reference 36.17, 36.18).
- On 5 September 2024, Woodside emailed NAC after meeting its newly appointed acting CEO. Woodside invited NAC to its Quarterly Heritage Meetings, included proposed dates for the meetings, information about attendance fees and requested NAC confirm a list of attendees prior to each meeting (SI Report, reference 36.19).
- On 9 September 2024, Woodside emailed NAC an invitation to share stories and receive updates from Woodside at its monthly luncheon for Traditional Owners (SI Report, reference 36.20).
- On 22 September 2024, Woodside emailed NAC about an administrative matter relating to the Quarterly Heritage Meetings (SI Report, reference 36.21)

- On 25 September 2024, NAC attended Woodside’s monthly luncheon for Traditional Owners (SI Report, reference 36.22). During the luncheon Woodside requested feedback from all attendees about EPs and provided information about the consultation process.
- On 25 September 2024, Woodside phoned NAC and sent a follow-up email containing a consultation update on this EP (SI Report, reference 36.23). The email:
 - Updated NAC about the consultation history of the EP including that Woodside began consultation on 1 September 2023 (This was done for a number of reasons, including that NAC recently employed a new CEO who was not working for the Corporation when this initial email was sent).
 - Attached the initial communication sent to NAC on 1 September 2023 and the Summary Information Sheet.
 - Confirmed that the EP was available on the NOPSEMA website and that Woodside would shortly resubmit the EP for further assessment.
 - Acknowledged that consultation framework agreement discussions with NAC were ongoing but that EP consultation including for this EP had progressed in parallel.
 - Invited NAC to provide additional feedback, claims or objections about the EP that it would like Woodside to consider as part of its resubmission. Woodside provided the date of Friday 4 October as the deadline for this feedback.
 - Provided contact details for Woodside and NOPSEMA.
 - Confirmed that Woodside would accept feedback for the life of the EP.
- On 26 September 2024, Woodside had a monthly relationship meeting with NAC. During the meeting Woodside noted the email sent on 25 September 2024 about this EP. NAC confirmed it had received the email and directed to the appropriate person (SI Report 36.24).
- On 3 October 2024, Woodside invited NAC to share stories and receive updates from Woodside at its Monthly Community Luncheon for Traditional Owners to be held in Roebourne on 23 October 2024 (SI Report, reference 36.25).
- On 10 October 2024, NAC attended Woodside’s Quarter 3 Heritage Meeting in Roebourne (SI Report, reference 36.26) where Woodside presented to Traditional Owners. Matters relevant to this EP included consultation for Woodside EPs including an explanation of State and Commonwealth regulatory requirements, an explanation of EMBA’s and the process Woodside undertakes to identify Traditional Owners groups, and how Traditional Owners could provide information to Woodside about cultural values, interests and activities, including any other groups who should be consulted, to be considered in EPs.
- On 23 October 2024, Traditional Owner members from NAC attended Woodside’s Monthly Community Luncheon for Traditional Owners held in Roebourne. During the lunch Woodside requested feedback from all attendees about EPs and provided information about the consultation process (SI Report, reference 36.27).
- On 21 November 2024, NYFL emailed Woodside a letter advising that due to the passing of a Senior Elder, Sorry Business was grieving protocols were underway in the Roebourne area This is relevant to consultation with NAC to whom this also applies (SI Report, reference 36.28).
- On 5 December 2024, NAC attended Woodside’s Quarter 4 Heritage Meeting in Karratha (SI Report, reference 36.29). Matters discussed relevant to this EP included:
 - Woodside provided an update on the Scarborough Energy Project.
 - Woodside reminded the meeting about ongoing consultation.
- On 11 December 2024, Woodside became aware via a social media post from RRKAC that due to the recent passings of two significant Elders cultural grieving protocols were underway (SI Report, reference 36.30).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
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<p>(1) NAC proposed establishing a Joint Working Group to engage in meetings with Woodside for ongoing consultation. NAC proposed entering into a draft protocol/agreement with Woodside to cover the joint working group arrangements and costs for the next 12 months.</p>	<p>(1) Woodside assessment: An agreement with NAC aligns with Woodside's Program of Ongoing Engagement with Traditional Custodians and will frame ongoing consultation processes, including with the NAC Working Group. An agreement would be an effective mechanism to address resourcing for ongoing consultation. Woodside response: Woodside agrees to the concept of a working group. Woodside continues to work with NAC on this and continues to discuss the terms and conditions with NAC. The draft consultation agreement sent to NAC in March 2024, will be used to frame future EP consultation as well as ongoing consultation during the life of the EP.</p>	<p>(1) Woodside's program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on EPs is currently being implemented, the draft agreement with NAC (among other things) will set out the process for ongoing engagement. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G).</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with NAC for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has given information to NAC about the Scarborough Project through the ethnographic survey work and a meeting on 17 May 2023 at which Woodside provided NAC with a high-level overview of the project.
- Woodside has given NAC relevant consultation documents, including NOPSEMA's *Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information* (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 18 July 2023).

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- In August 2023 Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- On 1 September 2023, Woodside commenced consultation with NAC on this EP. Woodside provided NAC:
 - A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing.
 - Maps showing the location and EMBA.
 - A summary of the risks and impacts of the activity.
 - Diagrams.
 - Details about how to provide feedback.
 - The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of NAC's interests and how the activity could impact those interests.
 - That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
 - Woodside asked NAC to forward the information to its members.
 - Woodside offered to provide more specific information, maps and images to NAC if required.
- NAC has shown an understanding of the project and activities in a number of instances (see 18 September 2023).
- Woodside has sent a Summary Information sheet to NAC on multiple occasions (see 1 September 2023, 3 November 2023, 25 September 2024).
- On 25 September 2024, Woodside updated NAC (which had recently replaced its CEO) about the EP. Woodside attached the initial communication sent to NAC on 1 September 2023 and Summary Information Sheet. Woodside also acknowledged that consultation framework agreement discussions with NAC were ongoing but that EP consultation including for this EP had progressed in parallel.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with NAC in September 2023 and provided information on the EP on that date. Since then, Woodside and NAC have engaged in consultation for over 16 months, demonstrating a "reasonable period" of consultation.
- A consultation period was communicated to NAC during Woodside's initial email on 1 September 2023. NAC was asked to provide feedback by 2 October 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside ultimately provided NAC with more than four months to consult ahead of preparing the EP for submission and continues to take feedback in relation to the EP.
- On 3 November 2023, Woodside emailed NAC and advised that it anticipated the EP would be submitted on 14 December 2023.
- Woodside notified NAC on 25 September 2024 that it was planning to resubmit the EP. Woodside invited NAC to provide any additional comments, feedback, claims or objections that it would like Woodside to consider, giving NAC a two-week period to do so.

- Woodside notes that, during consultation, it has also respectfully paused consultation in periods when NAC was observing sorry time or cultural matters (see October 2023; 17 April 2024) and has been sensitive to NAC's structural and other changes.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside asked for NAC's input into how NAC would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- In 2019, cultural authorities nominated by NAC attended an ethnographic survey which considered the Scarborough project's development footprint. This provided an opportunity for NAC to input into the survey and Scarborough Project, particularly from a cultural values perspective.
- Woodside has made information on this EP publicly available for over 17 months. This has included publishing eight advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (see section 3.2).
- Woodside ran two targeted social media campaigns which provided a broad awareness of consultation (see section 3.4).
- Woodside's initial email about this EP on 1 September 2023:
 - Included a general email address and telephone number for Woodside as well as a direct email address and telephone number for a dedicated focal person from the Woodside First Nations Engagement team. It also included contact details for NOPSEMA.
 - Offered for Woodside to speak with NAC members as well as the NAC Board.
 - Asked NAC to advise how it would like Woodside to engage and whether NAC required further information.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and NAC have exchanged multiple emails, had phone calls and have met on a number of occasions and have otherwise had direct contact lines to each other during the period.
- Woodside sought input from NAC as to NAC's preferred method of consultation. This led to NAC proposing the formation of a Working Group to consult with Woodside on EPs, including this EP, demonstrating an understanding of Woodside's consultation requirements. Woodside agreed to the working group, pending agreement of terms and conditions (including funding). Woodside remains open to the working group. It is yet to be established and Woodside continues to seek updates from NAC to progress it.
- Woodside conditionally agreed to NAC's proposal to form a Working Group to consult with Woodside on EPs. Woodside agreed to provide reasonable funding for the group to convene. NAC has yet to establish the group.
- Woodside invites NAC to Quarterly Heritage Meetings, and monthly relationship meetings and luncheons.
- In September 2024, Woodside provided NAC with an additional two-weeks to provide feedback ahead of Woodside resubmitting the EP. NAC acknowledged this communication during a meeting with Woodside on 26 September 2024.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 16 months NAC has provided feedback, but has not raised objections or claims about the adverse impact of each activity to which this EP relates.

- Woodside engages in ongoing consultation, once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Wanparta Aboriginal Corporation (Wanparta)

Context

Wanparta is established under the Native Title Act 1993 by the Ngarla people to represent the Ngarla people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Wanparta jointly manages the 80 Mile Beach Marine Park which is adjacent to the EMBA. Woodside has an existing relationship with Wanparta. Woodside has assigned a First Nations Engagement team member as a dedicated focal point for EP consultation with Wanparta who is responsible for building a consultative relationship and is available to provide information and take feedback. This team member meets with Wanparta regularly. Woodside also attends Wanparta's Board Meetings when invited.

On 31 August 2023, Woodside met with Wanparta Board and members in South Hedland. Woodside and Wanparta discussed the project. Following the meeting, Wanparta's lawyer provided verbal confirmation that Wanparta supports the activity and confirmed Wanparta's commitment to continuing its relationship with Woodside.

- On 18 July 2023, Woodside emailed Wanparta NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information This email also reiterated Woodside's request that Wanparta advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
 - On 26 July 2023, Woodside emailed Wanparta Woodside's planned Program of Ongoing Engagement with Traditional Custodians
- Please see Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report) for further details of this correspondence.*

Summary of information provided and record of consultation for this EP:

- On 28 August 2023, Woodside emailed Wanparta advising of the proposed activity (Record of Consultation, reference 1.25) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that Wanparta and its members may have within the EMBA, information on how Wanparta would like to engage, and requested that Wanparta provide information to other individuals as required.
- On 31 August 2023, Woodside met with Wanparta Board and members in South Hedland (SI Report, reference 29.1), Woodside:
 - Described the EP framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of EPs.
 - Displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities open for consultation in 2023/24.
 - Woodside provided an overview of this activity, describing the location, offshore facility, subsea infrastructure, gas pipeline, liquefied and domestic gas.
 - Described the types of vessels involved.
 - Described the planned impacts and respective controls of the above activity including: the presence of vessels, seabed disturbance, underwater noise, discharge from vessels, emissions to air and external lighting.

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- Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely.
- Displayed and spoke to the EMBA for each proposed activity, and the individual worst-case loss of containment scenarios identified, noting that they are all diesel fuel releases which would only be caused by vessel collisions.
- Stated that Woodside wanted to understand how the functions, activities, or interests of Wanparta and the people it represents may be impacted by any of those activities.
- Woodside specifically asked the following:
 - How could these activities impact your cultural values, interests, and activities - does protecting the environment do enough to protect your cultural values?
 - What are your concerns about the proposed activities and what do you think we should do about them?
 - Is there anything you would like included in the EPs before submission?
 - Is there anyone else Woodside should consult with about the activities?
- Advised that Woodside will continue to take feedback from Wanparta for the life of the EP.
- Provided personal contact details for further feedback. Woodside provided NOPSEMA's contact details, should Wanparta desire to provide feedback directly to the Regulator.

At the 31 August 2023 meeting Wanparta asked/noted:

- **(1)** What chemicals in the water may be discharged during commissioning.
- **(1)** Woodside responded that biocide, oxygen scavenger and corrosion inhibitor, have low concentrations. They are carefully regulated to make sure they don't persist in the environment.
- **(2)** Wanparta stated that water is extremely important to Ngarla people, and they feel a responsibility to look after the ocean and lore. They noted the spiny bream, octopus, stingray and kestrel as totemic species.
- **(3)** Wanparta would like to discuss a program of support for rangers with Woodside in the future.
- **(3)** Woodside responded that they would come back to Wanparta with regards to training and future support for a Ranger Program.
- **(3)** Wanparta would like to engage in an annual meeting with Woodside.
- Wanparta advised that whilst there are 5 family groups within Wanparta, only 4 were represented at the meeting. The others would be brought up to speed by emails, and chats.
- Wanparta broke for a closed session, when asked if there were any stories that could be shared with Woodside.
- **(4)** On return, Wanparta through their lawyer gave verbal support for this EP activity and said they were keen to continue a relationship with Woodside.
- **(4)** Woodside responded that there was further opportunity to provide feedback and indicated tentative dates for meetings in the next eight to nine months.
- On 14 September 2023, Woodside emailed Wanparta following up on previous consultation and information discussed at the 31 August 2023 meeting (SI Report, reference 29.2). Woodside advised of the planned start date for the activity (December 2024), and once again requested if Wanparta was aware of any other people with whom Woodside should consult, and if there was any information Wanparta wished to provide on cultural values. The email requested that information be distributed to members or individuals who may be interested. It requested this information prior to 11 December 2023, but reiterated that Woodside will take feedback after the commencement of the activity as part of ongoing consultation. The Summary Information Sheet for this activity was attached. Woodside sent through an EP and activity dates for this EP, asking Wanparta for any further feedback. The email also contained

within NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that Wanparta advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.

- On 14 September 2023, Wanparta thanked Woodside and confirmed receipt of emails (SI Report, reference 29.3).
- (3) On 4 October 2023, Woodside phoned Wanparta, to check in generally and inform about upcoming EPs (SI Report, reference 29.4). A discussion was had about Wanparta Rangers, a tour of the Karratha Gas Plant and a school kids visit to the Woodside Perth Office.
- On 4 October 2023, Woodside emailed Wanparta following up with a summary of the previous phone call (SI Report, reference 29.5). The outcomes of the phone discussion were:
 - (3) Wanparta's interest in a Wanparta Ranger program and EP funding.
 - Wanparta's interest in a Karratha Gas Plant visit, as well as possible school visits and Perth Office visits.
 - Wanparta's request for updates on EPs unrelated to this one.
 - Woodside's query into Wanparta's view on a formal authorisation/consent/endorsement process regarding future EPs.
- On 6 October 2023, Wanparta emailed Woodside thanking Woodside for the 4 October email and summary of discussion had and stating that Wanparta would bring all the 4 October 2023 items to the Board for further consideration and would revert shortly after (SI Report, reference 29.6).
- (3) On 10 November 2023, Woodside and Wanparta spoke by phone, Wanparta emailed Woodside a Ngarla ranger proposal document (SI Report, reference 29.7).
- (5) On 13 November 2023, Wanparta emailed Woodside, requesting funding to assist with ongoing consideration of Woodside EPs (SI Report, reference 29.8). Wanparta noted the consultation meeting to be held between Wanparta and Woodside in February 2024.
- (5) On 22 November, Woodside acknowledged Wanparta's requests and agreed to seek out available options for funding (SI Report, reference 29.9).
- On 24 November 2023, Woodside emailed Wanparta requesting availability for a telephone discussion relating to EP funding (SI Report, reference 29.10).
- On 30 November 2023, Wanparta emailed Woodside in relation to a financial matter, their email also noted the Directors availability for a meeting on 23 February 2024 (SI Report, reference 29.11).

Ongoing engagement:

- Between 8 – 15 February 2024, Woodside and Wanparta exchanged emails confirming logistics of consultation and site visit meetings in Karratha for week of 26 February 2024 (SI Report, references 29.12, 29.13, 29.14, and 29.15).
- On 20 February 2024, Wanparta emailed Woodside informing of a death in the community and requesting a re-schedule of the meeting (SI Report, reference 29.16).
- On 21 February 2024, Woodside acknowledged and agreed to a re-schedule (SI Report, reference 29.17).
- On 23 February 2024, Wanparta emailed Woodside with suggested dates for a re-scheduled meeting in April 2024 (SI Report, reference 29.18).
- On 26 February 2024, Woodside emailed Wanparta confirming availability for the proposed April meeting and noting logistics (SI Report, reference 29.19).
- Between 16-22 April, Woodside and Wanparta exchanged emails regarding logistics and funding for a meeting for consultation on another activity and a site visit with the Wanparta Board. (SI Report, references, 29.20-29.29)
- On 24 April 2024, Woodside met with Wanparta at Murujuga. Woodside presented an overview of EPs and ongoing consultation in 2024, and provided information on another activity, Aboriginal employment, and ranger programs. Wanparta informed Woodside that there were no issues following the discussion (SI Report, reference 29.30).

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- On 7 May 2024, Wanparta emailed Woodside following the meeting on 24 April 2024 (SI Report, reference 29.31). Wanparta advised:
 - (6) The Ngarla People have a deep spiritual connection to sea country.
 - (2) The Ngarla peoples’ totem species – the octopus, stingray, spiny bream fish and kestrel – is of great significance.
 - (2) The protection and management of marine life and healthy ocean plays a significant role in their lore, culture and customs.
 - (7) That they request Woodside attends an annual Board meeting with Wanparta for the purposes of progressing ongoing and meaningful consultation.
- On 30 May 2024, Woodside emailed Wanparta in response to its correspondence of 7 May 2024 (SI Report, reference 29.32). Woodside acknowledged and supported the feedback raised by Wanparta including:
 - (2)The significance of the Ngarla People’s totem species- the octopus, stingray, spiny bream fish and kestrel.
 - (2) The role that the protection and management of marine life plays in Ngarla People’s practise of lore, culture and customs.
 - (6) The Ngarla People’s connection to sea country.
 - (7) Woodside’s willingness to attend Wanparta’s annual Board meeting for the purpose of consultation.
- On 28 August 2024, Woodside met Wanparta (SI Report, reference 29.33). Matters discussed that were relevant to this EP include:
 - Woodside provided an overview of the company and EPs.
 - (3) Wanparta asked Woodside for an update about the Ranger Program. (3) Woodside responded that its proposal is under assessment.
- On 11 September 2024, Woodside emailed Wanparta an update about activities relating to the Scarborough project (SI Report, reference 29.34).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) During face-to-face engagement, related to this activity and others Wanparta requested further information on topics related to this proposed activity which was responded to during the meeting: What chemicals in the water may be discharged during commissioning.</p>	<p>(1) Woodside assessment: Woodside’s response at the meeting noted that biocide, oxygen scavenger and corrosion inhibitor, have low concentrations. They are carefully regulated to make sure they don’t persist in the environment. Woodside response: No further information request or follow-up has been received.</p>	<p>(1) Existing controls considered sufficient, as described in Section 6.</p>
<p>(2) Wanparta stated that water and the ocean is extremely important to them, and that they have a responsibility to look after the ocean and their law. They noted the bream, octopus, stingray and kestrel as totemic species.</p>	<p>(2) Woodside assessment: Woodside assessed Wanparta’s interest in water and the species described to represent potential cultural values.</p>	<p>(2) Woodside updated Section 4.9 to record Wanparta’s interests and potential cultural values and assessed potential impact on these, including controls, in Section 6.10.</p>

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	Woodside response: Wanparta's interests and potential cultural values have been recorded in the EP, the potential impact on the interests and values, including controls, have been assessed.	
(3) Wanparta expressed interest in a range of social investment opportunities including a ranger program and have an interest in ongoing engagement with Woodside.	(3) Woodside assessment: A framework agreement is an effective mechanism for social investment opportunities, including for a ranger program and ongoing consultation. It aligns with Woodside's Program of Ongoing Engagement with Traditional Custodians. Ranger program funding may allow Traditional Custodians to be involved in spill response. Woodside response: Woodside is continuing to work with Wanparta regarding social investment opportunities. A framework agreement will be proposed at a meeting in April with the Wanparta Board.	(3) Woodside's program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on EPs is currently being implemented, an agreement with Wanparta (among other things) could address social investment in ranger programs and would set out the process for ongoing engagement. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G).
(4) At the 31 August 2023 meeting, Wanparta expressed support for the EP, Wanparta said they had no concerns regarding the activity for now and wished to be kept updated on any changes.	(4) Woodside assessment: Woodside accepts Wanparta's position. Woodside response: Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	(4) Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to consult following acceptance of the EP, as set out in Section 7.10.5 of the EP.
(5) Wanparta requested funding to participate in ongoing consultation.	(5) Woodside assessment: Woodside considers funding requests and supports funding within reasonable parameters. The proposed agreement will address reasonable requests for funding, including ranger program support. Woodside response: Woodside has agreed to fund reasonable requests.	(5) Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to consult following acceptance of the EP, as set out in Section 7.10.5 of the EP.
(6) On 7 May 2024, Wanparta advised of their connection to sea country.	(6) Woodside assessment: Woodside assessed Wanparta's connection to sea country to represent potential cultural values. Woodside response: Wanparta's interests and potential cultural values have been recorded in the EP, the potential impact on the interests and values, including controls, have been assessed.	(6) Woodside recognises that Wanparta's connection to Sea Country (Section 4.9). Potential impacts on cultural features and heritage values are assessed in Section 6.10 of the EP.
(7)	(7) Woodside assessment: Woodside supports ongoing consultation with Traditional Custodians.	(7) Not required.

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<p>On 7 May 2024, Wanparta requested Woodside attend an annual Board Meeting for the purpose of ongoing consultation.</p>	<p>Woodside response: Woodside supports ongoing consultation with Wanparta through their preferred method of consultation.</p>	
<p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>Based on the engagement to date, no additional controls have been identified.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environment Regulations and considers consultation with Wanparta for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has given Wanparta relevant consultation documents, including NOPSEMA’s *Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information* (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 18 July 2023).
- In August 2023 Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA’s website in June 2024.
- On 28 August 2023, Woodside commenced consulting with Wanparta on this EP. Woodside provided Wanparta:
 - A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing.
 - Maps showing the location and EMBA.
 - A summary of the risks and impacts of the activity.
 - Diagrams.
 - Details about how to provide feedback.
 - The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of Wanparta’s interests and how the activity could impact those interests.

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- That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
- Woodside invited Wanparta to speak to Woodside. Woodside provided contact details including a general email address and telephone number for Woodside as well as the direct email address and telephone number of the assigned Woodside focal person. Woodside also provided Wanparta NOPSEMA's contact information.
- Woodside asked Wanparta to forward the information to its members
- Woodside offered to provide more specific information, maps and images to Wanparta if required.
- On 31 August 2023, Woodside met with Wanparta Board and members in South Hedland. Woodside made First Nations team members and environmental specialists available to provide information. Wanparta asked questions demonstrating an understanding of the EP.
- On 14 September 2023, Woodside emailed Wanparta to follow-up on information discussed at the 31 August 2023 meeting.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with Wanparta on 28 August 2023 and provided information on the EP on that date. Since then, Woodside and Wanparta have engaged in consultation for a period of over 17 months, demonstrating a "reasonable period" of consultation.
- A consultation period was communicated to Wanparta during Woodside's initial email on 28 August 2023. Wanparta was asked to provide feedback by 28 September 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside provided Wanparta with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside asked for Wanparta's input into how Wanparta would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for more than 17 months. This has included publishing eight advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (See section 3.2).
- Woodside ran two targeted social media campaigns (See section 3.4).
- Woodside's initial email about this EP on 28 August 2023:
 - Included a general email address and telephone number for Woodside as well as a direct email address and telephone number for a dedicated focal person from the Woodside First Nations Engagement team. It also included contact details for NOPSEMA.
 - Offered for Woodside to speak with Wanparta members as well as the Wanparta Board.
 - Asked Wanparta to advise how it would like Woodside to engage and whether Wanparta required further information.
- On 26 July 2023, Woodside emailed WAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians providing information on how Woodside supports ongoing consultation with First Nations groups.

Outcomes of Consultation:

The measures (if any) that Woodside has adopted or proposes to adopt because of consultation are appropriate because:

- Wanparta stated that water and the ocean are extremely important, and that members have a responsibility to look after the ocean and their law. Bream, octopus, stingray and kestrel were noted as totemic species. Woodside updated Section 4.9 to record Wanparta's interests and potential cultural values and assessed potential impact on these, including controls, in Section 6.10.
- Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Wirrawandi Aboriginal Corporation (WAC)

Context

WAC is established under the Native Title Act 1993 (Cth) by the Mardudhunera and Yaburara people to represent the Mardudhunera and Yaburara people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with WAC prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining relationships with each group. This is underpinned by Woodside's Program on Ongoing Engagement (sent to WAC on 26 July 2023). Woodside has assigned First Nations Engagement team member as a focal person for WAC who is responsible for building a consultative relationship and is available to provide information and take feedback.

For consultation on this EP, Woodside contacted WAC offering an opportunity to present to the WAC Board. Woodside asked WAC how it wished to be consulted, if it required support to participate in consultation, whether there were additional groups that WAC believed should be consulted and requested that all information shared with WAC be cascaded to its members.

During consultation for this EP, WAC underwent organisational restructures. By way of courtesy, Woodside respectfully engaged with various representatives from the group including a General Manager, three Acting Director/Chairs, a CEO and an Operations Manager. Woodside understands that WAC currently has one employee who Woodside understands is focussed on supporting the Board with its AGM and Director elections (November 2024). Woodside's focus has been on supporting WAC through its period of change so it is informed about Woodside's activities and is enabled to engage in consultation. This has included Woodside's focal person visiting the WAC office each week, facilitating Quarterly Heritage Meetings and running monthly community meetings over lunch.

On 11 September 2023, WAC's former General Manager (who is no longer with the corporation) informed Woodside that WAC did not object to the EP on the proviso that Woodside enters into a consultation framework agreement. Woodside therefore understands that WAC has no objection to this EP. Woodside has also clarified with WAC that discussions about a consultation framework agreement have occurred in parallel to consultation for this EP. On 3 October 2024, WAC's Operations Manager emailed Woodside and confirmed WAC had no further feedback or objections to this EP and was satisfied with the way consultation had taken place.

It should also be noted that, Woodside provided WAC (on a number of occasions, for example August 2023 and March 2024) with a draft 7-page framework agreement for consultation. This agreement proposes to obtain WAC's input regarding how WAC would like consultation to occur (what is sufficient information, how much time is a reasonable period etc). It has

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become clear during engagements that this framework agreement is not a priority. Consultation for this EP has occurred in parallel to discussions around the framework consultation agreement (which remain ongoing).

Aside from regular consultation about EPs relevant to WAC, Woodside meets WAC regularly during Quarterly Heritage Meetings, monthly community luncheons and monthly relationship building meetings. Woodside has continually confirmed it is open to receiving or being notified of feedback, claims or objections on EPs at those meetings.

This context and process demonstrates that Woodside's consultation approach with WAC is appropriate and adapted to the nature of interests of WAC.

Historical Engagement:

- On 1 May 2019, cultural authorities nominated by WAC attended an ethnographic survey in conjunction with other Ngarda Ngarli People (the traditional custodians of Murujuga, comprising the Ngarluma, Mardudhunera, Wong-Goo-Tt-Oo, Yaburara and Yindjibarndi people) and both male and female heritage consultants consistent with industry standard practice. This survey was conducted for the Scarborough project's development footprint. A landscape-scale approach was undertaken in order to better understand the submerged landscape. This survey found no ethnographic values within the Operational Area or EMBA. Participants in this ethnographic survey had an opportunity to input and contributed to the findings and recommendations of Mott 2019 which are detailed in the EP (Section 4.9.4.2) and included:
 - Identification of onshore heritage sites, beyond the Operational Area and EMBA of this EP.
 - No known sites or values identified beyond the low water mark. The potential for cultural values to exist was identified and further work was offered by Woodside (although this has not been taken up).
 - A recommendation to keep Traditional Custodians informed including through existing quarterly meetings (see below).
 - A recommendation to engage with researchers on options to identify submerged heritage. Woodside continues to offer this opportunity although it has not yet been taken up.
 - A recommendation for cultural awareness training for contractors.
 - Recommendations for the management of onshore heritage sites beyond the Operational Area and EMBA of this EP.
 - Following the recommendations of Mott 2019, Woodside conducted further work to identify submerged heritage values (refer to Section 4.9.4), kept WAC informed of the progress of the Scarborough Project through quarterly meetings (see below), and where appropriate ensured employees and contractors had completed cultural awareness training through MAC.
- On 23 March 2023, Woodside met with WAC and presented on several activities including the Scarborough Project (D&C, SIT1, Seismic and Subsea) noting that development of Scarborough would include the installation of a floating production unit (the activity relating to this EP). WAC asked several questions related to activities, during the meeting which were responded to in the meeting or after the meeting in responsive communications.
- On 18 July 2023, Woodside emailed WAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*. This email also reiterated Woodside's request that WAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed WAC Woodside's planned *Program of Ongoing Engagement with Traditional Custodians*.

Please see *Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report)* for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 28 August 2023, Woodside emailed WAC advising of the proposed activity (Record of Consultation, reference 1.29) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that WAC and its members may have within the EMBA,

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information on how WAC would like to engage, and requested that WAC provide information to other individuals as required. The email asked WAC to provide feedback before 28 September 2023.

- On 31 August 2023, WAC emailed a letter to Woodside (SI Report, reference 26.1). The letter:
 - Acknowledged that Woodside had commenced consultation with it or intended to consult on activities and EPs including this EP.
 - Thanked Woodside for its commitment to ongoing consultation throughout the life of EPs and associated activities.
 - **(1)** Sought a formalised framework for consultation which could:
 - Cover Woodside's sponsorship of WAC's Culture Capture Program.
 - Assist WAC build capacity (such as through sponsorship of ranger and other programs).
 - Provide reasonable costs for WAC to progress engagement and consultation.
- **(1)** On 11 September 2023, WAC emailed Woodside a copy of the letter of 31 August 2023 (SI Report, reference 26.2) and advised:
- WAC does not object to Woodside progressing EPs (including this one) on the proviso it enters into a framework agreement.
- That WAC reserved the right to review its position in the future should modelling of EMBA's change or if new information becomes available about environmental or cultural values.
- On 12 September 2023, Woodside acknowledged receipt of the email of 11 September 2023 (SI Report, reference 26.3).
- On 28 September 2023, Woodside emailed WAC introducing WAC to a new focal person within Woodside and providing contact details for the new focal person (SI Report, reference 26.4).
- On 3 October 2023, WAC and Woodside exchanged emails to set up a meeting between WAC and Woodside's focal person. Woodside offered to travel if needed (SI Report, references 26.5, 26.6, 26.7, 26.8).
- In October 2023, Woodside became aware of ongoing cultural matters in the Pilbara community which required Woodside to pause its communication with local groups as a sign of respect (SI Report, reference 26.9).
- On 20 October 2023, Woodside met WAC's new CEO and Chairperson (SI Report, reference 26.10). During the meeting:
 - Woodside discussed correspondence it had received from WAC's General Manager on 31 August 2023 and 11 September 2023.
 - WAC confirmed it would address all outstanding EPs as a matter of priority.
 - Woodside provided information about support available to WAC for EP consultation.
 - **(1)** Woodside acknowledged that WAC was in the process of a corporate restructure and would be willing to discuss a consultation framework/process once a new CEO had settled in.
- On 12 December 2023, Woodside emailed WAC's new CEO and resent information about this EP originally sent on 28 August 2023 (SI Report, reference 26.11). Woodside again provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested:
 - WAC's new CEO review the information.
 - That WAC's new CEO advise Woodside if WAC members, the Board, Elders or other relevant persons wished to be further consulted about the EP.
 - WAC advise Woodside if it would like to meet to discuss the EP.

- That WAC advise how it would like Woodside to engage with it and whether there was specific information, maps or images it required.
- That MAC provide feedback to Woodside or NOPSEMA (contact details were provided).

Ongoing engagement:

- On 6 February 2024, WAC's new CEO emailed Woodside to inform Woodside he was leaving WAC and that WAC's Managing Director would be in contact (SI Report 26.12).
- On 28 February 2024, Woodside emailed WAC noting WAC had experienced staff changes. Woodside enquired who the appropriate person was to speak to noting it had previously been given the name of WAC's Managing Director (SI Report, reference 26.13).
- On 28 February 2024, Woodside emailed the Managing Director at WAC to advise details of an interim focal point. Woodside enquired if the Managing Director was the most appropriate person to speak to (SI Report, reference 26.14).
- **(1)** On 6 March 2024, Woodside emailed WAC a letter setting out the draft terms of an agreement between WAC and Woodside and offered to meet to discuss the document further (SI Report, reference 26.15). This draft agreement had been sent to two previous CEOs. The purpose of the agreement was to seek input from WAC on its preferred method of consultation. The agreement (among other things) included the following:
 - Confirmation of what is sufficient information for WAC for consultation.
 - Confirmation of what is a reasonable period for WAC for consultation.
 - WAC's preferred method for provision of information.
 - WAC's preferred method for providing objections or claims.
 - How information is to be published in the EP
 - Cost and termination of the agreement.
- **(1)** On 6 March 2024, WAC emailed Woodside requesting a word copy of the draft terms of agreement sent 6 March 2024. Woodside provided the copy (SI Report, reference 26.16, 26.17).
- On 25 June 2024, WAC attended Woodside's Quarterly Heritage meeting in Karratha (SI Report, reference 26.18). WAC and the other attendees agreed they would like Woodside to include information about EPs at future heritage meetings.
- On 15 July 2024, Woodside and WAC met (SI Report, reference 26.19). Matters discussed included:
 - WAC was undergoing staffing changes and was recruiting a new CEO/General Manager.
 - WAC would be appointing a casual manager to attend to daily operations until a permanent employee was recruited.
- **(2)** WAC was eager to participate in a sea mapping project and to discuss possible sponsorship opportunities once a CEO/General Manager was recruited.
 - On 15 July 2024, WAC emailed Woodside following a meeting on the same day (SI Report, reference 26.20). WAC confirmed:
 - It was recruiting a General Manager to oversee operations in the Pilbara.
 - The WAC Board was eager to meet and consult with Woodside for future EPs once recruitment had taken place.
- On 9 September 2024, Woodside invited WAC to share stories and receive updates from Woodside at its monthly luncheon for Traditional Owners (SI Report, reference 26.21).
- On 22 September 2024, Woodside emailed WAC about an administrative matter relating to the Quarterly Heritage Meeting (SI report 26.22).

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- On 25 September 2024, WAC attended Woodside's community monthly luncheon for Traditional Owners (SI Report, reference 26.23). During the luncheon Woodside requested feedback from all attendees about EPs and provided information about the consultation process.
- On 25 September 2024, Woodside emailed WAC a consultation update on this EP (SI Report, reference 26.24). The email:
 - Updated WAC about the consultation history of the EP including that Woodside began consultation on 28 August 2023.
 - Confirmed that the EP was available on the NOPSEMA website and that Woodside would shortly resubmit the EP for further assessment.
 - Acknowledged that discussions relating to the framework agreement were ongoing, and that consultation for this EP has occurred in parallel.
 - Confirmed Woodside had provided sufficient information, allowed a reasonable period of time for consultation and given WAC a reasonable opportunity to provide feedback.
 - Invited WAC to provide additional feedback, claims or objections about the EP that it would like Woodside to consider as part of its resubmission. Woodside provided the date of Friday 4 October as the deadline for this feedback.
 - Provided contact details for Woodside and NOPSEMA.
 - Confirmed that Woodside would accept feedback for the life of the EP.
- On 26 September 2024, Woodside emailed WAC in relation to its email on 25 September 2024 and advised that the feedback date for the EP had been extended until 9 October 2024 (SI Report, reference 26.25). Woodside encouraged WAC to contact it if it had any questions.
- On 30 September 2024, Woodside met WAC (SI Report, reference 26.26). During the meeting:
 - WAC confirmed it has one employee who is attending to consultation.
 - WAC confirmed its priority was appointing a new Board at its AGM in November.
- On 3 October 2024, WAC emailed Woodside in response to Woodside's email from 25 September 2024 (SI Report, reference 26.27). WAC confirmed:
 - WAC had no further feedback or objections to this EP.
 - WAC will comment later if perceived environmental or cultural issues arise.
 - WAC is satisfied with the consultation that had taken place for this EP.
- On 3 October 2024, Woodside an invitation to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners (SI Report reference 26.28).
- On 10 October 2024, Woodside met with WAC (Quarterly Heritage Meeting). (SI Report, reference 26.29). Matters discussed relevant to this EP included:
 - Woodside explained EMBA's and processes which Woodside uses to identify relevant persons.
 - Woodside explained feedback periods including ongoing feedback.
 - Woodside shared a slide showing all activities including this one.
- On 14 October 2024, Woodside was notified that Sorry Business was taking place in the Roebourne and Karratha area (SI Report, reference 26.30).
- On 18 October 2024, Woodside emailed WAC to discuss Woodside's attendance at the next WAC Board meeting (SI Report, reference 26.31).
- On 28 October 2024, Woodside attended WAC's Board meeting (SI Report, reference 26.32). Matters discussed that were relevant to this EP include:
 - Woodside's consultation processes.

<ul style="list-style-type: none"> - (2) WAC asked about oil spill reporting. (2) Woodside responded that Woodside conducts an internal investigation and abides by an Oil Spill Management Plan. • On 2 November 2024, Woodside attended the Dampier Markets and engaged with relevant persons from WAC. Woodside discussed EPs generally (SI Report, reference 26.33). • On 21 November 2024, NYFL emailed Woodside to advise that Sorry Business was taking place in the Roebourne Community (SI Report, reference 26.34). • On 5 December 2024, WAC attended Woodside’s Quarter 4 Heritage Meeting in Karratha (SI Report, reference 26.35). Matters discussed relevant to this EP included: <ul style="list-style-type: none"> - Woodside provided an update on the Scarborough Energy Project. - Woodside reminded the meeting about ongoing consultation. • On 11 December 2024, Woodside became aware via a social media post from RRKAC that due to the recent passings of two significant Elders cultural grieving protocols were underway (SI Report, reference 26.36). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) WAC confirmed that it does not object to Woodside progressing Scarborough Project EPs (including this activity) on the proviso that Woodside and WAC enter into a framework agreement to provide for ongoing meaningful consultation and a desire for ongoing engagement and partnership through a Framework Agreement.</p>	<p>(1) Woodside assessment: An agreement with WAC aligns with Woodside’s Program of Ongoing Engagement with Traditional Custodians. Woodside understands that negotiations on a consultation framework have not been a priority for WAC and that consultation with WAC for this EP has occurred in parallel to discussions about a framework agreement. Woodside response: The draft framework agreement sent to WAC in March 2024, once agreed, will be used to frame future consultation as well as ongoing consultation during the life of the EP. Discussions about the draft agreement have occurred in parallel to consultation about this EP. This has been confirmed by WAC. Woodside has provided WAC sufficient information, allowed a reasonable period of time for consultation and given WAC a reasonable opportunity to provide feedback about this EP.</p>	<p>(1) Woodside’s program to actively support Traditional Custodians’ capacity for ongoing engagement and consultation on EPs is currently being implemented, the draft framework consultation agreement with WAC, once agreed will, among other things, set out the process for future consultations and ongoing engagement. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G).</p>
<p>(2) During ongoing consultation, WAC enquired about oil spill reporting.</p>	<p>(2) Woodside assessment: Woodside aligns with industry guidance in developing the EMBA. Many replicate model simulations are completed to understand the potential behaviour of the worst-case release under various wind, wave and current conditions and these are combined to create an overall EMBA.</p>	<p>(2) Woodside has addressed oil spill preparedness and response strategy in Appendix H.</p>

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	<p>Woodside response: The EMBA for this activity is determined by a highly unlikely release of marine diesel as the result of damage to the production facility or vessel collision. Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Section 6.8 of the EP, and Appendix H.</p>	
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environment Regulations and considers consultation with WAC for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has given information to WAC about the Scarborough Project through the ethnographic survey work and also a meeting on 23 March 2023 at which Woodside provided WAC with a high-level overview of the project.
- Woodside has given WAC relevant consultation documents, including NOPSEMA's *Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information* (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 18 July 2023).
- In August 2023 Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- On 28 August 2023, Woodside commenced consulting with WAC on this EP. Woodside provided WAC:
- A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:

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- An overview of the activity and proposed timing.
- Maps showing the location and EMBA.
- A summary of the risks and impacts of the activity.
- Diagrams.
- Details about how to provide feedback.
- The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of WAC's interests and how the activity could impact those interests.
- That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
- Woodside invited WAC to speak to Woodside. Woodside provided contact details including a general email address and telephone number for Woodside as well as the direct email address and telephone number of the assigned Woodside focal person. Woodside also provided WAC NOPSEMA's contact information.
- Woodside asked WAC to forward the information to its members
- Woodside offered to provide more specific information, maps and images to WAC if required.
- Woodside has provided information on this EP to WAC on a number of occasions (see 28 August 2023 and 12 December 2023)
- On 3 October 2024, WAC confirmed it had no objections to the EP and was satisfied that consultation had taken place.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with WAC on 28 August 2023 and provided information on the EP on that date. Since then, Woodside and WAC have engaged in consultation for a period of 17 months, demonstrating a "reasonable period" of consultation.
- A consultation period was communicated to WAC during Woodside's initial email on 28 August 2023. WAC was asked to provide feedback by 28 September 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside provided WAC with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.
- Woodside notified WAC on 25 September 2024 that it was planning to resubmit the EP. Woodside invited WAC to provide additional feedback, claims or objections that it would like Woodside to consider, giving WAC a two-week period to do so. WAC responded on 3 October 2024 that it had no feedback or objections in relation to the EP and was satisfied consultation had taken place.
- Woodside notes that, during consultation, it has also respectfully paused consultation in periods when WAC was observing sorry time or cultural matters (see October 2023) and has been sensitive to WAC's structural and other changes (see 20 October 2023, 6 February 2024, 28 February 2024 and 15 July 2024).

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside asked for WAC's input into how WAC would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.

- In 2019, cultural authorities nominated by WAC attended an ethnographic survey which considered the Scarborough project's development footprint. This provided opportunity for WAC to input on the survey and Scarborough Project, particularly from a cultural values perspective.
- Woodside has made information on this EP publicly available for over 17 months. This has included publishing eight advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (See section 3.2).
- Woodside ran two targeted social media campaigns (See section 3.4).
- Woodside's initial email about this EP on 28 August 2023:
 - Included a general email address and telephone number for Woodside as well as a direct email address and telephone number for a dedicated focal person from the Woodside First Nations Engagement team. It also included contact details for NOPSEMA.
 - Offered for Woodside to speak with WAC members as well as the WAC Board.
 - Asked WAC to advise how it would like Woodside to engage and whether WAC required further information.
- On 26 July 2023, Woodside emailed WAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians providing information on how Woodside supports ongoing consultation with First Nations groups. Woodside's commitment to ongoing consultation is demonstrated by its Quarterly Heritage Meetings with WAC. To this end, Woodside invites WAC to Quarterly Heritage Meetings, monthly luncheons, and weekly visits by Woodside's focal point to WAC's office.
- Woodside has also offered on a number of occasions to travel to Karratha to meet with WAC to discuss activities (see 3 October 2023)
- In September 2024, Woodside provided WAC with an additional two-weeks to provide feedback ahead of Woodside resubmitting the EP. WAC confirmed via email that it had no feedback or objections to the EP.

Outcomes of Consultation:

The measures (if any) that Woodside has adopted or proposes to adopt because of consultation are appropriate because:

- During the past 13 months WAC has provided feedback but has not raised objections or claims about the adverse impact of each activity to which this EP relates.
- Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Yinggarda Aboriginal Corporation (YAC)

Context

YAC is established under the Native Title Act 1993 by the Yinggarda people to represent the Yinggarda people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has actively consulted with YAC about the wider the Scarborough Project and Scarborough EPs since July 2023. Woodside's consultation approach for Traditional Custodians has a focus on building and maintaining long-term relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to YAC on 26

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July 2023). Woodside assigns an individual from the First Nations team to act as a relationship focal person for each group to provide a personalised experience. In August 2023 YAC retained a legal representative to engage with Woodside on NOPSEMA matters. Woodside has adapted its consultation processes to YAC's requirements by sending all correspondence relating to this EP to the legal representative, as requested by YAC.

YAC is also assisted by GAC with administrative matters. YAC's legal representatives have in some instances raised matters (for example, indemnity agreements, and amount and transfer of funds) during the course of consultation. Woodside confirmed it would not action these requests as they did not fall within Woodside's policies and procedures.

As part of its ongoing consultation and relationship building, Woodside provided YAC with a 7-page consultation framework agreement which sought from YAC, confirmation as to how YAC would like to be consulted, including YAC's views of what constituted sufficient information, a reasonable period of time and a reasonable opportunity for consultation. While an agreement like this is useful for Woodside to understand consultation norms for YAC, Woodside has noticed that there appears to be limited appetite from groups like YAC to enter into a framework agreement that sets this position out in an agreement form. While Woodside has continued to attempt to progress the framework agreement, despite numerous attempts, it remains in a draft form and has not been progressed. We note, however, that this has not prevented consultation progressing in parallel to discussions on the framework agreement.

This context and process demonstrates that Woodside's consultation approach with YAC is appropriate and adapted to the nature and interests of YAC.

Historical Engagement:

- On 5 July 2023, Woodside met YAC and gave a presentation about several EPs relating to the Scarborough Project. Matters relevant to this EP included:
 - (1) YAC stated that plants, animals and the environment are inexorably linked to its culture and asked whether Woodside had undertaken environmental studies, whether these studies were ongoing and what environmental monitoring occurred after EPs were approved.
 - (1) Woodside responded that it had undertaken numerous environmental studies that form part of EPs and had an ongoing commitment to environmental studies and research. Woodside also explained that environmental monitoring was an ongoing activity and was committed to ongoing consultation with YAC and would take feedback if any new information in relation to risks came to light.
 - (2) YAC expressed concern about potential impacts to patterns of whales and potential collisions.
 - (2) Woodside responded by explaining controls that would be put in place to minimise impacts and risks to whales.
 - (3) YAC advised seagrass, mullet and dugong in Shark Bay are important resources.
 - (3) Woodside explained that the only potential impact to Shark Bay is via a highly unlikely hydrocarbon spill and controls are in place.
- On 19 July 2023, Woodside emailed YAC via GAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*. This email also requested that YAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed YAC via GAC Woodside's planned *Program of Ongoing Engagement with Traditional Custodians*.

Please see *Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report)* for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 1 September 2023, Woodside emailed YAC advising of the proposed activity (Record of Consultation, reference 1.30) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that YAC and its members may have within the EMBA, information on how YAC would like to engage, and requested that YAC provide information to other individuals as required. The email asked YAC to provide feedback before 2 October 2023.

- (4) On 13 September 2023, YAC's legal representative emailed Woodside and advised that in the absence of a draft consultation agreement, the legal representative was unable to respond in substance to the matters raised as the legal representative had no instructions from YAC (SI Report, reference 38.1).
- (4) On 14 September 2023, Woodside emailed YAC via its legal representative with draft consultation framework principles (SI Report, reference 38.2).
- Between 14 September 2023 and 18 November 2023, Woodside and YAC's legal representative exchanged emails about the content of the draft consultation framework (SI Report, references 38.3, 38.4, 38.5, 38.6, 38.7).
- On 14 December 2023, Woodside emailed YAC via its legal representative providing information about the proposed activity including a Summary Information Sheet, which was sent to YAC on 1 September 2023 (SI Report, reference 38.8). Woodside requested information on how the activity could impact the interests and activities and or cultural values of YAC. Woodside asked if YAC had any concerns about the proposed activity and what should be done about those concerns and whether there were any other individual, groups or organisation that YAC thought Woodside should talk to. Woodside invited YAC to contact it if it had any questions or required further information.

Ongoing Engagement:

- (4) On 8 March 2024 Woodside emailed YAC via its legal representative (SI Report, reference 38.9) with a 7-page draft consultation agreement for consideration by YAC and an invitation for YAC to propose a schedule of rates and other details relating to engagement. The purpose of the agreement was to seek input from YAC on its preferred method of consultation. The draft agreement included:
 - Confirmation of what is sufficient information for YAC for consultation.
 - Confirmation of what is a reasonable period for consultation.
 - YAC's preferred method for provision of information
 - YAC's preferred method of providing objections or claims
 - How information is to be published in the EP
 - Costs and termination of the agreement
- Between 12 March 2024 and 4 April 2024, YAC's legal representative and Woodside exchanged emails about matters relating to legal fees and consultation costs (SI Report, reference 38.10, 38.11, 38.12, 38.13).
- (5) On 8 April 2024, YAC via its legal representative emailed Woodside (SI Report, reference 38.14) and advised the next YAC Board would be on 9 May 2024. The legal representative asked if Woodside would fund the cost of the meeting, how much time Woodside would require, and asked for a list of NOPSEMA matters for discussion to enable it to provide a cost estimate for legal fees.
- (5) On 10 May 2024, Woodside emailed YAC via its legal representative (SI Report, reference 38.15) advising Woodside would cover agreed costs for an upcoming meeting with the YAC Board and stated:
 - The meeting would include discussion of environment plans.
 - Woodside would meet at a location of YAC's choosing.
 - YAC was welcome to provide feedback on EPs at any time.
- On 15 July 2024, Woodside received a call from Gumala Aboriginal Corporation (GAC provides administrative support to YAC). GAC invited Woodside to a YAC Board meeting on 18 July 2024 and Woodside accepted (SI Report, reference 38.16).

- On 16 July 2024, Woodside and YAC exchanged emails to arrange Woodside's attendance at the YAC Board meeting on 18 July 2024. Matters discussed included funding for the meeting, attendees and presentation materials (SI Report, references 38.17, 38.18). On 18 July 2024, Woodside and YAC met to discuss two unrelated EPs. Matters discussed that are considered relevant to this EP include:
 - (6) YAC's interest in Woodside's support for education and training including oil spill training for rangers.
 - (5) Opportunities for funding and/or support for YAC.
 - (4) Workshops to discuss agreement formalisation between Woodside and YAC.
- On 26 July 2024, Woodside emailed a letter to YAC to follow-up on matters raised during its meeting on 18 July 2024 (SI Report, reference 38.20). Matters relevant to this EP included:
 - (1) YAC spoke about the importance of animals, particularly concerns about potential impacts to turtles and whales.
 - (1) Woodside explained that it had undertaken numerous environmental studies and had an ongoing commitment to research. Woodside also explained that environmental monitoring was an ongoing activity.
 - (6) Woodside will keep YAC informed about Woodside's consideration of ranger initiatives.
 - (4) Woodside looked forward to receiving YAC's feedback on the consultation framework.
 - Woodside was committed to continuing consultation with Traditional Custodians beyond the submission of EPs and this would not be YAC's only opportunity to engage with Woodside.
 - Woodside invited YAC to share information with other organisations and individuals.
- On 9 September 2024, Woodside invited YAC to share stories and receive updates from Woodside at their monthly luncheon for Traditional Owners (SI Report, reference 38.21).
- On 25 September 2024, YAC attended Woodside's community monthly luncheon for Traditional Owners (SI Report, reference 38.22). During the luncheon Woodside requested feedback from all attendees about EPs and provided information about the consultation process.
- On 25 September 2024, Woodside emailed YAC's legal representative a consultation update on this EP (SI Report, reference 38.23). The email:
 - Noted YAC's consultation history for the EP, including that Woodside began consultation on 1 September 2023.
 - Confirmed that the EP was available on the NOPSEMA website and that Woodside would shortly resubmit the EP for further assessment.
 - Confirmed Woodside had provided sufficient information, allowed a reasonable period of time for consultation and given YAC a reasonable opportunity to provide feedback.
 - Invited YAC to provide additional feedback, claims or objections about the EP that it would like Woodside to consider as part of its resubmission. Woodside provided the date of 9 October 2024 as the deadline for this feedback.
 - Acknowledged that discussions relating to the framework agreement were ongoing, and that consultation for this EP has occurred in parallel.
 - Confirmed that Woodside would accept feedback for the life of the EP.
 - Asked YAC's legal representative to forward the email to YAC members.
- On 2 November 2024, Woodside attended the Dampier Markets and engaged with relevant persons from Yinggarda. Woodside discussed EPs generally (SI Report, reference 38.24).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) YAC stated that plants, animals and the environment are inexorably linked to its culture and asked whether Woodside had undertaken environmental studies, whether these studies were ongoing and what environmental monitoring occurred after EPs were approved.</p>	<p>(1) Woodside assessment: Woodside acknowledges YAC's feedback that plants, animals and the environment are inexorably linked to its culture. Woodside has undertaken numerous environmental studies, has an ongoing commitment to research and conducts environmental monitoring after EPs are accepted.</p> <p>Woodside response: Woodside has advised YAC that it has undertaken numerous environmental studies, has an ongoing commitment to research and conducts environmental monitoring after EPs are accepted.</p> <p>Woodside has also advised YAC that it continues to take feedback for the life on an EP and will inform YAC of any new information in relation to risks.</p>	<p>(1) Woodside has updated Section 4.9.4 to record YAC's interests and potential cultural values. Potential impact on these, including controls are detailed in Section 4.9.4.</p> <p>Woodside's commitment to ongoing engagement with YAC including informing YAC if new information becomes available about potential risks is detailed in Section 5.7.</p> <p>Woodside's environmental controls are described in Section 6.</p>
<p>(2) YAC expressed concern about potential impacts to patterns of whales and potential collisions.</p>	<p>(2) Woodside assessment: Woodside has noted YAC's interest in whales and has controls in place to minimise impacts and risks to whales.</p> <p>Woodside response: Woodside has advised YAC that controls are put in place to minimise impacts and risks to whales.</p>	<p>(2) Woodside has updated Section 4.9.4 to record YAC's interests and potential cultural values. Information about whales and migration patterns is recorded in Sections 4.6.3 and 4.6.5. Potential impact on these, including controls are detailed in Section 6.</p>
<p>(3) YAC advised that seagrass, mullet and dugong in Shark Bay are important resources.</p>	<p>(3) Woodside assessment: Woodside has noted YAC's interest in seagrass, mullet and dugong in Shark Bay.</p> <p>Woodside response: Woodside has advised YAC that controls are in place to mitigate risk to seagrass, mullet and dugong in the unlikely case of an environmental incident.</p>	<p>(3) Woodside has updated Section 4.9.4 to record YAC's interests and potential cultural values. Potential impact on these, including controls are detailed in Section 6.</p>

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<p>(4) YAC has requested a consultation agreement with Woodside.</p>	<p>(4) Woodside assessment: An agreement with YAC aligns with Woodside’s Program of Ongoing Engagement with Traditional Custodians and will frame ongoing consultation processes. Woodside response: Woodside continues to work with YAC on the draft agreement, although a request for a consultation agreement is not a pre-requisite for consultation under regulation 25 of the Environment Regulations. Sufficient information to allow informed assessment has already been provided by other means, including summary sheets developed by Indigenous staff. Woodside has also provided a reasonable period and opportunity for consultation over 12 months. The draft agreement sent to YAC in September 2023, will be used to frame ongoing consultation during the life of the EP.</p>	<p>(4) Woodside’s program to actively support Traditional Custodians’ capacity for ongoing engagement and consultation on EPs is currently being implemented, the draft agreement with YAC (among other things) will set out the process for ongoing engagement. This is described further in the Program of Ongoing Engagement with Traditional Custodians (Appendix G).</p>
<p>(5) YAC requested resourcing to engage in ongoing consultation.</p>	<p>(5) Woodside assessment: The proposed agreement (See Point (4) above), would be an effective mechanism to address resourcing for ongoing consultation. Woodside response: Woodside supports reasonable requests for resourcing.</p>	<p>(5) The Framework Agreement will support any reasonable requests for funding.</p>

<p>(6) YAC has expressed an interest in Woodside's support for education and training including oil spill training for rangers.</p>	<p>(6) Woodside assessment: Woodside acknowledges the value in having trained rangers available in the highly unlikely event of an oil spill and agrees it would be beneficial to an immediate response in an emergency situation. Woodside response: Woodside is reviewing a ranger assistance program and will provide details to YAC once this has matured.</p>	<p>(6) The Program for Ongoing Engagement with Traditional Custodians (Appendix G) includes commitments to social investment to support Indigenous Ranger programs, and support for Indigenous oil spill response capabilities.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls required.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with YAC for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity to provide feedback have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside provided YAC with NOPSEMA's Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 19 July 2023).
- In August 2023 Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- On 1 September 2023, Woodside commenced consultation with YAC on this EP. Woodside provided YAC:
 - A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing.

- Maps showing the location and EMBA.
 - A summary of the risks and impacts of the activity.
 - Diagrams.
 - Details about how to provide feedback.
- The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of YAC’s interests and how the activity could impact those interests.
 - That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
 - Woodside asked YAC to forward the information to its members.
 - Woodside offered to provide more specific information, maps and images to YAC if required.
- Woodside sought direction on YAC’s preferred method of consultation. This resulted in a face to face meeting in the Pilbara between YAC and Woodside on 18 July 2024.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with YAC in September 2023 and provided information on the EP on that date. Woodside and YAC have engaged in consultation for over 16 months, demonstrating a “reasonable period” of consultation.
- A consultation period was communicated to YAC via its legal representative during Woodside’s initial email on 1 September 2023. YAC was asked to provide feedback by 2 October 2023 in line with Woodside’s methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside provided YAC with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.
- Woodside notified YAC via its legal representative on 25 September 2024 that it was planning to resubmit the EP. Woodside invited YAC to provide any additional feedback, claims or objections that it would like Woodside to consider as part of its resubmission, giving YAC a two-week period to do so.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside’s approach to consultation is appropriate and adapted because:

- Woodside asked for YAC’s input into how YAC would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for YAC and First Nations groups.
- Woodside has made information on this EP publicly available for over 17 months. This has included publishing advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (See section 3.2).
- Woodside ran two targeted social media campaigns (See section 3.4).
- Woodside’s initial email about this EP on 1 September 2023:
 - Included a general email address and telephone number for Woodside as well as direct email and telephone number for a dedicated focal person from Woodside’s First Nations Engagement team. Woodside also provided contact details for NOPSEMA.

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- Offered for Woodside to speak with YAC members as well as the YAC Board.
- Asked YAC to advise how it would like Woodside to engage and whether YAC required further information.
- Woodside asked YAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- Woodside invited YAC to monthly luncheons.
- On September 2024, Woodside provided YAC with an additional two-weeks to provide feedback ahead of Woodside resubmitting the EP.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of consultation are appropriate because:

- During the past 16 months YAC has raised a number of issues, however none of those issues have been relevant to this EP. YAC raised relevant cultural heritage matters during discussions about the overall Scarborough Project in July 2023 (see Summary of Feedback, Objection or Claim 1,2 and 3). These matters have been incorporated into this EP.
- Woodside engages in ongoing consultation once an EP is submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Yindjibarndi Aboriginal Corporation

Context

Yindjibarndi AC is established under the Native Title Act 1993 by the Yindjibarndi people to represent the Yindjibarndi people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside's consultation approach for Traditional Owners has a focus on building and maintaining relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to Yindjibarndi on 26 July 2023). Woodside has assigned a First Nations Engagement team member as a focal point for EP consultation with Yindjibarndi who is responsible for building a consultative relationship and is available to provide information and take feedback from Yindjibarndi.

For this consultation, Woodside asked Yindjibarndi how it wished to be consulted, if it required support to participate in consultation, whether there are additional persons that Yindjibarndi believed should be consulted and requested that all information shared with Yindjibarndi be cascaded to its members.

Yindjibarndi has informed Woodside that it will not be providing comment on the broader Scarborough Project. Yindjibarndi requested Woodside refer all correspondence about EPs to the Ngarluma Yindjibarndi Foundation Ltd (NYFL).

This context and process demonstrates that Woodside's consultation approach with Yindjibarndi is appropriate and adapted to the nature and interests of Yindjibarndi.

Historical Engagement:

- **(1)** On 26 February 2023, Yindjibarndi emailed Woodside advising that it will not be providing any comment on the broader Scarborough Project and noted it respected the Traditional Owners whose land and sea lies adjacent to, and within the precinct of, the projects, and will leave any comment and advice to be provided by them.

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- **(1)** On 6 and 7 July 2023, Woodside called Yindjibarndi. During the conversation, Yindjibarndi reiterated it would prefer that comments come from coastal Aboriginal Corporations and not itself.
- On 18 July 2023, Woodside emailed Yindjibarndi NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*. This email also reiterated Woodside's request that Yindjibarndi advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed Yindjibarndi Woodside's planned *Program of Ongoing Engagement with Traditional Custodians*.
- **(2)** On 1 August 2023, Yindjibarndi emailed Woodside and asked that Oil and Gas matters relating to Yindjibarndi be directed to NYFL. **(2)** Woodside acknowledged this and adjusted its consultation accordingly.
- *Please see Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report) for further details of this correspondence.*

Summary of information provided and record of consultation for this EP:

- On 28 August 2023, Woodside emailed Yindjibarndi via NYFL advising of the proposed activity (Record of Consultation, reference 1.31) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that Yindjibarndi and its members may have within the EMBA, information on how Yindjibarndi would like to engage, and requested that Yindjibarndi provide information to other individuals as required. The email asked Yindjibarndi to provide feedback before 28 September 2023.

See NYFL on behalf of Yindjibarndi below for record of further engagement.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Yindjibarndi stated it would prefer that Traditional Owner groups with land and sea adjacent to and within the precinct of the Scarborough provide comment.</p>	<p>(1) Woodside assessment: Woodside respects Yindjibarndi's position that Traditional Owners whose land and sea are adjacent to or within the precinct of the projects should be able to provide comment. Woodside response: Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>(1) Woodside's consultation with Traditional Owner groups with land and sea adjacent to the project area is captured in Appendix F and this Table.</p>
<p>(2) Yindjibarndi has instructed Woodside that it will be represented by NYFL in ongoing discussion about EPs.</p>	<p>(2) Woodside assessment: Woodside accepts Yindjibarndi's right to be represented by NYFL.</p>	<p>(2) Ongoing consultation will be undertaken as set out in Section 7.10.5 of the EP.</p>

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	<p>Woodside response: Woodside will engage with NYFL on behalf of Yindjibarndi for ongoing consultation related to this activity.</p>	
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls required.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Yindjibarndi for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity to provide feedback have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has given Yindjibarndi relevant consultation documents, including NOPSEMA's *Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information* (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 18 July 2023).
- In August 2023 Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- On 28 August 2023, Woodside commenced consulting with Yindjibarndi via NYFL on this EP. Woodside's provided Yindjibarndi via NYFL:
 - A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing.
 - Maps showing the location and EMBA.
 - A summary of the risks and impacts of the activity.
 - Diagrams.

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- Details about how to provide feedback.
- The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of Yindjibarndi's interests and how the activity could impact those interests.
- That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
- Woodside asked Yindjibarndi to forward the information to its members.
- Woodside offered to provide more specific information, maps and images to Yindjibarndi if required.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with Yindjibarndi in August 2023 and provided information via NYFL on that date. Woodside has corresponded with NYFL over 17 months, demonstrating a "reasonable period" of consultation.
- A consultation period was communicated to Yindjibarndi via NYFL during Woodside's initial email on 28 August 2023. Yindjibarndi was asked to provide feedback by 28 September 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside provided Yindjibarndi with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside has asked for Yindjibarndi's input into how it would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for over 17 months. This has included publishing eight advertisements in national, state, local and Indigenous newspapers including Indigenous newspapers The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (see section 3.2).
- Woodside ran two targeted social media campaigns (See section 3.4).
- Woodside's initial email about this EP on 28 August 2023:
 - Included a general email address and telephone number for Woodside as well as a direct email address and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. It also included contact details for NOPSEMA.
 - Offered for Woodside to speak with Yindjibarndi members as well as the Yindjibarndi Board.
 - Asked Yindjibarndi to advise how it would like Woodside to engage and whether Yindjibarndi required further information.
- Woodside asked Yindjibarndi if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 17 months Yindjibarndi has not raised matters relevant to this EP.

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- Woodside engages in ongoing consultation, once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of the EP).

Buurabalayji Thalanyji Aboriginal Corporation (BTAC)

Context

BTAC is established under the Native Title Act 1993 by the Thalanyji people to represent the Thalanyji people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has been working with BTAC for more than two years. Woodside's consultation approach for Traditional Custodians has a focus on building and maintaining relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to BTAC on 26 July 2023). Woodside has assigned a First Nations Engagement team member as a focal point for EP consultation with BTAC who is responsible for building a consultative relationship and is available to provide information and take feedback from BTAC.

During consultation for this EP, Woodside consulted via BTAC's CEO and Heritage Manager. During this time, Woodside observed that there were a number of administrative changes at BTAC, including a change of CEO, who had been the point of contact for Woodside. Woodside considered BTAC's consultation preferences and adapted its approach to consulting with BTAC based on BTAC's evolving circumstances.

On 13 October 2023, BTAC appointed a legal representative and requested that Woodside correspond with both the CEO and BTAC's legal representative moving forward. In some instances, during the course of consultation, BTAC's legal representative raised items in relation to legal fees and indemnity agreements. Woodside confirmed it would not action these requests as they did not fall within Woodside's policies and procedures. BTAC's legal representative also maintained a strong focus on agreements rather than consultation. Despite this, Woodside remained open to consult on this EP and consultation for this EP did not cease during this period and was not impeded during this process.

As part of its ongoing consultation and relationship building, Woodside provided BTAC with a 7-page consultation framework agreement which sought from BTAC, confirmation as to how BTAC would like to be consulted, including BTAC's views of what constituted sufficient information, a reasonable period of time and a reasonable opportunity for consultation. While an agreement like this is useful to outline consultation norms for BTAC, Woodside has noticed that there appears to be limited appetite from groups like BTAC to enter in a framework agreement that sets this position out in an agreement form. We note, however, that this has not prevented consultation progressing in parallel to discussions on the framework agreement.

It is noted that Sea Country mapping is ongoing even though consultation has been completed for this EP. BTAC's Sea Country has been identified as relating to nearshore islands which are not relevant to this EP which has operations in Commonwealth waters.

This context and process demonstrates that Woodside's consultation approach with BTAC is appropriate and adapted to the nature and interests of BTAC.

Historical Engagement:

- On 20 February 2023, BTAC emailed Woodside a letter in relation to consultation on the broader Scarborough activities including the footprint of this activity. Matters relevant to this EP included:
 - **(1)** BTAC on behalf of the Thalanyji people had an enduring deep connection to Sea Country north of Onslow, extending out to islands off the Pilbara coast such as the Montebello islands, Barrow Island and the Mackerel islands.
 - **(2)** BTAC sought support from Woodside to enable it to define and articulate its Sea Country values in a manner that could be more clearly understood by the offshore sector.

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- On 19 July 2023, Woodside emailed BTAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*. This email also reiterated Woodside's request that BTAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed BTAC Woodside's planned *Program of Ongoing Engagement with Traditional Custodians*.
- **(1, 2)** On 31 July 2023, in response to BTAC's request for support, Woodside emailed 3 letters to BTAC, one of which outlined support for an ethnographic assessment to:
 - Identify Sea Country values generally sufficient to inform all Woodside EPs.
 - Identify any work necessary to clarify or define the offshore areas that are relevant to the Thalanyji People.
- *Please see Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report) for further details of this correspondence.*

Summary of information provided and record of consultation for this EP:

- On 1 September 2023, after a phone call to discuss this EP, Woodside emailed BTAC advising of the proposed activity (Record of Consultation, reference 1.32) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that BTAC and its members may have within the EMBA, information on how BTAC would like to engage, and requested that BTAC provide information to other individuals as required. The email asked BTAC to provide feedback before 2 October 2023.
- On 14 September 2023, BTAC emailed two letters to Woodside (SI Report, reference 32.1, 32.2). The letters
 - Noted the commencement of consultation for a number of EPs, including this EP
 - **(3)** Outlined BTAC's intention to formalise a co-ordinated streamlined approach to progressing meaningful ongoing engagement and consultation about EPs, including this one, through a framework agreement and sought Woodside's agreement to pay BTAC's reasonable costs to progress engagement and consultation matters relating to EPs.
 - Requested a full list of all activities and EPs that Woodside wanted to consult with BTAC about.
- On 14 September 2023, Woodside emailed BTAC noting it would review BTAC's correspondence and respond (SI Report, reference 32.3).
- On 20 September 2023, BTAC emailed Woodside to follow-up on its earlier correspondence (SI Report, references 32.4, 32.5):
- On 22 September 2023, Woodside emailed BTAC (SI Report 32.6). Woodside:
 - **(3)** Attached a signed copy of BTAC's Cost Acceptance Letter.
 - Provided a list of current activities.
 - **(3)** Advised it had prepared a draft consultation agreement that was subject to internal review.
 - Sought a meeting with BTAC.
 - Asked BTAC to contact Woodside if it required further information or assistance.
- On 26 September 2023, BTAC emailed Woodside acknowledging it had received Woodside's email from 22 September 2023. BTAC also confirmed it had retained a legal representative to engage with Woodside and requested that future correspondence relating to EPs be addressed to the legal representative (SI Report, reference 32.7).
- Between 27 September 2023 and 31 October 2023, BTAC's legal representative and Woodside exchanged emails clarifying BTAC's legal representation and matters relating to the content of the draft consultation agreement (SI Report, references 32.8, 32.9, 32.10, 32.11).

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- On 1 November 2023, BTAC emailed Woodside an invitation to present on Woodside activities during a 1-hour slot in the BTAC Common Law Holders meeting on 27 November 2023 (SI Report, reference 32.12).
- On 1 November 2023, Woodside emailed BTAC accepting the offer to present at the Common Law Holders meeting. Woodside offered to assist with meeting arrangements and costs (SI Report, reference 32.13).
- On 2 November 2023, Woodside and BTAC's legal representative exchanged emails relating to the content of the draft consultation agreement that Woodside provided to BTAC (SI Report, references 32.14, 32.15).
- On 3 November 2023, BTAC via its legal representative emailed Woodside about its attendance at the 27 November meeting (SI Report, reference 32.16).
- On 18 November 2023, Woodside emailed BTAC via its legal representative about matters relating to the content of the draft consultation agreement. Woodside advised it remained committed to building ongoing relationships and consulting with BTAC (SI Report, reference 32.17).
- On 27 November 2023, Woodside attended and presented at the BTAC Common Law Holders meeting (SI Report, reference 32.18). Matters relevant to this EP discussed during the meeting include:
 - Woodside presented PowerPoint slides and gave details about:
 - Woodside's activities on Thalanyji country and offshore.
 - EPs that Woodside was consulting on including this EP.
 - Woodside's request to learn about Thalanyji Sea Country values.
 - Woodside offered to meet and further consult about any of the EPs and asked whether there was anyone else Woodside should consult with.
 - **(2)** BTAC advised it was not aware Woodside had previously offered to pay for Sea Country matters. Woodside agreed to re-send relevant correspondence to BTAC's new CEO.
 - BTAC did not request further consultation on any of the EPs.
- **(3)** On 7 December 2023, Woodside emailed BTAC relating to the contents of the draft consultation agreement and attached its *Program of Ongoing Engagement with Traditional Custodians* (SI Report, reference 32.19).
- **(2)** On 7 December 2023, Woodside emailed BTAC forwarding correspondence received from and sent to the previous CEO dated 20 February 2023 and 17 March 2023 relating to Sea Country mapping (SI Report, reference 32.20). The email also confirmed details of Woodside's First Nations Engagement team focal points for BTAC, including for EP consultation.
- **(2)** On 7 December 2023, BTAC emailed Woodside (SI Report, reference 32.21) accepting the offer to take up Sea Country mapping and research, and requested a meeting in the week of 15 January 2024 to plan for upcoming activities, noting EPs in particular.
- Between 8 December 2023 and 11 December 2023, BTAC's legal representative and Woodside exchanged emails relating to legal costs (SI Report, reference 32.22, 32.23, 32.24).
- **(2,3)** Between 11 December 2023 and 12 December 2023, Woodside, BTAC and BTAC's legal representative exchanged emails about the possibility of meeting during the week of 15 January 2024 to discuss Sea Country mapping (SI Report, references 32.25, 32.26). Woodside suggested the meeting be an opportunity to progress the framework agreement, present on the status of current EPs and seek feedback.
- On 15 December 2023, BTAC emailed Woodside requesting a copy of the slide presentation from the meeting of 27 November 2023 (SI Report, reference 32.27).
- On 18 December 2023, Woodside emailed BTAC a copy of the slide presentation as requested from the meeting of 27 November 2023 (SI Report, reference 32.28).
- On 19 December 2023, Woodside emailed BTAC agreeing to meet on 17 January 2024 and provided details of administrative matters relating to costs (SI Report, reference 32.29).

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- On 19 December 2023 and 20 December 2023, BTAC and BTAC's legal representative and Woodside exchanged emails about fees associated with the 17 January 2024 meeting (SI Report, reference 32.30, 32.31).

Ongoing engagement:

- Between 9 January 2024 and 16 January 2024, Woodside and BTAC exchanged emails relating to costs and logistics for the 17 January 2024 meeting (SI Report, reference 32.32, 32.33, 32.44).
- On 17 January 2024, Woodside met with BTAC (SI Report, reference 32.35) Matters relating to this EP include:
 - (2) BTAC wanted to progress Sea Country mapping.
 - (4) BTAC preferred early notice on EPs and planned to form a committee for consultation on EPs.
 - (5) BTAC was interested in employment/training opportunities and opportunities for rangers.
- (5) On 17 January 2024, Woodside emailed BTAC information about training pathways as discussed at the meeting with BTAC on 17 January 2024 (SI Report, reference 32.36).
- (2) On 8 February 2024, Woodside emailed BTAC following up on a quote for Woodside to support BTAC articulating Sea Country values (SI Report, reference 32.37).
- (2) On 8 February 2024, BTAC emailed Woodside noting it had a consultant generating a scope of work for articulating Sea Country values. Woodside responded acknowledging the email (SI Report, references 32.38, 32.39).
- (3) On 28 February 2024, Woodside emailed BTAC with a letter setting out the draft terms of an agreement between BTAC and Woodside (SI Report, reference 32.40). The purpose of the agreement was to seek input from BTAC on its preferred method of consultation. The agreement (among other things) included the following topics:
 - Confirmation of what is sufficient information for BTAC for consultation.
 - Confirmation of what is a reasonable period for consultation.
 - BTAC's preferred method for provision of information.
 - BTAC's preferred method for providing objections or claims.
 - How information is published in the EP.
 - Cost and termination of the agreement.
- On 28 February 2024, BTAC's legal representative and Woodside exchanged emails about legal costs (SI Report, reference 32.41, 32.42).
- (4) On 11 March 2024, BTAC via a legal representative emailed Woodside to advise it had appointed a Woodside NOPSEMA Engagement Committee (SI Report reference 32.43)
- Between 15 April 2024 and 22 April 2024, BTAC and Woodside exchanged emails to confirm Woodside would attend a meeting with BTAC Directors on 22 May 2024 (SI Report, references 32.44, 32.45, 32.46, 32.47).
- (2) On 22 May 2024, Woodside met BTAC. (SI Report, reference 32.48) During the discussion Woodside reiterated its commitment to supporting BTAC articulate Sea Country Values. Woodside advised it had provided proposals to BTAC and was awaiting a response.
- On 13 June 2024, Woodside emailed BTAC seeking an update on how Woodside could assist BTAC in articulating Sea Country Values (SI Report, reference 32.49)

- **(2)** Between 19 June 2024 and 31 July 2024, Woodside and BTAC exchanged emails about BTAC’s proposed scope for Sea Country mapping (SI report, references 32.50, 32.51, 32.52, 32.53, 32.54, 32.55). Sea Country mapping will be ongoing even though consultation on this EP has closed. It is noted that BTAC’s Sea Country has been identified as relating to nearshore islands which are not relevant to this EP which has operations in Commonwealth waters.
- On 9 September 2024, Woodside invited BTAC to share stories and receive updates from Woodside at its monthly luncheon for Traditional Owners (SI Report, reference 32.56).
- On 25 September 2024 and 26 September 2024, Woodside emailed BTAC a consultation update on this EP (SI Report, references 32.57, 32.58). The emails:
 - Updated BTAC about the consultation history of the EP including that Woodside began consultation on 1 September 2023.
 - Confirmed that the EP was available on the NOPSEMA website and that Woodside would shortly resubmit the EP for further assessment.
 - Confirmed information provided by BTAC during consultation.
 - Acknowledged that discussions relating to the framework agreement were ongoing, and that consultation for this EP has occurred in parallel.
 - Confirmed Woodside had provided sufficient information, allowed a reasonable period of time for consultation and given BTAC a reasonable opportunity to provide feedback.
 - Invited BTAC to provide additional feedback, claims or objections about the EP that it would like Woodside to consider as part of its resubmission. Woodside provided the date of Friday 4 October as the deadline for this feedback (this date was amended to 9 October 2024 in a subsequent email).
 - Provided contact details for Woodside and NOPSEMA.
 - Confirmed that Woodside would accept feedback for the life of the EP.
- On 3 October 2024, Woodside invited BTAC to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners (SI Report, reference 32.59).
- On 18 November 2024, Woodside emailed BTAC in relation to a meeting that had occurred on 15 November 2024 about a matter not related to this EP (SI Report, reference 32.60). Matters relating to this EP included:
 - **(2)** Woodside and BTAC would finalise a sea country mapping scope.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) BTAC has a cultural obligation to care for the environmental values of Sea Country. BTAC’s interests include archaeological sites identified on nearshore islands including the Montebello Islands, Barrow Island and the Mackerel Islands.</p>	<p>(1) Woodside assessment: Woodside assessed BTAC’s cultural obligation to care for environmental values of Sea Country to represent potential cultural values. The nearshore islands identified by BTAC do not fall within the EMBA. Woodside response: Updated relevant sections in the EP to record interests and potential cultural values and assessed the potential impact on these and included controls. The islands will not be impacted by the activities set out in the EP and Sea Country mapping will therefore continue even though consultation for this EP is closed.</p>	<p>(1) Woodside has recorded BTAC’s interests and potential cultural values in Section 4.9 and assessed potential impact on these, including controls, in Section 6.10.</p>

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<p>(2) BTAC does not have its values regarding Sea Country recorded in a format that could be articulated for consultation. BTAC sought support from Woodside to enable BTAC to obtain technical advice relating to the proposed activities and to define and articulate its values on Sea Country in a manner that could be more clearly understood by the offshore sector, government, and the community.</p>	<p>(2) Woodside assessment: Completion of an ethnographic assessment is not required to undertake or complete consultation under regulation 25 of the Environment Regulations and/or for a comprehensive description of the environment. Woodside has developed an understanding of Thalanyji Sea Country cultural values and features in absence of an ethnographic assessment by consulting with BTAC, by reviewing literature and from a history of working in the region. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be reviewed, assessed and where appropriate, Woodside will apply its Management of Change and Revision process (see section 7.2.7.2)</p> <p>Woodside response: Woodside has agreed to support BTAC to articulate and record its Sea Country values which will assist with other engagements and assessments outside of this EP. It is noted that BTAC's Sea Country relates to nearshore islands which are not relevant to this EP.</p>	<p>(2) Woodside has taken all reasonable steps to identify cultural features and heritage features of Thalanyji people within the EMBA. This is described in Section 4.9, with potential impacts to Cultural Features and Heritage Values assessed in Section 6.10. PS 24.2.1 ensures that potential impacts to newly identified cultural values is managed to ALARP and Acceptable levels.</p>
<p>(3) BTAC proposed a Consultation Agreement as an appropriate mechanism to provide ongoing feedback to Woodside regarding its activities. This agreement would include appropriate cost recovery.</p>	<p>(3) Woodside assessment: Woodside supports reasonable requests for funding to support consultation activities. An agreement with BTAC aligns with Woodside's Program of Ongoing Engagement with Traditional custodians and will frame ongoing consultation processes.</p> <p>Woodside response: Woodside continues to work with BTAC on the 7-page draft agreement, although a request for a consultation agreement is not a pre-requisite for consultation under regulation 25 of the Environment Regulations. The agreement will be used to frame ongoing consultation during the life of the EP. Sufficient information to allow informed assessment has already been provided by other means, including Consultation Information Sheets and a Summary Information Sheet developed by Indigenous staff members.</p>	<p>(3) Woodside is implementing a program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on environment plans. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G). Woodside will continue to consult following acceptance of the EP, as set out in Section 7.10.5 of the EP.</p>

<p>(4) BTAC requested early notification on EPs and is interested in forming a committee for ongoing consultation on EPs.</p>	<p>(4) Woodside assessment: . Woodside is supportive of BTAC's initiative to form a committee for ongoing consultation on EPs going forward. As described in the summary above, Woodside has afforded sufficient information and reasonable time for BTAC to provide feedback in the course of preparing this EP Woodside response: Woodside supports ongoing consultation with BTAC. A draft Consultation Framework Agreement has been sent to BTAC for review and for BTAC to propose inclusions regarding a consultation committee approach.</p>	<p>(4) Not required.</p>
<p>Woodside has addressed objections or claims as noted above.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on BTAC's functions, interests or activities. Based on the engagement to date, no additional controls have been identified.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environment Regulations and consultation with BTAC for the purpose of Regulation 25 is complete. Sufficient information and a reasonable period and reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has provided BTAC with relevant consultation documents, including NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters (see 18 July 2023).
- In August 2023 Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- On 1 September 2023, Woodside commenced consultation with BTAC on this EP. Woodside provided BTAC:

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- A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing.
 - Maps showing the location and EMBA.
 - A summary of the risks and impacts of the activity.
 - Diagrams.
 - Details about how to provide feedback.
- The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of BTAC's interests and how the activity could impact those interests.
- That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
- Woodside asked BTAC to forward the information to its members.
- Woodside offered to provide more specific information, maps and images to BTAC if required.
- Further information was provided to BTAC during an in-person meeting on 27 November 2023. This meeting was attended by the BTAC CEO, Board, members and common law holders. Members from Woodside's First Nations Team (including BTAC's assigned focal person for EP consultation) and environmental subject matters experts were available to answer all questions and provide specialist information on this EP.
- A further email summarising BTAC's feedback and advising proposed resubmission dates for this EP was sent on 25 September 2024. Woodside also acknowledged that consultation framework agreement discussions with BTAC were ongoing but that EP consultation including for this EP had progressed in parallel.

It is noted that Sea Country mapping is ongoing even though consultation has been completed for this EP and may be useful for BTAC in consultation on other EPs and in other forums. In any event, BTAC's Sea Country has been identified as relating to nearshore islands which are not relevant to this EP.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation with BTAC in September 2023 and provided information on the EP on that date. Since then, Woodside and BTAC have engaged in consultation for over 16 months, demonstrating a "reasonable period" of consultation, where a genuine two-way dialogue has occurred through both written and face-to-face exchanges on this activity.
- A consultation period was communicated to BTAC during Woodside's initial email on 1 September 2023. BTAC was asked to provide feedback by 2 October 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside provided BTAC with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.
- Woodside commenced consultation with BTAC in September 2023. Woodside has addressed and responded to BTAC queries over 16 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

- A reasonable period for consultation in the preparation of this EP has been provided because:
- Woodside asked for BTAC's input into how BTAC would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.

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- Woodside has made information on the EP publicly available for over 17 months. This included publishing eight advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (see section 3.2).
- Woodside ran two targeted social media campaigns (see section 3.4).
- Woodside's initial email about this EP on 1 September 2023:
 - Included a general email address and telephone number for Woodside as well as a direct email address and telephone number for a dedicated focal person from the Woodside First Nations Engagement team. It also included contact details for NOPSEMA.
 - Offered for Woodside to speak with BTAC members as well as the BTAC Board.
 - Asked BTAC to advise how it would like Woodside to engage and whether BTAC required further information.
 - Woodside asked BTAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and BTAC have exchanged multiple emails, had phone calls and met on a number of occasions. BTAC also has a legal representative who is able to support BTAC through the consultation process.
- Woodside met with BTAC on 27 November 2023. This meeting was attended by Woodside's First Nations Team and environmental subject matter experts who were available to answer all questions and provide specialist information this EP. BTAC attendees did not request further consultation on this EP at the conclusion of this meeting or afterwards. Woodside has not received any further requests from BTAC in relation to this EP.
- On 25 September 2024, Woodside provided BTAC with an additional two-weeks to provide feedback ahead of Woodside resubmitting the EP.
- Woodside invites BTAC to monthly luncheons.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- BTAC did not provide feedback or information during consultation for this EP relating to cultural values but has done so in consultation for other activities. Woodside has incorporated BTAC's interests and potential cultural values in Section 4.9 and assessed potential impact on these, including controls, in Section 6.10.
- Woodside engages in ongoing consultation, once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of the EP).

It is noted that Sea Country mapping is ongoing even though consultation has been completed for this EP. BTAC's Sea Country has been identified as relating to nearshore islands which are not relevant to this EP which has operations in Commonwealth waters.

Robe River Kuruma Aboriginal Corporation (RRKAC)

Context

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RRKAC is established under the Native Title Act 1993 by the Robe River Kuruma people to represent the Robe River Kuruma people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of their cultural values.

Woodside had an existing relationship with RRKAC which extends prior to consulting on this EP. Woodside has assigned a First Nations Engagement team member as a focal point to RRKAC who is responsible for building a consultative relationship and is available to provide information and take feedback.

During consultation for this EP, RRKAC has asked for assistance with resourcing and has taken time to recruit subject matter experts to assist with consultation. Woodside's focus has been on supporting RRKAC through this period whilst enabling RRKAC to remain informed about Woodside's activities, including activities proposed to be undertaken for this EP. Aside from regular consultation about EPs, Woodside invites RRKAC to monthly luncheons.

Summaries of the consultation between RRKAC and Woodside as well as an assessment of the merits of the objections or claims made by RRKAC about the adverse impact of the activity under this EP (if any) is set out below. Following that is a brief, high level summary. The full text is included in the Sensitive Information report.

Historical Engagement:

- On 9 March 2023, following notification of the broader Scarborough Project, RRKAC emailed Woodside (and copied in the CEO of Wirrawandi Aboriginal Corporation (WAC)). RRKAC advised:
 - It had discussed the proposed activities with the Robe River Kuruma Heritage Advisory Committee and recommended that the interests of Robe River Kuruma people were best served through the joint Heritage Advisory Committee (HAC) under the Yaburara Mardudhunera and Kuruma Marthudunera Indigenous Land Use Agreement.
 - HAC/WAC facilitated this Committee and noted there was an emerging need to deal with other proponent matters, so there is an opportunity to link the engagement from a meeting efficiency perspective.
- On 31 March 2023, Woodside met with HAC/WAC and presented on several activities including the Scarborough Project (D&C, SITI, Seismic and Subsea) noting that development of Scarborough would include the installation of a floating production unit (the activity under this EP).
- On 19 July 2023, Woodside emailed RRKAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*. This email also requested that RRKAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed RRKAC Woodside's planned *Program of Ongoing Engagement with Traditional Custodians*

Please see *Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report)* for further details of historic consultation on Scarborough project EPs.

Summary of information provided and record of consultation for this EP:

- On 29 August 2023, Woodside emailed RRKAC advising of the proposed activity (Record of Consultation, reference 1.33) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that RRKAC and its members may have within the EMBA, information on how RRKAC would like to engage in consultation, and requested that RRKAC provide information to other individuals as required. The email asked RRKAC to provide feedback before 29 September 2023.
- **(1)** On 15 September 2023, RRKAC emailed Woodside requesting Woodside fund additional resources for RRKAC to engage in consultation and respond (SI Report, reference 27.1).
- **(1)** On 18 September 2023, Woodside emailed RRKAC twice about funding available to enable RRKAC to engage in consultation (SI Report, references 27.2 and 27.3).
- On 18 September 2023, Woodside emailed RRKAC an advertisement about community drop-in sessions (SI Report 27.4). The advertisement invited relevant persons to consult with Woodside, receive information about EPs and discuss their functions, activities and interests which may be affected.

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- (1) On 14 November 2023, Woodside emailed RRKAC offering to meet at a location of RRKAC's choosing to discuss support RRKAC needed in order to engage in EP consultation. Woodside noted that Traditional Owner input was sought in order for the EPs to capture relevant cultural values or interests (SI Report, reference 27.5).
- On 14 November 2023, RRKAC emailed Woodside and advised it would provide Woodside the most appropriate team member to progress consultation (SI Report, reference 27.6).
- On 16 November 2023, Woodside emailed RRKAC and advised it would await its response (SI Report, reference 27.7).
- On 19 December 2023, Woodside emailed RRKAC reiterating that Woodside was available if RRKAC or any other relevant persons required further information or consultation sessions on any Woodside project (SI Report, reference 27.8).

Ongoing engagement:

- On 11 January 2024, Woodside and RRKAC, held a telephone discussion (SI Report, reference 27.9). RRKAC advised:
 - It had recently employed new personnel. RRKAC noted that once the new employees were settled in, RRKAC would be happy to consult with Woodside on relevant EPs.
 - (2) Some RRKAC country was on the coast (and may potentially be affected by an oil spill or another such environmental incident). It felt that EMBA's were too broad, and covered too large of an area.
- On 5 March 2024, RRKAC emailed Woodside noting it expected to fill a team position who would be able to respond to EP matters. Woodside replied acknowledging RRKAC's email (SI Report, references 27.10, 27.11).
- On 20 March 2024, Woodside and RRKAC held an online meeting (SI report 27.12). Matters discussed that relate to this EP included:
 - Woodside outlined the purpose of engagement with Traditional Owner groups and PBCs and explained the roles of the First Nations Engagement team.
 - Woodside explained that Traditional Owner participation and feedback was important to the preparation of EPs.
 - (2) Woodside gave an overview of Environment Plans
 - Discussed Sea Country subsea mapping.
 - RRKAC would advise Woodside on future meeting opportunities.
- (1) On 26 March 2024, Woodside emailed RRKAC (SI Report, reference 27.13) to follow-up on the meeting, and to outline the upcoming activities for consultation, that reasonable financial support is available for meetings for the purpose of enabling RRKAC consultation, to ask for guidance on preferred next steps, and to provide Woodside's Program of Ongoing Engagement.
- On 5 April 2024, Woodside emailed RRKAC to follow-up on previous emails on other activities, to request an opportunity to introduce engagement staff, and to provide RRKAC with information it required more information (SI Report, reference 27.14).
- (3) On 4 July 2024 RRKAC emailed Woodside in response to a different EP (SI Report, reference 27.15). In the email RRKAC enquired about the potential for a bathymetric survey of the coastal shelf involving coastal groups.
- On 5 July 2024, Woodside emailed RRKAC (SI Report, reference 27.16). In the email Woodside:
 - (3) Acknowledged RRKAC's enquiry about a bathymetric survey and advised it would respond.
 - Enquired how RRKAC would like to receive information about EPs.
 - Noted that Woodside wanted to support RRKAC so it remained informed on Woodside's activities.

<ul style="list-style-type: none"> - Again offered to meet RRKAC to consult on activities. • On 29 July 2024, Woodside emailed RRKAC (SI Report, reference 27.17). In the email Woodside: <ul style="list-style-type: none"> - (3) Advised Woodside had no current plans to conduct regional bathymetric surveys but offered to meet RRKAC to discuss other available datasets covering coastal regions as well as Woodside’s own mapping of deeper water areas. - Stated that Woodside was willing to provide additional information and data to assist RRKAC participate in consultation. - Noted Woodside’s endeavour to provide opportunities for traditional landowners during consultation on its Environment Plans in a manner that respects and incorporates the knowledge and traditions of the Robe River Kurama people. - Offered for RRKAC to meet with Woodside’s survey and geospatial focal persons to discuss the datasets and generate information that might be useful to RRKAC. • On 9 September 2024, Woodside invited RRKAC to share stories and receive updates from Woodside at its monthly luncheon for Traditional Owners (SI Report, reference 27.18). • On 3 October 2024, Woodside invited RRKAC to share stories and receive updates from Woodside at its Monthly Community Luncheon for Traditional Owners (SI Report, reference 27.19). • On 11 December 2024, Woodside became aware via a social media post from RRKAC that due to the recent passings of two significant Elders cultural grieving protocols were underway (SI Report, reference 27.20). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) RRKAC has requested Woodside fund additional resources so RRKAC can fully engage and respond</p>	<p>(1) Woodside assessment: Woodside supports reasonable requests for funding from Traditional Owners to engage in consultation. Woodside response: Woodside has offered to meet RRKAC to discuss how it can support RRKAC with consultation. Woodside has informed RRKAC that reasonable financial support is available for meetings</p>	<p>(1) The proposed Framework Agreement described in the Program of Ongoing Engagement with Traditional Custodians (Appendix G) addressed appropriate resourcing issues that RRKAC has noted.</p>
<p>(2) RRKAC noted it feels that EMBAs are too broad, and the areas covered by EMBAs are too big and unfeasible.</p>	<p>(2) Woodside assessment: Woodside aligns with industry guidance in developing the EMBA. Many replicate model simulations are completed to understand the potential behaviour of the worst-case release under various wind, wave and current conditions and these are combined to create an overall EMBA. Woodside response:</p>	<p>(2) Woodside has addressed oil spill preparedness and response strategy in Appendix H.</p>

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	During consultation about EPs Woodside has explained to RRKAC how EMBA's are determined. The EMBA for this activity is determined by a highly unlikely release of marine diesel as the result of damage to the production facility or vessel collision. Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Section 6.8 of the EP, and Appendix H.	
(3) RRKAC enquired about the potential for a bathymetric survey of the coastal shelf involving coastal groups.	(3) Woodside assessment: Woodside has no plans to conduct regional bathymetric surveys. Woodside response: Woodside has offered to meet RRKAC to discuss publicly available datasets covering coastal regions as well as Woodside's own mapping of deeper water areas.	(3) No action required
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on RRKAC's functions, interests or activities. Based on the engagement to date, no additional controls have been identified.

Summary Report | Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with RRKAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information:

Sufficient information has been provided because:

- On 19 July 2023, Woodside emailed RRKAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters.

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- On 26 July 2023, Woodside emailed RRKAC Woodside's planned *Program of Ongoing Engagement with Traditional Custodians*, providing information on how Woodside supports ongoing consultation with First Nations groups.
- In August 2023 Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website.
- On 29 August 2023, Woodside commenced consulting with RRKAC on this EP. Woodside's email to RRKAC included:
 - A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity
 - Maps showing the location and EMBA
 - Diagrams
 - Details about how to provide feedback.
 - The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of RRKAC's interests and how the activity could impact those interests.
 - That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
 - Woodside invited RRKAC to speak to Woodside. Woodside provided contact details including a general email address and telephone number for Woodside as well as the direct email address and telephone number of the assigned Woodside focal person. Woodside also provided AC NOPSEMA's contact information.
 - Woodside asked RRKAC to forward the information to its members and offered to speak to RRKAC members as well as the RRKAC Board.
 - Woodside offered to provide more specific information, maps and images to RRKAC if required.
- Woodside advised RRKAC that reasonable financial support was available for meetings for the purpose of consultation.
- Woodside provided RRKAC with details about community drop-in sessions where RRKAC could learn more about EPs including this one.

Reasonable Period:

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside published advertisements in Indigenous, national, state, and relevant local newspapers including The Koori Mail (09 August 2023) and the National Indigenous Times (29 August 2023), The Australian, The West Australian, Pilbara News, Midwest Times, Northwest Telegraph and Geraldton Guardian (August 2023) advising of the proposed activities and requesting comments or feedback.
- Woodside commenced consultation with RRKAC in August 2023. Woodside has responded to BTAC over 17 months, demonstrating a "reasonable period" of consultation, where a genuine two-way dialogue has occurred on this activity.
- A clear consultation period was communicated to RRKAC during Woodside's initial email on 29 August 2023. RRKAC was asked to provide feedback by 29 September 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside provided RRKAC with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.
- Woodside commenced consultation with RRKAC in August 2023. Woodside has addressed and responded to RRKAC queries over 17 months, demonstrating a "reasonable period" of consultation.

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Reasonable Opportunity:

RRKAC has been provided a reasonable opportunity to provide feedback because:

- Woodside published eight advertisements in national, state, local and Indigenous newspapers (See section 3.2).
- Woodside ran two targeted social media campaigns (See section 3.4).
- Woodside sent the initial email about this EP on 29 August 2023:
 - Included email addresses and telephone numbers for a Woodside focal point and NOPSEMA.
 - Offered for Woodside to speak with RRKAC members as well as the RRKAC Board.
 - Asked RRKAC to advise how it would like Woodside to engage and whether RRKAC required further information.
 - Woodside asked RRKAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- Woodside invited RRKAC to monthly luncheons.

Outcomes of Consultation:

- During the past 14 months, RRKAC has not raised matters relevant to this EP.
- Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of the EP).
- Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on RRKAC's functions, interests or activities.

Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)

Context

NTGAC is established under the Native Title Act 1993 by the Baiyungu people to represent the Baiyungu people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with NTGAC that extends to a period prior to consultation for this EP. Woodside's consultation approach for NTGAC and Traditional Owners has a focus on building and maintaining relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to NTGAC on 26 July 2023). Woodside has assigned a First Nations Engagement team member as a focal point for EP consultation with NTGAC who is responsible for building a relationship and is available to provide information and take feedback.

Aside from regular consultation about EPs, Woodside invites NTGAC to Woodside's Quarterly Heritage Meetings and monthly Community Luncheons. Woodside has continually confirmed it is open to receiving or being notified of feedback, claims or objections on EPs during its engagement with NTGAC, including on this EP.

YMAC is the Native Title Representative Body (NTRB) for the Aboriginal corporations in the Yamatji and Pilbara regions, including NTGAC. NTRBs exist to provide assistance to native title claimants and holders in relation to their native title rights. No native title has been recognised over the Project Area, however YMAC is identified in the North-west Marine Parks Network Management Plan as the contact for identifying cultural values in nearby Australian Marine Parks.

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YMAC provides NTGAC with legal and administrative assistance. NTGAC has worked with an environmental scientist to understand this EP and enable consultation on it (see correspondence from NTGAC dated 6 September 2023).

As part of its ongoing consultation and relationship building, Woodside provided NTGAC with a 7-page consultation framework agreement which sought from NTGAC, confirmation as to how NTGAC would like to be consulted, including NTGAC's views on what constituted sufficient information, a reasonable period of time and a reasonable opportunity for consultation (see 28 February 2024). While an agreement like this is useful to outline consultation norms for NTGAC, Woodside has noticed that there appears to be limited appetite from groups like NTGAC to enter in a framework agreement that sets this position out in an agreement form. While Woodside has continued to attempt to progress the framework agreement, despite numerous attempts, it remains in a draft form and has not been progressed. We note, however, that this has not prevented consultation on this EP from progressing in parallel to discussions on the framework agreement (See August 2023, September 2023 and September 2024).

This context and process demonstrates that Woodside's consultation approach with NTGAC is appropriate and adapted to the nature of and interests of NTGAC.

Historical Engagement:

- On 19 July 2023, Woodside emailed NTGAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*. This email also reiterated Woodside's request that NTGAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed NTGAC via YMAC Woodside's planned *Program of Ongoing Engagement with Traditional Custodians*, noting that Woodside's Program would complement what is proposed in NTGAC's proposed Framework.
- On 15 August 2023, Woodside met with NTGAC/YMAC. Matters discussed that relate to this EP include:
 - Woodside provided an update and overview of the Scarborough Project including activities relating to this EP.
 - Woodside asked:
 - How could these activities impact your cultural values, interests, and activities – does protecting the environment do enough to protect your cultural values?
 - What are your concerns about the proposed activities and what do you think we should do about them?
 - Is there anything you would like included in the EPs before submission?
 - Is there anyone else Woodside should consult with about the activities?
 - NTGAC/YMAC asked the following questions and gave the following feedback:
 - **(1)** YMAC asked about whale sightings and response.
 - **(1)** Woodside advised that response depended on activity and controls. Woodside also confirmed that a control for this EP is that Marine Mammal Observers are engaged for whale sightings.
 - **(2)** NTGAC asked about ballast water discharges.
 - **(2)** Woodside described ballast water discharge management and also that there are controls in place to manage the risk of introduction of invasive Marine Species.
 - **(3)** A proposed framework for consultation was discussed, involving Woodside funding a General Project Report to be written by an independent, suitably qualified and experienced consultant. The report would outline the nature of the activities for each phase of the project and the risks associated with each of the relevant activities.
 - Terms for ongoing engagement were discussed, including frequency, participation, and content in context of the proposed General Project Report.
 - **(4)** NTGAC stated that information provided on consultations for other EPs had been technical and too difficult to understand for consultation purposes.

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- On 31 August 2023, Woodside emailed NGTAC via YMAC providing a copy of the presentation from the meeting of 15 August 2023. Woodside communicated its understanding of next actions:
 - (3) YMAC would provide a first draft of a consultation agreement. Woodside offered to provide support or a first draft if NTGAC desired. Woodside noted that consultation activities would continue prior to the consultation agreement being finalised. Woodside would send emails of notification so that NTGAC was kept up to date with Woodside's activities and so that Woodside was available to provide further information if required by NTGAC.
 - (4) Woodside acknowledged NTGAC's feedback about the appropriateness of information provided (too technical) and would work with NTGAC to develop the process further. Woodside confirmed that consultation had commenced and was ongoing.

Please see *Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report)* for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 1 September 2023, Woodside emailed NTGAC via YMAC advising of the proposed activity (Record of Consultation, reference 1.34) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The Consultation Summary Information Sheet contained plain English and had been reviewed by a member of Woodside's First Nations team so that the content was clear. The email requested information on the interests that NTGAC and its members may have within the EMBA, information on how NTGAC would like to engage, and requested that NTGAC provide information to other individuals as required. Woodside requested feedback by 2 October 2023.
- On 6 September 2023, NTGAC via YMAC emailed Woodside acknowledging the information and noted it had passed the information to its environmental scientist (SI Report, reference 31.1).
- (3) On 14 December 2023, Woodside emailed YMAC attaching the Program of Ongoing Engagement and advised that Woodside wanted to progress negotiations on consultation frameworks with groups represented by YMAC (including NTGAC) (SI Report, reference 31.2). Woodside proposed the protocol would include (among other things):
 - The procedures Woodside would follow when a submission required consultation.
 - Initial and ongoing consultation in relation to activities.
 - (4) Agreement as to how Woodside would provide NTGAC with the information NTGAC required.
 - Agreement as to how NTGAC would provide feedback and how that could best be represented in EPs.
 - An agreed schedule of rates to support NTGAC's participation in consultation.
 - How the outputs of the consultations would be managed, assessed and incorporated in the EP by Woodside (if required).

Ongoing engagement:

- (3) On 28 February 2024, Woodside emailed NTGAC via YMAC with a letter setting out the draft terms of a 7-page agreement between NTGAC and Woodside (SI Report, reference 31.3). The purpose of the agreement was to seek input from NTGAC on its preferred method of consultation. The agreement (among other things) sought NTGAC's input on:
 - what is sufficient information for NTGAC for consultation.
 - what is a reasonable period for NTGAC for consultation.
 - NTGAC's preferred method for provision of information.
 - NTGAC's preferred method for providing objections or claims.

- How information is to be published in the EP.
- Costs to support consultation and termination of the agreement.
- On 29 February 2024, YMAC emailed Woodside acknowledging receipt of the information (SI Report, reference 31.4).
- On 16 May 2024, Woodside emailed NTGAC via YMAC to request potential availability to meet with the NTGAC Board as it had EPs due for release to discuss (SI Report, reference 31.5).
- On 21 May 2024 Woodside and NTGAC via YMAC exchanged emails on the possibility of meeting with the NTGAC Board in July. NTGAC noted that the Board had a relatively full agenda and it would respond with confirmation of its availability (SI Report, references 31.6, 31.7, 31.8).
- On 19 June 2024, Woodside emailed NTGAC via YMAC and again requested an opportunity to meet to discuss EPs open for consultation (SI Report 31.9).
- On 27 June 2024, Woodside emailed NTGAC via YMAC and requested an update on its review of the Consultation Framework Agreement provided on 25 February 2024 (SI Report, reference 31.10).
- **(3)** On 28 June 2024, NTGAC via YMAC emailed Woodside (SI Report, reference 31.11). In the email NTGAC:
 - Noted there had been a break in communication about the consultation agreement and thanked Woodside for its patience on the matter.
 - Requested a Word version of the draft consultation agreement.
 - Noted it would advise Woodside about the next NTGAC Board of Directors meeting.
 - Provided a cost estimate.
- On 1 July 2024 and 10 July 2024, Woodside and NTGAC via YMAC exchanged emails about a Word version of the agreement and future meeting dates (SI report, references 31.12, 31.13).
- Between 30 July 2024 and 20 August 2024 Woodside and NTGAC via YMAC exchanged emails about a meeting scheduled for 12 September 2024 (SI report, references 31.14, 31.15, 31.16, 31.17).
- On 6 September 2024, Woodside spoke to NTGAC on the phone (SI Report, reference 31.18). Matters discussed relevant to this EP include:
 - The agenda for the 12 September 2024 meeting including EPs intended to be presented.
 - NTGAC thanked Woodside for efforts in making a personal connection.
- **(3)** On 10 September 2024, NTGAC via YMAC emailed Woodside a proposed agenda for its meeting on 12 September 2024 (SI report 31.19). NTGAC noted that it would respond to EP presentations and provide comments on Woodside's draft consultation protocol.
- Between 10 September 2024 and 11 September 2024, Woodside and NTGAC via YMAC exchanged emails relating to logistics of the 12 September 2024 meeting (SI Report, references 31.20, 31.21, 31.22, 31.23, 31.24).
- On 12 September 2024, Woodside and NTGAC had a meeting (SI Report reference 31.25). Matters discussed relating to this EP include:
 - Woodside confirmed attendees were familiar with EPs and NOPSEMA. Attendees acknowledged they were.
 - Woodside discussed this EP noting it was under assessment with NOPSEMA and that consultation had commenced in August 2023.
 - Woodside invited attendees to provide further feedback by 27 September 2024 as part of the resubmission of this EP.

- Woodside provided an overview of the activity and EMBA of this EP.
- NTGAC queried the use of dry gas. Woodside explained this concept and offered to run a workshop to explain further.
- The group had no further questions.
- On 25 September 2024, Woodside emailed NTGAC via YMAC a consultation update on this EP (SI Report, reference 36.26). The email:
 - Updated NTGAC about the consultation history of the EP including that Woodside began consultation on 1 September 2023
 - Attached the initial communication sent to NTGAC on 1 September 2023 and Summary Information Sheet.
 - Confirmed that the EP was available on the NOPSEMA website and that Woodside would shortly resubmit the EP for further assessment.
 - Acknowledged that consultation framework agreement discussions with NTGAC were ongoing but that EP consultation including for this EP had progressed in parallel.
 - Invited NAC to provide additional feedback, claims or objections about the EP that it would like Woodside to consider as part of its resubmission. Woodside provided the date of Friday 4 October as the deadline for this feedback.
 - Provided contact details for Woodside and NOPSEMA.
 - Provided an attachment containing information NTGAC had provided to Woodside during consultation which had been incorporated into this EP.
- On 26 September 2024, Woodside emailed NTGAC via YMAC advising the feedback date for this EP had been extended from 4 October to 9 October 2024 (SI Report, reference 31.27).
- On 26 September 2024, NTGAC via YMAC emailed Woodside to thank it for the updated information about this EP but did not otherwise provide any feedback, claim or objection about it (SI Report, reference 31.28).
- On 3 October 2024, Woodside emailed NTGAC an invitation to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners (SI Report, reference 31.29).
- On 2 November 2024, Woodside attended the Dampier Markets and engaged with relevant persons from NTGAC. Woodside discussed EPs generally (SI Report, reference 31.30).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) NTGAC requested further information about whale sightings and response.</p>	<p>(1) Woodside assessment: Woodside has controls in place that address whale sightings and response. Woodside response: Marine Mammal observers are in place during relevant activity and vessel speed management controls are in place at relevant times.</p>	<p>(1) Potential impacts to marine fauna are assessed in Section 6.8.10 of the EP.</p>

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<p>(2) NTGAC requested further information about ballast water discharges.</p>	<p>(2) Woodside assessment: Woodside has controls in place to manage risks associated with unplanned ballast water exchange. The controls will be implemented during and prior to the PAP. Woodside response: Woodside considers the adopted controls appropriate to manage the risks of invasive marine species to ALARP and an acceptable level.</p>	<p>(2) Potential impacts from ballast water transfer are assessed in Section 6.8.12 of the EP.</p>
<p>(3) NTGAC is developing the first draft of a Consultation Agreement, and General Report. The proposal for the General Report is that it would outline the nature of the activities for each phase of the project and the risks associated with each of the relevant activities.</p>	<p>(3) Woodside assessment: An agreement with NTGAC aligns with Woodside's Program of Ongoing Engagement with Traditional Custodians and will frame ongoing consultation processes. The agreement and General Report/s would be used to frame ongoing consultation to occur as part of Woodside's post EP preparation consultation. Woodside response: Woodside continues to progress the agreement with NTGAC, the draft agreement terms sent to NTGAC in March 2024, will be used to frame future EP consultation as well as ongoing consultation during the life of the EP.</p>	<p>(3) Woodside's program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on EPs is currently being implemented, the draft agreement with NTGAC (among other things) will set out the process for ongoing engagement. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G).</p>
<p>(4) On 15 August 2023 (before consultation officially began on this EP) NTGAC stated that information provided on previous EPs had been too technical and that timeframes were not sufficient.</p>	<p>(4) Woodside assessment: In order to assist consultation, Woodside met with NTGAC nominated representatives, at location of NTGAC's choice on 15 August 2023 and 12 September 2024 for multiple hour sessions where activities relating to Scarborough EPs were described face to face by Woodside project representatives, subject matter experts and First Nations relations advisers (see Section 5 in the EP for approach). This included specifically developed "plain English" material developed by First Nations personnel in collaboration with technical experts, maps and pictures. During the meeting, NTGAC and YMAC representatives were encouraged to control the pace of the engagement and seek clarification when needed. Attendees were asked through the presentations if there were any questions or further information was required. NTGAC and YMAC asked</p>	<p>(4) Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to take feedback following acceptance of the EP, as set out in Section 7.10.5 of the EP.</p>

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	<p>questions about the activity (see (1, 2) above) which indicates that material was engaged with. Woodside has also provided funding support for YMAC's in-house environmental scientist to enable consultation</p> <p>Woodside response: Woodside does not agree with NTGAC's claim that it has not been consulted on this activity, or, given the simplified information sheets and face-to-face meetings, that information provided has been too technical to consult on.</p>	
<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on NTGAC's functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environment Regulations and consultation with NTGAC for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside provided NTGAC with relevant consultation documents, including NOPSEMA's *Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information* (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 19 July 2023).
- In August 2023, Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- On 1 September 2023, Woodside commenced consultation with NTGAC on this EP. Woodside provided NTGAC:

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- A Summary Information sheet. Following previous feedback from NTGAC, this Summary Information sheet was developed specifically for First Nations groups and reviewed by a Woodside First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing
 - Maps showing the location and EMBA
 - A summary of the risks and impacts of the activity
 - Diagrams
 - Details about how to provide feedback.
- The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of NTGAC's interests and how the activity could potentially impact those interests.
- That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
- Woodside asked NTGAC to forward the information to its members.
- Woodside offered to provide more specific information, maps and images to NTGAC if required.
- Woodside provided further information to NTGAC addressing its functions, interests and activities during a face-to-face meeting in the Pilbara on 15 August 2023 (this meeting discussed the overall Scarborough project including matters relevant to this activity), 12 September 2024 and by emailing a consultation update on 25 September 2024.
- Woodside sought direction on NTGAC's preferred method of consultation for the overall Scarborough Project. This led to a meeting on 15 August 2023. As per a request from NTGAC, Woodside funded a YMAC lawyer to attend this meeting with NTGAC so as to enable consultation. This assisted in ensuring any technical information was provided in a way which allowed NTGAC to make an informed assessment of the possible consequences of the activities on the functions, interests or activities. On 6 September 2023, NTGAC via YMAC informed Woodside that information relating to this EP had been passed on to YMAC's environmental scientist for assessment.
- When Woodside enquired on 25 September 2024 whether further information was required on this EP, NTGAC did not respond seeking anything further.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with NTGAC in September 2023 and has provided further information on the EP on that date. Since then, Woodside and NTGAC have engaged in consultation over a 16 month period demonstrating a "reasonable period" of consultation, where a genuine two-way dialogue has occurred during both written and face-to-face exchanges on this EP.
- A consultation period was communicated to NTGAC during Woodside's initial email on 1 September 2023. NTGAC was asked to provide feedback by 2 October 2023 in-line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside ultimately provided NTGAC with more than four months to consult ahead of Woodside preparing the EP and continues to take feedback in relation to the EP.

Reasonable Opportunity

- A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

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- Woodside asked for NTGAC's input into how NTGAC would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for NTGAC and First Nations groups more generally.
- Woodside has made information on this EP publicly available for more than 17 months. This has included publishing advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (See section 3.2).
- Woodside ran two targeted social media campaigns which provided a broad awareness of the activity and EP (See section 3.4).
- Woodside has an existing relationship with NTGAC and both Woodside and NTGAC commonly use email to consult and correspond. Woodside also engages with NTGAC in face-to-face meetings, at forums and in phone calls.
- Woodside's initial email about this EP on 1 September 2023:
 - Included a general email address and telephone number for Woodside as well as direct email and telephone number for a focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
 - Offered for Woodside to speak with NTGAC members as well as the NTGAC Board.
 - Asked NTGAC to advise how it would like Woodside to engage and whether NTGAC required further information.
- Woodside met with NTGAC on 15 August 2023 to discuss the overall Scarborough Project including matters relating to this EP and met with NTGAC again on 12 September 2024. The meeting was attended by Woodside's First Nations Engagement team focal person and an environmental subject matter expert who answered questions and provided specialist information on this EP. This was done deliberately so that information could be provided to NTGAC in a way that enabled NTGAC to understand the information (in a time frame and with questions controlled by NTGAC).
- Woodside asked NTGAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During consultation about the Scarborough Project NTGAC has requested:
 - Information about whale sightings and response. Woodside has assessed potential impacts to marine fauna in Section 6.8.11 of the EP. Controls already in place in the EP are appropriate to manage the risks and impacts associated with whales.
 - Information about ballast water discharges. Woodside has assessed potential impacts from ballast water transfer in Section 6.8.12 of the EP. Controls already in place in the EP are appropriate to manage the risks and impacts associated with ballast water discharges.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Native Title Representative Bodies

Yamatji Marlpa Aboriginal Corporation (YMAC)

Context

YMAC is the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia. As such, it is not a Prescribed or Registered Native Title Body Corporate representing the cultural rights of a Traditional Custodian Community. Rather, YMAC exists to assist native title claimants and holders.

In March 2023, YMAC notified Woodside that it was a 'relevant person' under regulation 25(1) of the Environment Regulations for the purposes of consultation on EPs only in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation. YMAC confirmed it did not intend to provide substantive comment on the content of EPs.

YMAC provides administrative and legal assistance to NTGAC, a group identified as a relevant person for this EP. Woodside has consulted with YMAC in this capacity.

Woodside has an existing relationship with YMAC that extends to a period prior to consulting on this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to YMAC on 25 July 2023). Woodside has assigned a First Nations Engagement team member as a focal point for EP consultation with YMAC who is responsible for building a consultative relationship and is available to provide information and take feedback.

In June 2023, YMAC requested Woodside enter into a draft consultation framework and fund an in-house position to assist YMAC's clients including NTGAC in consultation on EPs. In response to this request, Woodside provided YMAC with a 7-page draft consultation framework in February 2024 which sought confirmation from YMAC as to how it would like to be consulted, including its views on what constituted sufficient information, a reasonable period of time and a reasonable opportunity for consultation. While Woodside has continued to attempt to progress the framework agreement, despite numerous attempts, it remains in a draft form and has not been progressed. We note, however, that this has not prevented consultation on this EP from progressing in parallel to discussions on the framework agreement.

For consultation on this EP, Woodside contacted YMAC offering an opportunity to present to the YMAC Board. Woodside asked YMAC how it wished to be consulted, if it required support to participate in consultation, whether there are additional persons that YMAC believed should be consulted and requested that all information shared with YMAC be cascaded to its members.

This Context and process demonstrates that Woodside's consultation approach with YMAC is appropriate and adapted to the nature and interests of YMAC.

Historical Engagement:

- On 7 July 2022, Woodside met with YMAC to request advice on the appropriate cultural authorities for the Scarborough Project area, including but not limited to the scope of this EP and nearby marine parks:
 - Woodside described the Scarborough Project and its footprint and gave an overview of indigenous parties consulted.
 - Woodside noted that YMAC was identified in the North West Marine Parks Network Management Plan as the contact for identifying cultural values in nearby Australian Marine Parks. Woodside sought to understand if the cultural values of the nearby Gascoyne Marine Park may extend into the offshore Scarborough Project areas.
 - Woodside requested advice from YMAC on how best (in addition to work completed) to identify cultural values in the Marine Parks and in the broader project footprint.
 - YMAC requested Woodside provide the relevant detailed information relating to the location and extent of the project.
- **(1)** On 19 July 2022, in response to an enquiry from Woodside, YMAC emailed Woodside stating the Scarborough Project area requires correspondence directed to Murujuga Aboriginal Corporation and Ngarluma Aboriginal Corporation. **(1)** Woodside noted YMAC's feedback and consulted both of those corporations.

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- **(2)** On 20 March 2023, YMAC responded to an earlier email from Woodside to confirm that in its view YMAC is a 'relevant person' under regulation 25(1) of the Environment Regulations for the purposes of consultation on EPs only in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation. YMAC confirmed that its role is limited and that it does not intend to provide substantive comment on the content of EPs. **(2)** Woodside acknowledged YMAC's feedback.
- **(3)** On 12 June 2023, YMAC emailed Woodside on behalf of itself and its clients. The email attached:
 - A proposal for Woodside to fund an in-house position to support consultations and administration of the consultation framework.
 - A draft consultation framework.
 - On 19 July 2023, Woodside emailed YMAC and NTGAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that YMAC/NTGAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
 - **(3)** On 25 July 2023, Woodside emailed YMAC. Woodside:
 - Agreed in principle to the draft consultation framework and funding proposal but sought further discussion on details.
 - Attached Woodside's Program for Ongoing Engagement with Traditional Custodians.
 - Sought a meeting with YMAC in relation to the draft consultation framework at YMAC's earliest convenience.

Please see *Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report)* for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 29 August 2023, Woodside emailed YMAC advising of the proposed activity (Record of Consultation, reference 1.36) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that YMAC and its members may have within the EMBA, information on how YMAC would like to engage, and requests that YMAC provide information to other individuals as required. The email asked YMAC to provide feedback before 2 October 2023.
- **(3)** On 14 December 2023, Woodside emailed YMAC re-attaching the Program of Ongoing Consultation and advising that Woodside would like to progress negotiations on consultation frameworks with groups represented by YMAC (SI Report, reference 28.1). Woodside proposed the protocol would include (among other things):
 - The procedures relevant to the group that Woodside will follow when a submission requires consultation.
 - Initial and ongoing consultation in relation to activities.
 - Agreement as to how Woodside will provide the information groups.
 - Agreement as to how groups will provide feedback and how that can best be represented in EPs.
 - An agreed schedule of rates for groups to enable participation in consultation.
 - How to manage the outputs of the consultations.

Ongoing engagement:

- **(3)** On 28 February 2024, Woodside emailed YMAC with a letter setting out the draft terms of a 7-page consultation framework agreement between NTGAC and Woodside (SI Report, reference 28.2). The purpose of the agreement was to seek input from YMAC on its preferred method of consultation. The agreement (among other things) included:
 - Confirmation of what is sufficient information for YMAC for consultation.

- Confirmation of what is a reasonable period for YMAC for consultation.
- YMAC's preferred method for provision of information.
- YMAC's preferred method of providing objections or claims.
- How information is to be published in the EP.
- Funding to enable consultation and termination of the agreement.
- On 29 February 2024, YMAC emailed Woodside acknowledging receipt of the information (SI Report, reference 28.3).

Please see NTGAC for further correspondence with YMAC

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) YMAC has advised the most appropriate stakeholders for the Scarborough Project generally are Murujuga Aboriginal Corporation and Ngarluma Aboriginal Corporation who are not represented by YMAC.</p>	<p>(1) Woodside assessment: Woodside acknowledges YMAC's advice that MAC and NAC should be consulted regarding the activity. Woodside response: Woodside has consulted with MAC and NAC for this EP.</p>	<p>(1) Not required.</p>
<p>(2) YMAC has provided feedback that in its view it is a 'relevant person' under regulation 25(1) of the Environment Regulations for the purposes of consultation on EPs but only in a limited way – in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation and does not intend to provide substantive comment on the content of EPs.</p>	<p>(2) Woodside assessment: YMAC is the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate representing the cultural rights of a Traditional Custodian Community but exist to assist native title claimants and holders. Woodside response: Woodside acknowledges YMAC's feedback that it is a relevant person only in relation to its facilitation and coordination function as a representative body. Woodside has consulted with YMAC in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation, and it has responded that it does not intend to provide substantive comment on the content of EPs.</p>	<p>(2) YMAC represents NTGAC. YMAC has been consulted with in accordance with the methodology described in Section 5 of the EP.</p>

Sufficient Information

Sufficient information has been provided because:

- Woodside has provided YMAC/NTGAC with relevant consultation documents, including NOPSEMA's Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 19 July 2023).
- In August 2023, Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- On 1 September 2023, Woodside commenced consultation with YMAC/NTGAC on this EP. Woodside provided YMAC/NTGAC:
 - A Summary Information sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:
 - An overview of the activity and proposed timing
 - Maps showing the location and EMBA
 - A summary of the risks and impacts of the activity
 - Diagrams
 - Details about how to provide feedback.
 - The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of YMAC/NTGAC's interests and how the activity could impact those interests.
 - That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
 - Woodside asked YMAC to forward the information to NTGAC and its members.
 - Woodside offered to provide more specific information, maps and images to YMAC/NTGAC if required.
- Woodside provided further information to YMAC and sought direction on YMAC's preferred method of consultation. YMAC informed Woodside that it did not intend to provide substantive comment on the content of EPs and was a 'relevant person' under regulation 25(1) of the Environment Regulations for the purposes of its facilitation and coordination function as a Native Title Representative Body

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- Woodside commenced consultation on this EP with YMAC/NTGAC in August 2023 and provided information on the EP on that date. Since then, Woodside and YMAC/NTGAC have engaged in consultation for 17 months, demonstrating a "reasonable period" of consultation.
- A consultation period was communicated to YMAC/NTGAC during Woodside's initial email on 29 August 2023. YMAC/NTGAC was asked to provide feedback by 2 October 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside ultimately provided YMAC/NTGAC with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.

Reasonable Opportunity

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A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside and YMAC have a history of consulting and engaging. A primary means of consultation is by email. Consultation for this EP therefore commenced via email.
- Woodside asked for YMAC's input into how YMAC would like to engage in consultation and has consulted in a way that Woodside understands is appropriate for YMAC and First Nations groups.
- Woodside has made information on this EP publicly available for more than 17 months. This has included publishing advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (See section 3.2).
- Woodside ran two targeted social media campaigns which provided a broad awareness of the activity and EP (See section 3.4).
- Woodside's initial email about this EP on 29 August 2023:
 - Included a general email address and telephone number for Woodside as well as direct email and telephone number for a focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
 - Offered for Woodside to speak with YMAC/NTGAC members as well as the YMAC/NTGAC Board.
 - Asked YMAC to advise how it would like Woodside to engage and whether YMAC/NTGAC required further information.
- Woodside asked YMAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- Woodside has consulted in the way that YMAC has asked and in the capacity that YMAC has asked it consult.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of consultation are appropriate because:

- During the past 17 months, consistent with its purpose and aims, YMAC has not provided feedback or raised objections or claims about the content of the EP or the adverse impact of each activity to which this EP relates.
- Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Self-identified First Nations Groups

Ngarluma Yindjibarndi Foundation Ltd (NYFL)

Context:

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As noted on NYFL's website: in 1998 [prior to resolution of the Ngarluma and Yindjibarndi native title claim], Elders of the Ngarluma and Yindjibarndi people [native title claimants] signed an Agreement with the North West Shelf JV partners under which payment would be made for land use on the Burrup Peninsula and donations relating to goodwill and mutually beneficial relationships. The Ngarluma Yindjibarndi Foundation Ltd (NYFL) was formed and incorporated in 2000 to receive those payments.

In 1999, the Ngarluma and Yindjibarndi native title claim was settled with the Federal Court appointing, at the request of the common law native title holders, two PBCs to represent the various interests: the Ngarluma Aboriginal Corporation (NAC) as PBC to represent the communal interests of the Ngarluma people and the Yindjibarndi Aboriginal Corporation (Yindjibarndi) as PBC to represent the communal interests of the Yindjibarndi people. Woodside consulted both NAC and Yindjibarndi as relevant persons in the course of preparing this EP. Therefore the members of NYFL have been consulted for this EP.

While the NYFL's members have been assessed as being relevant persons (and have been consulted on this EP), NYFL's own functions interests and activities do not overlap with the EMBA for this EP and NYFL was therefore not assessed as being relevant for this EP. In the course of consultation, NYFL self-identified and has advised it is relevant for this EP. Woodside has therefore consulted with NYFL on this EP.

Woodside had an existing relationship with NYFL on other matters and consultations prior to consulting on this EP. Consultation on previous EPs has primarily occurred by email and face to face meetings – there is a history and pattern of consultation in this manner being undertaken by, and being acceptable to NYFL. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining relationships with each group. This is underpinned by Woodside's Program of Ongoing Engagement (sent to NYFL on 26 July 2023). Woodside has assigned a First Nations Engagement team member as a focal point for EP consultation with NYFL who is responsible for building a relationship and is available to provide information and take feedback.

In October 2023, NYFL advised Woodside it did not have the capacity to respond to matters relating to EPs until "Woodside provided an improved consultation process". NYFL declined multiple offers by Woodside to meet to clarify NYFL's expectations about this consultation process. In March 2024, Woodside emailed NYFL a 7-page letter setting out, for NYFL's input, the draft terms of a consultation agreement between NYFL and Woodside. In response, NYFL provided Woodside with a quote for an initial review of the draft agreement. Woodside declined to pay the amount quoted for an initial review of the agreement and advised NYFL the amount was excessive and outside of Woodside's policies and procedures. On 20 November 2024, Woodside and NYFL met and agreed on an amount for Woodside to fund NYFL to review and finalise the consultation agreement for presentation to the NYFL Board for its consideration. .

Woodside provides reasonable funding for consultation and has provided NYFL with further information about amounts available and processes to be followed. On 5 December 2024, it was confirmed with NYFL that the funding issue had been resolved and that consultation on this EP occurred in parallel to the discussions regarding funding for NYFL to review and finalise the consultation agreement.

On 17 April 2024, Woodside was notified of a tragic passing in the Roebourne community and that the cultural protocols associated with Sorry Business were in place. Woodside understood that this would impact NYFL and out of respect did not contact NYFL during this time.

In addition to consultation for specific EPs relevant to NYFL, Woodside also consults NYFL through its membership on the Karratha Community Liaison Group, Quarterly Heritage meetings and monthly luncheons. Woodside has continually confirmed it is open to receiving or being notified of feedback, claims or objections on EPs.

This context and process demonstrates that Woodside's consultation approach with NYFL is appropriate and adapted to the nature of interests of NYFL.

Historical Engagement:

- On 19 July 2023, Woodside emailed NYFL NOPSEMA's *Consultation Guideline, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* This email also requested that NYFL advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed NYFL Woodside's planned *Program of Ongoing Engagement with Traditional Custodians*.

Please see Scarborough Seabed Intervention and Trunkline Installation EP (Appendix F and SI Report) for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

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- After NYFL self-identified, by email dated 28 August 2023, Woodside gave NYFL information advising of the proposed activity (Record of Consultation, reference 1.37) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that NYFL and its members may have within the EMBA, information on how NYFL would like to engage, and requested that NYFL provide information to other individuals as required. Woodside asked NYFL to provide feedback by 28 September 2023.
- On 30 August 2023, Woodside met with NYFL (SI Report, reference 34.1) Matters discussed included:
 - **(1)** NYFL asserted that it is under-resourced and requires support.
 - **(2)** NYFL requested Woodside fund three Traditional Owner roles internal to NYFL to engage/consult with NYFL members.
 - **(3)** NYFL stated that timeframes must be longer than one month for consultation.
- On 31 August 2023, NYFL emailed Woodside (SI Report 34.2) copies of correspondence Woodside had sent to the Karratha Community Liaison Group (ROC references 1.17 and 2.1) and requested a copy of the consultation record for NYFL for this EP.
- On 12 September 2023, NYFL emailed Woodside noting outcomes of the meeting held on 30 August 2023 (SI Report, reference 34.3) including:
 - Traditional Owner expectations that engagement commences on projects at an early stage.
 - **(1)** Digital animations would assist with communicating projects to Traditional Owners.
 - **(2)** Resourcing for Traditional Owner organisations is required in order to support consultation.
 - Confirmation around the discussion related to capacity building, cultural sensitivity, and the role of NYFL and other organisations.
 - An action on Woodside to follow-up with NYFL on next steps.
- On 14 September 2023, Woodside emailed NYFL information relating to its representation of Yindjibarndi (SI reference 34.4).
- On 27 October 2023, NYFL emailed Woodside and attached a letter (SI Report, reference 34.5). Matters raised included:
 - **(4)** NYFL expected Woodside to present an updated proposal about the consultation processes.
 - **(1,2,3)** NYFL required financial support and more time, information and resources.
- On 3 November 2023, Woodside emailed NYFL acknowledging its previous correspondence. Woodside offered support to NYFL and its members for EP consultation and offered to meet to discuss the EP and the consultation process (SI Report, reference 34.6).
- On 7 November 2023, Woodside emailed NYFL again requesting to meet in person or via telephone to discuss NYFL's requests relating to consultation (SI Report, reference 34.7).
- On 19 November 2023, NYFL emailed Woodside (SI Report, reference 34.8). NYFL stated:
 - It was unable to meet.
 - **(1,4)** NYFL expected Woodside to update the consultation framework as NYFL had limited capacity to do so.
 - NYFL was interested in discussing this EP but required a consultation framework to do so.
- On 20 November 2023, Woodside emailed NYFL acknowledging its email of 19 November 2023 (SI Report, reference 34.9).
- On 4 December 2023, Woodside emailed NYFL (SI Report, reference 34.10): In the email:
 - Woodside acknowledged its valued partnership with NYFL over the years, and that Woodside is a strong support of NYFL.

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- Woodside has noticed a change in NYFL's position towards consultation.
- (4) NYFL had requested Woodside make improvements to the consultation framework.
- Woodside had requested to meet NYFL on multiple occasions to clarify NYFL's expectations and understand the reasoning behind NYFL's shift in position.
- NYFL had declined Woodside's offers to meet.
- On 6 December 2023, NYFL emailed Woodside noting that (SI Report, reference 34.11):
 - At the meeting of 30 August 2023 there was discussion about challenges and proposed solutions to progress EP consultation.
 - (1) NYFL operates in a resource-constrained environment.
 - NYFL expects Woodside to make a proposal to NYFL responding to issues raised at the meeting.
- On 13 December 2023, Woodside emailed NYFL (SI report 34.12). Woodside:
 - Acknowledged Woodside and NYFL were working towards an updated consultation process.
 - Advised it felt it important to check if NYFL wanted to be consulted on this EP.
 - Included information about this EP originally sent on 29 August 2023 including the Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website).
 - Requested information on the interests that NYFL and its members may have within the EMBA, information on how NYFL would like to engage, and requested that NYFL provide information to other individuals as required.
 - Offered to meet, and asked if NYFL required further information, maps or images on this EP
- On 14 December 2023, Woodside emailed NYFL, (SI Report, reference 34.13). In the email:
 - (2) Woodside noted it intended engaging a senior Ngarluma person in an advisory/liaison capacity, which would include facilitating consultation with NYFL members in relation to EPs.
 - (4) Woodside proposed a consultation framework on EPs which would include:
 - An agreed schedule of rates for consultation.
 - Agreement as to how Woodside would provide NYFL with information about EPs.
 - Woodside proposed the formation of a Consultation Working Group with representation from Woodside and NYFL.
 - Woodside proposed a discussion on the proposal at the NYFL/Woodside Quarterly meeting on 19 December 2023.

Ongoing Engagement:

- (4) On 6 March 2024, Woodside emailed NYFL with a letter setting out the draft terms of a 7-page consultation agreement between NYFL and Woodside (SI Report, reference 34.14). The agreement (among other things) sought NYFL's input on the following:
 - Confirmation of what is sufficient information for NYFL for consultation.
 - (3) Confirmation of what is a reasonable period for consultation.
 - NYFL's preferred method for provision of information.

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- NYFL's preferred method for providing objection or claims.
- **(1)** Cost and termination of the agreement.
- Between 14 March 2024 and 12 April 2024 Woodside and NYFL exchanged emails about the draft consultation agreement (SI Report, references 34.15, 34.16, 34.17, 34.18, 34.19, 34.20).
- On 17 April 2024, NYFL emailed Woodside noting it was attending to Sorry Business and as per cultural protocols would require time within the community and engagement would be delayed until appropriate to recommence (SI Report, reference 34.21). Woodside supports engaging with NYFL when it is appropriate to do so.
- **(4)** On 10 May 2024 and 3 July 2024, Woodside and NYFL exchanged emails about draft consultation agreement costs (SI Report, reference 34.22, 34.23).
- On 9 September 2024, Woodside emailed NYFL an invitation to share stories and receives updates from Woodside at its monthly luncheon for Traditional Owners (SI Report, reference 34.24).
- On 25 September 2024, Woodside sent a follow-up email to NYFL containing a consultation update on this EP (SI Report, reference 34.25). The email:
 - Updated NYFL about the consultation history of the EP including that Woodside began consultation on 29 August 2023.
 - Attached the initial communication sent to NYFL on 29 August 2023 which contained the information relevant to this EP.
 - Confirmed that the EP was available on the NOPSEMA website and that Woodside would shortly resubmit the EP for further assessment.
 - Acknowledged that consultation framework agreement discussions with NYFL were ongoing but that EP consultation including for this EP had progressed in parallel to those discussions.
 - Invited NYFL to provide additional feedback, claims or objections about the EP that it would like Woodside to consider as part of its resubmission. Woodside asked for feedback by Friday 4 October.
 - Provided contact details for Woodside and NOPSEMA.
- On 25 September 2024, NYFL attended Woodside's monthly luncheon for Traditional Owners (SI Report, reference 34.25). During the luncheon Woodside requested feedback about EPs and provided information about the consultation process.
- **(5)** On 21 October 2024, NYFL emailed Woodside (SI Report, reference 34.26). In the email NYFL asserted:
 - Consultation had not taken place between NYFL and Woodside on this EP and others.
 - Woodside's emails did not meet the standard of meaningful consultation.
 - Woodside has provided NYFL with a draft consultation agreement but had declined to agree with NYFL's estimated costs to proceed with the agreement.
 - NYFL would progress consultation on this EP and others once the consultation agreement had been formalised.
 - Woodside must note in any record provided to NOPSEMA that NYFL had not been consulted on this EP and others.
- **(5)** On 29 October, Woodside emailed NYFL a response to its email on 21 October 2024 (SI Report, reference 34.27). In the letter Woodside stated:
 - Woodside did not agree with NYFL's assertion that Woodside had not consulted NYFL in relation to this EP.
 - Woodside had consulted with NYFL in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) (Regulations).
 - Woodside commenced consulting with NYFL on 28 August 2023 by emailing NYFL an information sheet about the EP and additional information.

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- NYFL had written to Woodside on 19 November 2024 expressing an interest in consulting on the Scarborough “operations approvals”.
- Woodside sent a follow-up email on 13 December 2023 that acknowledged Woodside and NYFL were working towards an updated consultation process and felt it was important to check if NYFL wanted to be consulted on the EP.
- Woodside had offered to meet and to provide further information, maps or images to NYFL.
- Woodside sent NYFL a project update on 25 September 2024 and provided NYFL an additional invitation to provide feedback, claims or objects on about the EP that it would like Woodside to consider as part of its resubmission.
- Woodside had provided sufficient information, allowed a reasonable period of time for consultation and given a reasonable opportunity for NYFL to provide feedback on the EP.
- Consultation on the EP had been adapted and appropriate to the nature and interests of NYFL.
- That discussions between Woodside and NYFL regarding the 7-page consultation framework agreement had and will continue to occur in parallel to consultation for EPs.
- **(5)** On 31 October 2024, NYFL emailed Woodside a response to its email on 29 October 2024 (SI Report, reference 34.28). In the email NYFL:
 - Acknowledged the steps Woodside has outlined and clarified that its role as a Traditional Owner representative organisation is to ensure that consultation processes on EPs are carried out in a manner that genuinely allows NYFL to engage its members and provide informed feedback.
 - Again raised the topic of cost estimates and rates that had been agreed for North West Shelf matters (not applicable to this EP)
 - Despite NYFL itself regularly engaging in consultation communications via email, reiterated its view that “passive notifications, such as emails” did not meet the standard of genuine consultation.
 - Advised that NYFL would hold its AGM in December and would seek guidance from its members on the preferred way forward in response to consultation matters.
 - Reiterated that it is committed to working with proponents under an agreed consultation framework that allows for genuine engagement and with appropriate resources to support NYFL’s role as a Traditional Owner organisation.
 - Offered to meet Woodside in person to discuss further.
- **(5)** On 4 November 2024, Woodside emailed NYFL as follows (SI Report, reference 34.29)
 - Responded to NYFL’s cost estimates and rates and reiterated that they are excessive, and the rates quoted by NYFL related to the North West Shelf agreements and were not consistent with reasonable rates for enabling and supporting consultation on this EP. This is particularly so where the high rates quoted by NYFL were for an initial review of a 7-page agreement.
 - Offered again to meet and discuss this issue further anytime. And that Woodside would be available to meet in person in Ieramungadu in the week of 18 November 2024.
 - Confirmed that Woodside’s use of email as one of the methods to engage in consultation correspondence mirrored what appears to be NYFL’s primary approach of emailing consultation correspondence. However Woodside is also happy and discuss this EP and the various other EPs NYFL has listed in its recent correspondence.
 - Reiterated that the ongoing negotiation of a consultation framework agreement can and continues to occur in parallel to consultation for EPs.
 - Included a table showing the status of each of the EPs referenced by NYFL in its letter. This list includes Scarborough EPs which NYFL was consulted on (although now is saying it has not been consulted on) and which have been accepted by NOPSEMA.
- On 8 November 2024, NYFL emailed Woodside requesting to meet on 20 November 2024 (SI Report, reference 34.30).

- On 15 November 2024, Woodside and NYFL exchanged emails confirming the invitation to meet on 20 November 2024. Woodside stated it would separately email NYFL about the remaining EPs outlined in the 21 October 2024 correspondence (SI Report, references 34.31, 34.32).
- On 20 November 2024, Woodside met with NYFL. Woodside emailed NYFL a summary of its meeting earlier that day (SI Report, reference 34.33). Matters relevant to this EP included:
 - (4) Agreement was reached regarding administrative matters relating to NYFL’s review of the draft consultation agreement.
 - Woodside sought time to present to the NYFL Board on EPs.
- On 21 November 2024, NYFL advised Woodside about the passing of a Senior Yindjibarndi Elder and founding member of NYFL. The NYFL Board advised that Sorry Business was underway, and the community was commencing a period of mourning (SI Report, reference 34.34).
- On 5 December 2024, Woodside emailed NYFL a response to its letter of 21 October 2024 (SI Report, reference 34.35). Matters relevant to this EP included:
 - Woodside confirmed consultation had taken place for this EP.
 - (4) Woodside confirmed that it had met NYFL on 20 November 2024 to continue discussions (in parallel to consultation on EPs) regarding the draft consultation agreement.
- On 6 December 2024, NYFL emailed Woodside acknowledging its correspondence on 5 December 2024. Woodside thanked NYFL for its response (SI Report, references 34.36, 34.37).
- On 9 December 2024, NOPSEMA emailed Woodside a letter dated October 2024 that NOPSEMA had received from NYFL about Woodside’s EPs (SI Report, reference 34.38). Matters relevant to this EP include:
 - (5) Woodside had indicated to NYFL that consultation had occurred on EPs including this one however NYFL did not believe it had participated in consultation. (5) Woodside addressed this matter in its correspondence on 4 November 2024 and 5 December 2024.
 - (5) NYFL acknowledged that it had received emails from Woodside but did not believe that this met the threshold of genuine consultation. (5) Woodside addressed this matter in its correspondence on 4 November 2024 and 5 December 2024.
 - (4) Woodside had provided NYFL with a draft consultation agreement but this had not progressed. (4) Woodside addressed this matter in its correspondence on 5 December 2024.
 - (1, 5) NYFL requires adequate resourcing and respectful engagement to fulfil its obligations as the Traditional Owner representative body for the area. (5) Woodside has previously addressed this, for example correspondence on 29 October and 4 November 2024.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>NYFL self-identified and advised Woodside it is a relevant person for activities.</p>	<p>Woodside assessment: Before NYFL members’ native title claim was resolved, NYFL was created to receive payments relating to the Northwest Shelf Agreement 1998 on behalf of its members. NYFL’s membership is made up of Ngarluma people and Yindjibarndi people. Membership is not open to any person who is not accepted as Ngarluma or Yindjibarndi.</p> <p>When their native title claim was resolved, Ngarluma Aboriginal Corporation (NAC) and Yindjibarndi Aboriginal Corporation (Yindjibarndi) were appointed by the Federal Court, at the request of the Ngarluma and Yindjibarndi native title holders as PBCs to</p>	<p>NYFL has been consulted with in accordance with the methodology described in Section 5 of the EP.</p>

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	<p>represent the communal interests of the Ngarluma and Yindjibarndi people respectively. NAC and Yindjibarndi are representative of all Ngarluma and Yindjibarndi people regardless of membership.</p> <p>For this EP, Woodside has consulted with the NYFL membership – it has consulted with Ngarluma Aboriginal Corporation and Yindjibarndi Aboriginal Corporations individually..</p> <p>Woodside response: Woodside has consulted with NYFL’s membership. Nevertheless, Woodside responded to NYFL’s self-identification and consulted with it as a relevant person.</p>	
<p>(1) NYFL is under resourced and requires support.</p>	<p>(1) Woodside assessment: Woodside supports reasonable requests for funding to support consultation activities. The proposed consultation agreement (see point 4) would be an effective mechanism to address resourcing for ongoing consultation.</p> <p>Woodside response: Woodside supports reasonable requests for resourcing. Woodside will continue to work with NYFL to finalise a consultation agreement.</p>	<p>The proposed consultation agreement will address reasonable funding for consultation.</p>
<p>(2) NYFL requested Woodside fund three Traditional Owners roles internal to NYFL to engage/consult with NYFL members.</p>	<p>(2) Woodside assessment: Woodside does not consider NYFL’s request that Woodside fund three Ngarluma/Yindjibarndi Traditional Owners roles for NYFL to consult with NYFL members a reasonable proposal or a necessary step to allow consultation to occur. Woodside has already separately consulted with NYFL’s members so this would be a double-up of consultation effort. Woodside also notes that consultation must be capable of reasonable and practicable discharge. Woodside’s consultation efforts are informed and undertaken by personnel with significant experience in First Nations relations, including Indigenous employees. Woodside supports reasonable requests for funding to support consultation.</p> <p>Woodside response: Woodside has employed a Ngarluma person in an advisory position who will be facilitating consultation with NYFL. The proposed consultation agreement will address appropriate NYFL resourcing.</p>	<p>(2) Not required.</p>

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<p>(3) NYFL stated that time frames must be longer than one month for consultation.</p>	<p>(3) Woodside assessment: Woodside has already provided NYFL with reasonable period of time to participate in consultation (as required by Regulation 25 of the Environment Regulations). Woodside response: Woodside has provided NYFL much longer than a month for consultation (August 2023 – June 2024). The draft consultation framework sent to NYFL in March 2024 will provide a framework for consultation.</p>	<p>(3) Not required.</p>
<p>(4) NYFL has acknowledged it supports an agreement to enable a process of consultation.</p>	<p>(4) Woodside assessment: Separate from consultation under regulation 25 of the Environment Regulations, Woodside is open to engaging with a joint First Nations framework for consultation, however, notes that this is not required to undertake and/or complete consultation in the course of preparing this EP. Sufficient information to allow informed assessment has already been provided by other means. Woodside has an existing engagement framework in place with NYFL which enables regular (quarterly) communication about Woodside activities. Feedback from NYFL on 27 October 2023 requested Woodside develop a draft consultation framework. Woodside response: Woodside sent a 7-page draft consultation framework to NYFL in March 2024 for its input and consideration. Woodside met NYFL on 20 November 2024 and agreement was reached regarding administrative matters relating to NYFL's review of the agreement.</p>	<p>(4) Woodside is implementing a program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on environment plans. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G). This includes continued engagement regarding the proposed Framework Agreement which would be applied to ongoing consultation for this activity. Woodside will continue to consult following acceptance of the EP, as set out in Section 7.10.5 of the EP.</p>
<p>(5) NYFL has stated no formal consultation had taken place between NYFL and Woodside on this EP. NYFL would progress consultation on this EP once the draft consultation agreement was finalised.</p>	<p>(5) Woodside assessment: Woodside rejects NYFL's assertion that has not been consulted on this EP. Woodside began consulting NYFL on 29 August 2023 and has provided sufficient information, a reasonable period of time, and reasonable opportunity for NYFL to provide feedback. Woodside has clearly communicated to NYFL that consultation for this EP and others has occurred in parallel to negotiations about the draft consultation agreement. Woodside notes that the consultation agreement is not required to undertake and/or consult with NYFL on EPs. This position was</p>	<p>(5) Not required.</p>

	<p>confirmed in correspondence dated 4 November 2024 and 5 December 2024.</p> <p>Woodside response: The information provided by Woodside meets the requirements of regulation 25 of the Environment Regulations for the reasons set out above.</p>	
<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on NYFL's functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environment Regulations and consultation with NYFL for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and reasonable opportunity to provide feedback have been provided, as described in Section 5 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given NYFL sufficient information to allow NYFL to make an informed assessment of the possible consequence of the activity on the functions, interests or activities of NYFL because:

- NYFL was established in order to receive payments relating to the Northwest Shelf Agreement 1998 (not this EP or the Scarborough Project) on behalf of its members.
- NYFL is not assessed as a relevant person under Woodside's methodology. Never-the-less, NYFL self-identified and Woodside has provided NYFL with relevant consultation documents, including NOPSEMA's Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information (informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters) (see 19 July 2023).
- In August 2023, Woodside made the Consultation Information Sheet about this EP publicly available on the Woodside website. The EP was published on NOPSEMA's website in June 2024.
- Woodside provided information to NYFL on 28 August 2023 (when Woodside commenced consulting with NYFL on this EP). Woodside provided NYFL:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a First Nations staff member. This sheet included:

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- An overview of the activity and proposed timing.
 - Maps showing the location and EMBA.
 - A summary of the risks and impacts of the activity.
 - Diagrams.
 - Details about how to provide feedback.
- The purpose of consultation, and what was being sought by Woodside through consultation including understanding the nature of NYFL's interests and how the activity could impact those interests.
 - That Woodside had undertaken assessments to identify potential impacts and risks to the marine environment and developed mitigation and management measures.
 - Woodside asked NYFL to forward the information to its members.
 - Woodside offered to provide more specific information, maps and images to NYFL if required.
 - Woodside provided contact information for Woodside and NOPSEMA.

Reasonable Period

Woodside has allowed NYFL a reasonable period for consultation in the preparation of this EP because:

- Woodside commenced consultation on this EP with NYFL in August 2023 and provided information on the EP on that date. NYFL told Woodside it required more than 30 days for consultation. Since information was first provided to NYFL, Woodside and NYFL have engaged in consultation for more than 17 months, demonstrating that has acted consistently with NYFL's request for more than 30 days consultation and has provided a "reasonable period" of consultation.
- A consultation period was communicated to NYFL during Woodside's initial email on 28 August 2023. NYFL was asked to provide feedback by 28 September 2023 in line with Woodside's methodology of a 30-day consultation period. This period enabled Woodside to assess feedback before the EP was submitted.
- Woodside provided NYFL with more than four months to consult ahead of preparing the EP and continues to take feedback in relation to the EP.
- Woodside notified NYFL on 25 September 2024 that it was planning to resubmit the EP. Woodside invited NYFL to provide any additional comments, feedback, claims or objections that it would like Woodside to consider, giving NYFL a two-week period to do so.
- Woodside notes that during consultation, it also respectfully paused consultation in periods when NYFL was observing Sorry Business or cultural matters (see April 2024).

Reasonable Opportunity

Woodside has given NYFL a reasonable opportunity to provide feedback and Woodside's approach to consultation is appropriate and adapted to the nature of the interests of NYFL because:

- NYFL was established in order to receive payments relating to the Northwest Shelf Agreement 1998 (not this EP or the Scarborough Project) on behalf of its members.
- Woodside has consulted NYFL's membership on this EP.
- Woodside asked for NYFL's input into how NYFL would like to engage in consultation. In accordance with previous consultations and communications which have occurred via emails and meetings, Woodside and has consulted in a way that Woodside understands is appropriate for NYFL and First Nations groups.

- Woodside has made information on this EP publicly available for more than 17 months. This has included publishing eight advertisements in national, state, local and Indigenous newspapers including Indigenous publications The Koori Mail (9 August 2023) and the National Indigenous Times (29 August 2023) advising of the proposed activities and requesting comments or feedback (see section 3.2).
- Woodside ran two targeted social media campaigns which provided a broad awareness of consultation (see section 3.4).
- Woodside's initial email about this EP on 28 August 2023:
 - Included a general email address and telephone number for Woodside as well as a direct email address and telephone number for a dedicated focal person from the Woodside First Nations Engagement team. It also included contact details for NOPSEMA.
 - Offered for Woodside to speak with NYFL members as well as the NYFL Board/Office holders.
 - Asked NYFL to advise how it would like Woodside to engage and whether NYFL required further information.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and NYFL have exchanged multiple emails, had phone calls and have met on a number of occasions and have otherwise had direct contact lines to each other during the period.
- Woodside invites NYFL to Quarterly Heritage Meetings and monthly luncheons.
- In September 2024, Woodside provided NYFL with an additional two-weeks to provide feedback ahead of Woodside resubmitting the EP.
- Woodside and NYFL continue to negotiate a framework consultation agreement. Despite this negotiation going on in the background, Woodside has made it clear that consultation for this EP can and has occurred in parallel with the ongoing negotiations relating to the framework consultation agreement. This has most recently been communicated on 4 November 2024 and 5 December 2024.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 17 months NYFL has provided feedback, but has not raised objections or claims about the adverse impact of each activity to which this EP relates.
- NYFL was established in order to receive payments on behalf of its members relating to the Northwest Shelf Agreement 1998. That Agreement relates to a number of matters including payment for land use on the Burrup Peninsula by the North West Shelf Joint Venture (not for this EP or the Scarborough Project). NYFL was assessed as **not** being a relevant person for this EP because NYFL's functions, interests or activities are not assessed as potentially being affected by the activities to be carried out under the EP. NYFL's members have been consulted on this EP. Consultation with NYFL's members has given Woodside the opportunity to receive information and better understand how NYFL's members perceive environmental impacts and risks of the activities under the EP. Those consultations have enabled Woodside to refine or change measures it proposes to address those impacts and risks by taking into account the information acquired from NYFL's members during consultation. In the context of NYFL's role and the consultations undertaken by Woodside for this EP, the purpose of consultation has been achieved despite NYFL not raising any objections or claims about the adverse impact of the activities to which this EP relates. Consultation is complete.
- Woodside engages in ongoing consultation, once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Local Government and Elected Parliamentary Representatives, Community Groups or Organisations

City of Karratha

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed City of Karratha advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with City of Karratha for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given City of Karratha sufficient information to allow City of Karratha to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet has been publicly available on the Woodside website since August 2023. Woodside provided this information to City of Karratha on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

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Woodside allowed City of Karratha a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to City of Karratha advising when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed City of Karratha with 30 days for consultation. For consultation on EPs, 30 days is the usual period for Shire of Karratha.
- In this context, Woodside allowed City of Karratha a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with City of Karratha is appropriate and adapted to the nature of City of Karratha:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside sent a follow-up consultation email on 30 August 2023, reminding City of Karratha of the opportunity to provide feedback.
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.

Outcome of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as City of Karratha did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on City of Karratha's functions, interests or activities.

Shire of Exmouth

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Shire of Exmouth advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with Shire of Exmouth for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Shire of Exmouth sufficient information to allow Shire of Exmouth to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Shire of Exmouth, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Shire of Exmouth a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to Shire of Exmouth advising when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Shire of Exmouth with 30 days for consultation. For consultation on EPs, 30 days is the usual period for Shire of Exmouth.
- In this context, Woodside allowed Shire of Exmouth a reasonable period for consultation in preparation of the EP.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Shire of Exmouth is appropriate and adapted to the nature of Shire of Exmouth:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside sent a follow-up consultation email on 30 August 2023, reminding Shire of Exmouth of the opportunity to provide feedback.
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Shire of Exmouth did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Shire of Exmouth's functions, interests or activities.

Shire of Ashburton (SoA)

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Shire of Ashburton (SoA) advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 14 August 2023, SoA emailed Woodside and invited Woodside to present at SoA's December community information sessions (SI Report, reference 15.1). It was also suggested that for more regular information sharing, Woodside could submit articles to the *Onslow Pipeline*.
- On 28 August 2023, SoA responded to Woodside's 9 August 2023 email thanking Woodside for its correspondence and noting its support of the significant contribution the oil and gas sector makes to the community (SI Report, reference 15.2). SoA asked for consideration of the following comments:
 - (1) SoA confirmed it had no objections to the proposed activities.
 - (2) SoA expected that Woodside would identify, manage and mitigate all possible impacts and risks in line with relevant regulatory frameworks.
 - (3) The Aboriginal Cultural Heritage Inquiry System (ACHIS) should be consulted to ensure site of significance are not impacted without consents.
 - (4) SoA required Woodside to brief its Local and District Emergency Management Committee's on its planned responses to such events before any activities commence.

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- (5) SoA required Woodside to communicate with appropriate emergency management agencies at either/or National, State, District and Local levels on potential hazards and risks around the activity; collaboration and/or cooperation on risk mitigation; considered impacted areas response capacity and capability and sustainability of response activities and escalation triggers.
- (6) SoA anticipated that Woodside had undertaken their own emergency management planning to mitigate risk and recover from a risk related incident, has engaged with external emergency management agencies to ensure emergency management plans are aligned with outcomes to respond and/or recovery from the incident.
- (7) SoA anticipated that Woodside had engaged with the community regarding what may happen in areas that are affected by the proposed activities.
- SoA proposed that Woodside consider the SoA operated Pilbara Regional Waste Management Facility for future decommissioning, recycling and waste disposal purposes.
- (8) SoA appreciated the opportunity to comment on the proposed activities and requested that Woodside provide SoA with further updates as the proposal progresses.
- On 26 September 2023, Woodside and SoA exchanged four emails regarding SoA's next Local and District Emergency Management Committee (LEMC) meeting and Woodside attending the meeting (SI Report, references 15.3, 15.4, 15.5 and 15.6).
- On 17 October 2023, SoA and Woodside exchanged further emails confirming presentation start time and attendee details (SI Report, reference 15.7).
- On 6 November 2023, Woodside responded to SoA on a range of items relating to a separate EP and confirmed it was looking forward to presenting to SoA on 21 November 2023 (SI Report, reference 15.8). Woodside also sought to clarify a request from SoA that the Shire required Woodside to brief the Shire's Local and District Emergency Management Committee's on its planned responses to such events before any activities commenced as this would potentially mean Woodside was providing frequent briefings on the same issue.
- On 14 November 2023, SoA responded and, regarding Woodside's query seeking clarification on LEMC briefing requirements (SI Report, reference 15.9), confirmed:
 - Woodside was not required to give a briefing on its response capability every time it undertook an activity that had a risk of a hydrocarbon release.
 - It was proposed that Woodside, when operating in an area, provided a briefing that covered its program of activities over a period of time, which could be determined by Woodside's own assessment of the need and liaison with the relevant LEMC/DEMC.
 - The word briefing should not be confused with advising stakeholders of any assessed high-risk activity where it was appropriate to inform those who may be impacted or involved in a response or recovery process.
- On 20 November 2023, Woodside responded to SoA's email of 28 August 2023 thanking SoA for its feedback on this EP (SI Report, reference 15.10). Woodside noted:
 - (2) Woodside was required to manage environmental impacts and risks to the environment that may be affected (EMBA) by its proposed activities to As Low As Reasonably Practicable (ALARP) and to an acceptable level, as required by the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Environment Regulations), through the implementation of the EP. Woodside's proposed EPs would be submitted to NOPSEMA for assessment and acceptance.
 - (3) Woodside routinely used the Department of Planning, Land and Heritage Aboriginal Cultural Heritage Inquiry System as part of the EP development process and included the results of these inquiry system searches as an appendix to each EP.
 - (4) Woodside was looking forward to presenting to SoA at its LEMC on 21 November 2023 on its approach to managing a hydrocarbon release in the highly unlikely event this occurred. Woodside confirmed it would welcome questions regarding this EP during the presentation. Woodside also sought to clarify SoA's request to provide a briefing prior to activities commencing as this would potentially mean Woodside was providing frequent briefings on the same issue.
 - (5) Woodside had an Oil Pollution First Strike Plan in place for all EPs which detailed potential impacts, notifications and response mitigations that may be executed to manage an emergency event.

- (6) In the course of developing an EP, Woodside developed oil spill preparedness and response positions tailored for individual projects. Woodside consulted with the relevant external emergency management agencies to ensure all emergency management plans were aligned with effective outcomes.
- (7) Woodside confirmed it consulted relevant persons in the course of preparing an EP, and as per Woodside’s ongoing consultation approach, feedback and comments from relevant persons continued to be assessed and responded to, as required, throughout the life of an EP.
- Woodside aimed to work with local business through employment and contracting opportunities, where practical, to create and build community capacity and capability. While future decommissioning of infrastructure in the Scarborough Field was not expected until End of Field Life (EOFL) and was outside of the scope of this EP, any future decommissioning would be subject to a separate consultation under a future EP.
- (8) Woodside confirmed it would continue to provide the SoA with significant updates with respect to the proposed activities when relevant.
- On 21 November 2023, Woodside presented at the SoA LEMC meeting (SI Report, reference 15.11) and provided:
 - An overview of proposed activities relevant to SoA including this EP.
 - An outline of the consultation approach and explanation of the EMBA as a modelling process of the broadest extent an unplanned hydrocarbon release could spread based on a number of conditions.
 - Details of the oil spill response approach in the highly unlikely event of a hydrocarbon spill.
 - Woodside’s key steps when activating an oil spill response plan.
 - (1) SoA thanked Woodside for presenting to the committee and no questions or concerns were raised.
- On 22 November 2023, Woodside responded thanking SoA for its email from 14 November 2023 (SI Report, reference 15.12) and confirmed:
 - SoA’s advice that it was not required to provide a briefing on its response capability every time it undertook an activity that had a risk of a hydrocarbon release.
 - It accepted SoA’s proposal to provide briefings that covered its program of activities over a period of time, as determined by Woodside’s own assessment of need and in liaison with the relevant LEMC.
 - It would provide notifications to relevant stakeholders if required as per Woodside’s oil spill response arrangements.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) Supports the contribution of the oil and gas sector and had no objections to the proposed activities.</p>	<p>(1) Woodside assessment: Woodside acknowledges SoA had no objections in relation to the activities. Woodside response: Woodside provided a presentation to the SoA LEMC meeting on this EP. No questions or concerns were raised by SoA.</p>	<p>(1) Not required.</p>
<p>(2) Identifying, managing and mitigating all possible impacts and risks.</p>	<p>(2) Woodside assessment: Woodside has assessed environment impacts and risks as well as mitigation and</p>	<p>(2) Woodside has assessed the potential impacts and risks associated with the PAP in Section 6 of the EP. The existing</p>

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	<p>management measures in the EP in accordance with the Environment Regulations.</p> <p>Woodside response: Woodside confirmed it was required to manage environmental impacts and risks to the EMBA to As Low As Reasonably Practicable (ALARP) and an acceptable level, as per the <i>Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009</i>.</p>	<p>controls as described in Section 6 of the EP are considered sufficient.</p>
<p>(3) Consulting the Aboriginal Cultural Heritage Inquiry System (ACHIS).</p>	<p>(3) Woodside assessment: Woodside uses the Department of Planning, Land and Heritage ACHIS as part of the EP development process.</p> <p>Woodside response: Woodside confirmed it routinely utilised the Department of Planning, Land and Heritage ACHIS as part of the EP development.</p>	<p>(3) For this EP, a search of DPLH's Aboriginal Cultural Heritage Inquiry System was undertaken (see Appendix G).</p>
<p>(4) Briefing SoA's Local and District Emergency Management Committee (LEMC).</p>	<p>(4) Woodside assessment: Woodside welcomed the opportunity to brief the LEMC on its planned approach to an unplanned hydrocarbon release or discharge. A meeting was scheduled in this regard.</p> <p>Woodside response: Woodside noted it was looking forward to presenting to SoA's LEMC meeting on 21 November 2023 regarding its approach to managing a hydrocarbon release in the highly unlikely event this occurred and was happy to take questions regarding this EP during the presentation.</p> <p>On 21 November 2023, Woodside presented at the SoA's LEMC on oil spill responses.</p>	<p>(4) Not required.</p>
<p>(5) Ensuring Woodside is communicating with appropriate national and state emergency management agencies.</p>	<p>(5) Woodside assessment: Woodside has undertaken emergency management planning and consults with relevant agencies to ensure alignment of its emergency management plans. Woodside's oil spill preparedness and response plans for this EP include communication with appropriate agencies.</p> <p>Woodside response: Woodside confirmed it had an Oil Pollution First Strike Plan in place for this EP which detailed</p>	<p>(5) In the course of developing this EP, Woodside has developed oil spill preparedness and response positions and an Oil Pollution First Strike Plan (See Appendix H and I of this EP).</p>

	potential impacts, notifications and response mitigations that may be executed to manage an emergency event.	
(6) Assumed Woodside had emergency management planning in place.	(6) Woodside assessment: Woodside has developed oil spill preparedness and first response plans for this EP. Woodside response: Woodside confirmed that in the course of developing EPs, it developed oil spill preparedness and response positions tailored for individual projects. Woodside consults with the relevant external management agencies to ensure all emergency management plans were aligned with effective outcomes.	(6) In the course of developing this EP, Woodside has developed oil spill preparedness and response positions and an Oil Pollution First Strike Plan (See Appendix H and I of this EP).
(7) Woodside has engaged with the community.	(7) Woodside assessment: Woodside has consulted relevant persons whose functions, interests or activities may be impacted by the activity, in line with regulation 25 of the Environment Regulations. Woodside response: Woodside confirmed it consulted relevant persons in the course of preparing an EP, and as per Woodside's ongoing consultation approach, feedback and comments from relevant persons continued to be assessed and responded to, as required, throughout the life of an EP.	(7) Woodside consults relevant persons in the course of developing an EP as described in Section 5.3 of the EP.
(8) Provide updates as the proposal progresses.	(8) Woodside assessment: Woodside will provide SoA with updates with respect to the activities the subject of this EP. Woodside response: Woodside confirmed it would continue to provide SoA with significant updates with respect to the proposed activities when relevant.	(8) Woodside engages in ongoing consultation and will provide notifications of significant change, as appropriate, to relevant persons as referenced at Section 7.10.5 in this EP.
Woodside has addressed objections and claims as noted above.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management	The measures and controls described within this EP address the potential impact from the proposed activities on SoA's functions, interests or activities. No additional measures or controls are required.

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of Change and Revision process (see Section 7.2.7.2 of this EP).

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with SoA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given SoA sufficient information to allow SoA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information directly to SoA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 28 August 2023, SoA shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable SoA to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- Woodside provided further information to SoA in its response on 20 November 2023 which addressed SoA’s topics of interest in response to feedback from SoA.

Reasonable Period

Woodside allowed SoA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to SoA advising when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed SoA with 30 days for consultation. SoA engaged in consultation and provided feedback within this period.
- In this context, Woodside allowed SoA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with SoA is appropriate and adapted to the nature of interests of SoA:

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- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside considers a reasonable opportunity was provided to SoA as evidenced in their response on 28 August 2023 when they provided feedback.
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- SoA provided feedback or objections or claims about the adverse impact of the activity to which the EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from SoA and has assessed the merits of any objection or claim about the adverse impact of the proposed activities to which this EP relates.
 - Made no changes or inclusions to the EP as a result of consultation with SoA because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Exmouth Community Liaison Group (Exmouth CLG)

Summary of information provided and record of consultation for this EP:

- On 10 August 2023, Woodside emailed the Exmouth CLG advising of the proposed activity (Record of Consultation, reference 1.17) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 20 October 2023, Woodside sent an email to the Exmouth CLG to advise that Woodside employees would be in Exmouth on 23 October 2023 if anyone wanted to discuss Woodside EPs (SI Report, reference 23.1).
- On 21 November 2023, Woodside presented to the Exmouth CLG on Woodside activities, including this EP. Woodside presented a slide which listed EPs on which the CLG members had recently been consulted and EPs currently under consultation (SI Report, reference 23.2). A summary of this meeting is as follows:
 - Woodside Corporate Affairs, Scarborough Energy Project, Aviation and Operations representatives were available to answer questions.
 - 12 individuals attended the meeting representing:
 - Exmouth Volunteer Marine Rescue
 - Gascoyne Development Commission
 - Shire of Exmouth

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- PHI Helicopters
- Bhagwan Marine
- Exmouth Chamber of Commerce and Industry
- Ningaloo Coast World Heritage Advisory Council
- Australia's Coral Coast Tourism
- Santos.
- The Exmouth CLG raised the following questions:
 - **(1)** What was under the waterline of the Scarborough Floating Production Unit (FPU) and did it have a riser turret?
 - **(1)** Woodside explained the subsurface and advised that there was no turret.
 - **(2)** How many people would be on board the FPU?
 - **(2)** Woodside advised the living quarters could hold 75 people and during normal operations it was expected that about 12 people would be on board. During maintenance campaigns, this could be between 50 – 75 people.
 - **(3)** Why wasn't the FPU being built in Australia?
 - **(3)** Woodside advised that due to the scale, there was no facility large enough in Australia to build the FPU. Woodside also advised that some of the subsea infrastructure was being built in Henderson, WA, and where possible, Woodside was using local content.
 - **(4)** When would the FPU be in location?
 - **(4)** Woodside advised the FPU would be ready for start-up in 2026 and installation was expected to commence in 2025.
 - **(4)** Woodside committed to continue providing the Exmouth CLG with updates on the Scarborough Energy Project.
- On 4 December 2023, Woodside emailed the November 2023 Exmouth CLG meeting presentation to all CLG members, regardless of their attendance (SI Report, reference 23.3).
- On 6 March 2024, Woodside presented to the Exmouth CLG on Woodside activities, including this EP. Woodside presented a slide that listed EPs on which the CLG members had recently been consulted and EPs currently under consultation (SI report, reference 23.4). No feedback was provided on this EP. 12 individuals attended the meeting representing:
 - Exmouth Volunteer Marine Rescue
 - Gascoyne Development Commission
 - Shire of Exmouth
 - PHI Helicopters
 - Exmouth Freight and Logistics
 - Exmouth Chamber of Commerce and Industry
 - Ningaloo Coast World Heritage Advisory Council
 - WA Country Health Service
 - Santos.

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- On 2 April 2024, Woodside's presentation was emailed to all Exmouth CLG members, regardless of their attendance at the meeting.
- On 17 July 2024, Woodside presented to the Exmouth CLG on Woodside activities, including this EP. Woodside presented a slide which listed EPs on which the CLG members had recently been consulted and EPs currently under consultation (SI report, reference 23.5). No feedback was provided on this EP. 13 individuals attended the meeting representing:
 - Exmouth Volunteer Marine Rescue
 - Gascoyne Development Commission
 - Shire of Exmouth
 - PHI Helicopters
 - Exmouth Chamber of Commerce and Industry
 - Ningaloo Coast World Heritage Advisory Council / NOPSEMA Community and Environment Reference Group
 - Santos
 - AIMS
 - Department of Health.
- Woodside's presentation was emailed to the CLG members, regardless of their attendance at the meeting.
- On 12 November 2024, Woodside presented to the Exmouth CLG on Woodside activities, including this EP. Woodside presented a slide listing EPs on which the CLG members had recently been consulted and EPs currently under consultation (SI report, reference 23.6).
 - 13 individuals attended the meeting representing:
 - Shire of Exmouth
 - Gascoyne Development Commission
 - Exmouth Chamber of Commerce and Industry
 - Ningaloo Coast World Heritage Advisory Council / NOPSEMA Community and Environment Reference Group
 - West Australian Country Health Service
 - Bhagwan Marine
 - PHI Helicopters
 - Exmouth Volunteer Marine Rescue
 - CSIRO
 - Santos

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1)	(1)	(1)

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<p>Provided feedback and asked the following:</p> <ul style="list-style-type: none"> What was under the waterline of the Scarborough Floating Production Unit (FPU) and did it have a riser turret? 	<p>Woodside assessment: There is no riser turret. Woodside response: Woodside explained the subsurface and advised that there was no turret.</p>	<p>An overview of the Scarborough FPU and associated infrastructure is provided in Section 3 of the EP.</p>
<p>(2)</p> <ul style="list-style-type: none"> How many people will be on board the FPU? 	<p>(2) Woodside assessment: The number of people on board varies. During normal operations approximately 12 people would be on board the FPU; during maintenance between 50-75 people. Woodside response: Woodside advised the living quarters could hold 75 and that during normal operations it was expected that about 12 people would be on board. During maintenance campaigns, this could be between 50-75 people.</p>	<p>(2) An overview of the Scarborough FPU and associated infrastructure is provided in Section 3 of the EP.</p>
<p>(3)</p> <ul style="list-style-type: none"> Why wasn't the FPU being built in Australia? 	<p>(3) Woodside assessment: Due to the scale, it was not possible to build the FPU in Australia. Woodside response: Woodside advised that due to the scale, there was no facility large enough in Australia. Some of the subsea infrastructure was being built in Henderson, WA and Woodside was using local content where possible.</p>	<p>(3) Not required.</p>
<p>(4)</p> <ul style="list-style-type: none"> When will the FPU be in location? 	<p>(4) Woodside assessment: Installation is expected to occur in 2025. Woodside response: Woodside advised the FPU would be ready for start-up in 2026 and that installation was expected to commence in 2025. Woodside committed to continue to provide the Exmouth CLG with updates on the Scarborough Project.</p>	<p>(4) An overview of the Scarborough FPU and associated infrastructure is provided in Section 3 of the EP.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Exmouth CLG's functions, interests or activities. No additional measures or controls are required.</p>

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feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Exmouth CLG for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Exmouth CLG sufficient information to allow Exmouth CLG to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information directly to Exmouth CLG on 10 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum m environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 21 November 2023, Exmouth CLG shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable Exmouth CLG to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- In addition to the Consultation Information Sheet, Woodside provided further information to Exmouth CLG on 4 December 2023 and 6 March 2024.
- Woodside presented to the Exmouth CLG on 21 November 2023, 6 March 2024 and 17 June 2024 (and provided further information to Exmouth CLG following these meetings).

Reasonable Period

Woodside allowed Exmouth CLG a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Exmouth CLG advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period and Woodside allowed Exmouth CLG 30 days for consultation. For consultation on EPs, 30 days is the usual period for Exmouth CLG.

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- As has been made clear in consultation emails and at meetings, Woodside is open to receiving feedback after EP submission and throughout the life of an EP.
- In this context, Woodside allowed Exmouth CLG a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Exmouth CLG is appropriate and adapted to the nature of interests of Exmouth CLG

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- On 21 November 2023, 6 March 2024 and 17 June 2024, Woodside presented to the Exmouth CLG on Woodside activities including on this EP, and Woodside staff were available to answer questions and receive feedback.
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.
- Furthermore, Woodside considers a reasonable opportunity was provided to Exmouth CLG as evidenced in their response on 21 November 2023 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Exmouth CLG provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from Exmouth CLG.
 - Made no changes or inclusions to the EP as a result of consultation with Exmouth CLG because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Karratha Community Liaison Group (Karratha CLG)

Summary of information provided and record of consultation for this EP:

- On 10 August 2023, Woodside emailed Karratha CLG advising of the proposed activity (Record of Consultation, reference 1.17) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- **(1)** On 30 August 2023, Dampier Community Association emailed Woodside (SI Report, reference 16.1) and confirmed the information had been passed on to its committee and that no comments or feedback had been received.

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- (1) On 6 September 2023, Woodside responded noting Dampier Community Association had no comments (SI Report, reference 16.2).
- On 20 September 2023, Woodside presented to the Karratha CLG on Woodside activities, including this EP. Woodside presented slides which listed EPs on which the CLG members had recently been consulted and EPs currently under consultation (SI Report, reference 16.3). One slide included a QR and URL to the Consultation Activities page of the Woodside website. No feedback was provided on this EP. A summary of the meeting is below:
 - Woodside Corporate Affairs representatives were available to answer questions.
 - 14 individuals attended the meeting representing:
 - City of Karratha – Council representatives and staff representatives
 - Karratha Central Health Care
 - Bechtel
 - Dampier Community Association
 - Pilbara Development Commission
 - Regional Development Australia
 - Karratha & Districts Chamber of Commerce & Industry
 - Ngarluma Yindjibarndi Foundation Ltd
 - Pilbara Ports Authority.
 - Woodside provided details of local engagement sessions held at the Karratha Shopping Centre, Red Earth Arts Precinct, Woodside’s Roebourne Office and at the South Hedland Square. Woodside shared that sessions were for local community members to seek information about its EPs, to discuss functions, activities or interest that may be affected by its proposed projects and to provide an opportunity for feedback. Woodside noted sessions were advertised in the Pilbara News and through social media advertising (Record of Consultation, reference 3.8).
- On 22 March 2024, Woodside presented to the Karratha CLG on Woodside activities, including this EP. Woodside presented slides which listed EPs on which the CLG members had recently been consulted and EPs currently under consultation (SI report, reference 16.4). Woodside also presented on how Woodside consults relevant persons in the course of preparing its EPs and provided information on relevant persons and EMBA’s. The slides included a QR and URL to the Consultation Activities page of the Woodside website, and upcoming consultation opportunities in Roebourne, Karratha and Dampier from the 22 March to 24 March 2024. No feedback was provided on this EP. Seven Karratha CLG members attended the meeting representing:
 - City of Karratha
 - Dampier Community Association
 - Department of Education
 - Murujuga Aboriginal Corporation
 - Karratha and Districts Chamber of Commerce and Industry
 - Karratha Central Health.
- On 5 April 2024, Woodside’s March presentation to the CLG was emailed to the CLG regardless of their attendance at the meeting.

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On 21 June 2024, Woodside presented to the Karratha CLG on EP consultation requirements and provided an update on upcoming Woodside activities, including this EP (SI Report, reference 16.5). No feedback was provided on this EP. Woodside also presented on how Woodside consults relevant persons in the course of preparing its EPs and provided information on relevant persons and EMBA's. The slides included a QR and URL to the Consultation Activities page of the Woodside website and copies of the latest edition of 'Let's Talk' were provided in hard copy and sent electronically with the minutes and presentation pack. No feedback was provided on this EP. Seven CLG members attended the meeting representing:

- City of Karratha – Council and staff representatives
- Karratha Central Health Care
- Dampier Community Association
- Pilbara Development Commission
- Department of Education – staff representatives.

- On 17 July 2024, Woodside's June presentation to the CLG was emailed to the CLG regardless of their attendance at the meeting.
- On 20 September 2024, Woodside presented to the Karratha CLG on EP consultation requirements and provided an update on upcoming Woodside activities, including this EP (SI Report, reference 16.6). No feedback was provided on this EP. Woodside also presented on how Woodside consults relevant persons in the course of preparing its EPs and provided information on relevant persons and EMBA's. The slides included a QR and URL to the Consultation Activities page of the Woodside website and copies of the latest edition of 'Let's Talk' were provided in hard copy and sent electronically with the minutes and presentation pack. No feedback was provided on this EP. Eight CLG members attended the meeting representing:
 - City of Karratha – staff representatives
 - Dampier Community Association
 - Pilbara Development Commission
 - Department of Education – staff representatives
 - Karratha and Districts Chamber of Commerce and Industry
 - Pilbara Ports Authority.
- On 13 October 2024, Woodside's September presentation to the CLG was emailed to the CLG regardless of their attendance at the meeting.
- On 29 November 2024, Woodside presented to the Karratha CLG on EP consultation requirements and provided an update on upcoming Woodside activities, (SI report, reference 16.7).
 - No feedback was provided on this EP.
 - Woodside also presented on how it consults relevant persons in the course of preparing EPs and provided information on relevant persons and EMBA's. The slides included a QR code and a URL to the Consultation Activities page of the Woodside website. Copies of the latest edition of Let's Talk were provided in hard copy and sent electronically with the minutes and pack.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1)	(1)	(1)

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<p>Dampier Community Association, a member of the Karratha CLG, advised it had not received any feedback in relation to this EP.</p>	<p>Woodside assessment: Woodside acknowledged Dampier Community Association had no feedback on this EP. Woodside response: Woodside responded noting Dampier Community Association had no comments on this EP.</p>	<p>Not required.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>

Summary Report – Outcomes of Consultation

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with Karratha CLG for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Karratha CLG sufficient information to allow Karratha CLG to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Karratha CLG on 10 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- On 30 August 2023, the Dampier Community Association, a member of the Karratha CLG, shared its feedback, claims or objections regarding this activity, and advised it had no feedback, indicating the information provided was sufficient to enable Karratha CLG members to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- In addition, to the Consultation Information Sheet, Woodside provided further information to the Karratha CLG on 5 April 2024, 17 July 2024 and 13 October 2024.

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- Woodside presented to the Karratha CLG on 29 September 2023, 22 March 2024, 21 June 2024 and 20 September 2024 (and provided further information to Karratha CLG following these meetings).

Reasonable Period

Woodside allowed Karratha CLG a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to Karratha CLG advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Karratha CLG 30 days for consultation. Karratha CLG engaged in consultation and provided feedback in this period.
- As has been made clear in consultation emails and at meetings, Woodside is open to receiving feedback after EP submission and throughout the life of an EP.
- In this context, Woodside allowed Karratha CLG a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Karratha CLG is appropriate and adapted to the nature of interests with Karratha CLG:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- On 29 September 2023, 22 March 2024, 21 June 2024 and 20 September 2024, Woodside presented to the Karratha CLG on Woodside activities including on this EP, and Woodside staff were available to answer questions and receive feedback. Woodside also provided opportunity to receive feedback at local engagement sessions at the Karratha Shopping Centre, Red Earth Arts Precinct, Woodside's Roebourne Office and at the South Hedland Square.
- Furthermore, Woodside considers a reasonable opportunity was provided to Karratha CLG as evidenced by the response from the Dampier Community Association on 30 August 2023 when they provided feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- A member of the Karratha CLG provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to the member of the Karratha CLG's feedback.
 - Made no changes or inclusions to the EP as a result of consultation with Karratha CLG because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Onslow Chamber of Commerce and Industry (Onslow CCI)

Summary of information provided and record of consultation for this EP:

- On 31 August 2023, Woodside emailed Onslow Chamber of Commerce and Industry (Onslow CCI) advising of the proposed activity (Record of Consultation, reference 1.20) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with Onslow CCI for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Onslow CCI sufficient information to allow Onslow CCI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Onslow CCI on 31 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Onslow CCI a reasonable period for consultation in the preparation of this EP because:

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- A consultation period was notified in the initial correspondence to Onslow CCI advising when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Onslow CCI with 30 days for consultation. For consultation on EPs, 30 days is the usual period for Onslow CCI.
- In this context, Woodside allowed Onslow CCI a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Onslow CCI is appropriate and adapted to the nature of Onslow CCI:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Onslow CCI did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Onslow CCI's functions, interests or activities.

Exmouth Chamber of Commerce and Industry (Exmouth CCI)

Summary of information provided and record of consultation for this EP:

- On 10 August 2023, Woodside emailed the Exmouth Chamber of Commerce and Industry (Exmouth CCI) President and CEO advising of the proposed activity (Record of Consultation, reference 1.17) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 23 October 2023, the Exmouth CCI President and CEO attended an information session in Exmouth on behalf of the Chamber (Record of Consultation, reference 3.8.7).and also attended the Exmouth CLG on 21 November 2023 where further information was supplied (SI Report, reference 23.2).
- Woodside's presentation was emailed to the CLG members, regardless of their attendance at the meeting.

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with Exmouth CCI for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:</p> <p>Sufficient Information</p> <p>Woodside has given Exmouth CCI sufficient information to allow Exmouth CCI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:</p> <ul style="list-style-type: none"> • Consultation Information Sheet publicly available on the Woodside website since August 2023. Woodside provided this information to Exmouth CCI on 10 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included: <ul style="list-style-type: none"> – The purpose of consultation and set out what was being sought through consultation. – A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures. – A timeframe for consultation and the provision of feedback. – A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans. – Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations). <p>Reasonable Period</p> <p>Woodside allowed Exmouth CCI a reasonable period for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> • A consultation period was notified in the initial correspondence to Exmouth CCI advising of consultation as well as when consultation would close for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission. • Consultation for this EP commenced 17 months ago in August 2023. • Woodside's methodology allows a 30-day consultation period and Woodside allowed Exmouth CCI with 30 days for consultation. For consultation on EPs, 30 days is the usual period for Exmouth CCI. • In this context, Woodside allowed Exmouth CCI a reasonable period for consultation in preparation of the EP. 		

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with Exmouth CCI is appropriate and adapted to the nature of Exmouth CCI:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside sent a follow-up consultation email on 30 August 2023, reminding Exmouth CCI of the opportunity to provide feedback.
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Exmouth CCI did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Exmouth CCI’s functions, interests or activities.

Karratha & Districts Chamber of Commerce and Industry (Karratha & Districts CCI)

Summary of information provided and record of consultation for this EP:

- On 16 August 2023, Woodside emailed Karratha & Districts Chamber of Commerce and Industry (Karratha & Districts CCI) advising of the proposed activity (Record of Consultation, reference 1.19) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.8).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2).	No additional measures or controls are required.

Summary Report – Consultation Complete

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with Karratha & Districts CCI for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Karratha & Districts CCI sufficient information to allow Karratha & Districts CCI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Karratha & Districts CCI on 16 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Karratha & Districts CCI a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to Karratha & Districts CCI advising of consultation as well as when consultation would close for the purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Karratha & Districts CCI with 30 days for consultation. For consultation on EPs, 30 days is the usual period for Karratha & Districts CCI.
- In this context, Woodside allowed Karratha & Districts CCI a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Karratha & Districts CCI is appropriate and adapted to the nature of Karratha & Districts CCI:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside sent a follow-up consultation email on 30 August 2023, reminding Karratha & Districts CCI of the opportunity to provide feedback.

- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Karratha & Districts CCI did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Karratha & Districts CCI's functions, interests or activities.

Other Non-government Groups or Organisations or Individuals

Conservation Council of WA (CCWA)

Context

CCWA states that it is a 'mix of a campaign group, environmental advocacy group, hands on environment body and a forum for like-minded organisations and individuals'.ⁱ

Climate is one of its two key focuses and to this end it has a "Fossil Fuels program" under which it is working on multiple fronts to stop gas expansion.ⁱⁱ CCWA launched its "Go Beyond Gas" campaign in mid-2023 which is directed at 'stopping the biggest gas plans - Woodside's Burrup Hub mega gas project including Scarborough, the North West Shelf extension and Browse'.ⁱⁱⁱ In April 2024, CCWA used its Go Beyond Gas campaign to call out to other NGOs to join the protest at Woodside's AGM stating 'Woodside is a dangerous and dodgy operator'.^{iv} Woodside understands that CCWA has a fundamental objection to fossil fuels.

CCWA has been actively engaged with Woodside around the Scarborough Energy Project since at least 2018 when it was consulted on the Scarborough OPP and provided feedback via the Environmental Defenders Office (EDO), specifically around topics associated with management, risks and impacts of GHG emissions. Since that time, Woodside has consulted CCWA in relation to the preparation of the Scarborough Seismic, D&C, SITI and Subsea EPs. CCWA engaged in consultation via the EDO for the SITI and D&C EPs. Woodside has continued to consult CCWA consistently with the formats acceptable to CCWA, that is, by email and in some instances in face-to-face meetings.

In relation to this EP, it has been 13 months since consultation commenced with CCWA. Woodside has given information to CCWA and offered to meet however, this offer has not been taken-up.

The historic engagement is important context to confirm that consultation with CCWA is appropriate and adapted to the nature of interests of CCWA.

Historical Engagement:

2018 – 2020

- CCWA has been aware of and consulting on the Scarborough Project (including operations) for around 6 years. In 2018, CCWA was invited to consult on the Scarborough Offshore Project Proposal (OPP) during the three phases of consultation for the Scarborough Project (preliminary, formal and ongoing). Preliminary consultation commenced in 2018. An eight-week formal consultation period ran from 5 July to 30 August 2019. Ongoing consultation continued on acceptance of the OPP in March 2020. The activities under this EP were described in the OPP.

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- CCWA provided comment on the OPP via the Environmental Defenders Office (EDO) (Record of Consultation, reference 4) including on the following topics:
 - Assessment of GHG emissions and regulation/management of emissions.
 - Risks and impacts of GHG emissions on environmental receptors and climate change.
 - Potential impacts to Murujuga rock art and control measures for managing the impacts/risks.
- Woodside addressed all CCWA's comments in the OPP (Record of Consultation, reference 4).

2021 – 2023

- From 2021 to 2023, Woodside consulted CCWA on the Scarborough D&C, SIT1, Subsea and Seismic EPs. Woodside has carefully considered the topics and issues raised by CCWA during consultation on these EPs. A number of topics and issues raised by CCWA during consultation on those EPs have been raised as part of consultation on this EP and include:
 - consultation with relevant persons; provision of draft EPs and other studies; provision of additional time for feedback.
 - GHG emissions, global warming and climate change as well as information relating to control measures for reducing impacts and risks associated with individual EPs and the broader Scarborough Project.
 - Assessment of direct or indirect impacts on cultural heritage including Murujuga rock art and the Dampier Archipelago National Heritage Place.
 - Approval of the Scarborough Project under the EPBC Act and potential impacts on the Great Barrier Reef.
 - Paris Agreement alignment, warming and energy mix scenarios being factored into the impact assessment.
 - Modelling data from habitats outside the impact zones, and uncertain results.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed CCWA advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 17 August 2023, CCWA and [Individual 7] emailed Woodside stating CCWA was interested in providing feedback but needed more time to consider the information provided and would like to meet (SI Report, reference 11.1).
- On 4 September 2023, Woodside thanked CCWA for its email and provided three dates to meet and offered to meet at any other time that suited CCWA (SI Report, reference 11.2).
- On 14 September 2023, after no response, Woodside proactively emailed CCWA asking if it would like to meet on 9 October 2023 (SI Report, reference 11.3).
- On 10 October 2023, after still no response, Woodside again emailed CCWA to follow up on CCWA's request for a consultation meeting, asking that CCWA provide dates it was available to meet (SI Report, reference 11.4).
- On 6 November 2023, when there was no response, Woodside phoned [Individual 7], (CCWA contact on emails), and left a message stating that Woodside was following up on past emails and was still open to meeting at a time convenient to CCWA.
- On 12 December 2023, after receiving no further response, Woodside proactively sent an email and letter to CCWA (SI Report, reference 11.5). Woodside:
 - Summarised the consultation with CCWA since the Scarborough Project's Offshore Petroleum Project (OPP) document was released.
 - Resent a link to the Consultation Information Sheet.
 - Advised that consultation in the course of preparing the EP was closing on 20 December 2023 and requested feedback and offered to meet.

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- In the absence of specific feedback on the Scarborough Operations EP, Woodside provided a review and assessment of past topics of interest and feedback from CCWA on the Scarborough D&C, SIT1, Seismic and Subsea EPs that may be relevant to this EP as follows:
 - (1) Woodside's consultation process.
 - ❖ (1) Woodside complies with regulations and engages with stakeholders throughout the life of an EP.
 - (2) Impacts on Dampier Archipelago National Heritage Place.
 - ❖ (2) Both indirect and direct environmental impacts and risks will be assessed.
 - (3) Approval of the Scarborough Project under the EPBC Act and potential impacts on World Heritage and National Heritage values of the Great Barrier Reef.
 - ❖ (3) The Scarborough OPP was approved under the EPBC Act and Woodside does not accept the assertion that the Scarborough Project is likely to have a significant impact on the heritage values of the Great Barrier Reef, or the basis for that assertion as identified in the letter.
 - (4) The Scarborough EPs should include an evaluation of impacts and risks related to GHG emissions caused by the Project.
 - ❖ (4) GHG emissions will be assessed in the EP. GHG emissions will be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008* and other industry standard database. The EP will assess both direct and indirect impacts and risks associated with the activity, having regard to the nature and scale of the proposed PAP.
 - (5) Indirect impacts and risks in terms of climate change and degradation of rock art is not properly addressed.
 - ❖ (5) There are no credible impacts to Murujuga cultural landscape including impacts on rock art in relation to air emissions produced at the offshore Floating Production Unit. Gas will be exported onshore and processed at the Pluto Gas Plant. Pluto LNG's Air Quality Management Plan has been reviewed and approved by the Western Australian Environment Protection Authority as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant.
 - (6) Some modelling on receptors and environment impacts is not relevant.
 - ❖ (6) The EP will be informed and supported by a range of literature and studies, with many publicly available. Woodside has commissioned a range of modelling related to the activities described in the EP, which includes analysis against various environmental receptors.
 - (7) Importance of epifauna and infauna to overall ecosystem health is downplayed, as is environmental impact on benthic communities in the spoils ground.
 - ❖ (7) Disturbance to the seabed and impacts to benthic habitat and communities is assessed in the EP. Spoils ground issues are addressed in the Seabed Intervention and Trunkline Installation EP accepted by NOPSEMA in December 2023.
- On 12 December 2023, in response to Woodside's letter sent via email, Woodside received two auto-generated out of office replies, including one from [Individual 7].
- [Individual 7] advised that as of 27 October 2023 they no longer worked for CCWA and to send future emails to conswa@ccwa.org.au (SI Report, reference 11.6).
 - The second out-of-office reply directed emails to be sent to two other people (SI Report, reference 11.7).
- On 12 December 2023, Woodside resent its letter via email to the three email addresses provided on the out-of-office replies (SI Report, reference 11.8).
- On 13 December 2023, CCWA responded to Woodside via a letter thanking Woodside for its correspondence dated 12 December 2023 (SI Report, reference 11.9), and claiming the following:
 - (1) It was disingenuous for Woodside to state it had been in a continued dialogue with CCWA.

- (1) CCWA was not aware of the previous requests to consult on this EP and stated that although it was regrettable that emails and phone calls were not responded to, it should be understood that CCWA had limited resources and staff.
- (8) CCWA had the right to be consulted and wished to review relevant information and respond by 31 January 2024. CCWA stated this timeframe was not unreasonable given the commencement date for activities was the second half of 2025.
- (1) As this EP covered decades of substantial fossil fuel production operations, there should be a high degree of consultation.
- (1, 4) The Consultation Information Sheet contained limited information about impacts from the activity with no details of GHG emissions and CCWA required more information on this aspect of the activity.
- On 19 December 2023, Woodside responded to CCWA advising the following (SI Report, reference 11.10):
 - (1) It had provided the Consultation Information Sheet to CCWA on 9 August 2023 and received a response on 17 August 2023 that it had received the information. Woodside had then sent four further pieces of correspondence including offering times and places to meet with CCWA with no response from CCWA to any of that consultation correspondence.
 - (1) To accommodate CCWA's request for more time, Woodside had already extended the consultation period from ending on 11 September 2023 to ending on 20 December 2023.
 - (1) Woodside had also run an extensive media and social media campaign calling for comments and providing stakeholders with further information.
 - (1) Assessed that based on the many attempts to engage with CCWA and provision of material already provided to CCWA, that sufficient information and a reasonable period of time had been provided to CCWA and that as previously advised, consultation closed on 20 December 2023.
 - (1) It also noted that since August 2021, Woodside had been actively engaged in an exchange of correspondence with CCWA and/or the EDO on behalf of CCWA regarding the other 4 Scarborough EPs and those EPs had now been accepted by NOPSEMA. The exchange of consultation correspondence by email was the usual method used by CCWA.
 - (1) In the absence of feedback, Woodside proactively reviewed, considered and addressed CCWA's previous topics of interest on the four Scarborough EPs. Woodside also proactively reviewed, considered and addressed CCWA's previous feedback on the Scarborough OPP. Woodside set that out in the correspondence.
 - (1) Woodside also provided links to the Statement of Reasons for the OPP, the formal consultation report for the OPP and a factsheet about the Pluto LNG Facility Greenhouse Gas Abatement Program.
 - (1) Woodside advised that consultation continues to occur during the life of an EP and that the Management of Change and Review process can be applied if appropriate.

Ongoing engagement:

- On 7 March 2024, Woodside sent proactive emails to CCWA stating that as they had shown an interest in climate-related topics, they may be interested in the release of Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report which summarised Woodside's climate-related plans, activities, progress and climate-related data (SI Report, references 11.11, 11.12 and 11.13).
 - The email included links to the CTAP and the ASX Announcement.
 - (1) The email re-iterated that consultation in the preparation of this EP had closed however, feedback could continue to be provided during the life of an EP, including after consultation had closed on the EP, during EP assessment, and after an EP had been accepted by NOPSEMA.
 - (1) Finally, the email stated that Woodside was available to meet with CCWA to discuss this EP should they be interested.
- On 4 July 2024, Woodside again proactively emailed CCWA and provided a link to the publicly available EP on NOPSEMA's website (SI Report, reference 11.14). Woodside advised that it continued to assess and respond to feedback throughout the life of an EP, and that Woodside was available to meet with CCWA over the next month. Based on CCWA's previous feedback, Woodside also included a table of specific topics which CCWA might be interested in, and where to find that topic in the EP, including:

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- **(4)** Information on GHG emissions associated with the project and the potential impacts of climate change can be found in EP Section 6.7.6.
- **(5)** Information on the assessment of potential risks and impacts of atmospheric emissions could be found in EP Section 6.7.7.
- **(4)** Information regarding Paris Agreement alignment and scenarios could be found in EP Section 6.7.6.
- **(6)** Consideration of climate science could be found in EP Section 6.7.6.
- On 12 July 2024, CCWA emailed Woodside (and copied NOPSEMA) regarding this EP (SI Report, reference 11.15). CCWA reiterated previous topics and also provided the following feedback, claims or objections:
 - **(1)** Information provided by Woodside fell short of consultation requirements under reg 25 and did not meet reg 34 of the Environment Regulations.
 - **(8)** Confirmation was requested of CCWA's relevant person status.
 - **(1)** The accuracy and adequacy of information in the EP, OPP and Information Sheet and whether it was misleading or incorrect.
 - **(9)** The statement of reasons for the Scarborough OPP did not mention adequacy of information provided on impacts that would affect CCWA.
 - **(10)** Inadequate information had been provided on emissions from the Scarborough and climate change in WA.
 - **(11)** The OPP was reliant on out-of-date information relating to climate impacts, energy scenarios and emissions scenarios.
 - **(12)** The OPP used information and scenarios from 2018-2020 and the current EP referenced an IEA Net Zero Roadmap which had been updated but not referenced by the EP.
 - **(13)** The NDC referenced in the OPP had been updated in the EP.
 - **(14)** The conditions set out for the Pluto LNG facility, as referenced in the OPP, were inadequate.
 - **(15)** Questioned the claim that LNG was expected to play a key role in the future energy mix and in displacing more carbon intensive power generation.
 - **(16)** Long-term economic, environmental, social and equitable considerations due to climate change had not adequately outlined and therefore were not able to be adequately considered by NOPSEMA.
 - **(17)** GHG emissions would have impacts that were of consequence on sensitive and high-quality environments. These included climate change impacts on MNES that would be exacerbated by GHG emissions from the Scarborough project.
 - **(18)** The OPP Statement of Reasons stated that environmental impacts and risks had been appropriately identified, and asserted there were impacts and risks that had not been appropriately identified.
 - **(19)** It not been provided with information as to how the project would fit into Australia's NDC.
 - **(20)** GHG emissions from the project would not be reduced to ALARP levels.
 - **(21)** Claimed that Woodside had lobbied against climate policy that would drive demand for low carbon fuels; for example, Victoria's gas substitution road map.
 - **(22)** All Australians had the right to be consulted on matters that would affect their wellbeing and environment - there are groups and individuals who qualified as relevant persons who had not been regarded as such.
 - **(23)** The consultation information sheet did not give information on Scope 3 emissions or climate impacts associated with these emissions.
 - **(24)** Further information, including climate impacts, should be distributed to all relevant persons.
 - **(25)** Every tonne of CO₂-e emitted into the atmosphere added to global warming.

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- **(26)** The 878MtCO₂-e from the Scarborough gas project is likely to cause an approximate increase of 0.0003951°C in global surface temperature, and that associated emissions through Pluto and the greater Burrup Hub would be additional to this.
- **(27)** Woodside's claim that total emissions from the proposal amounted to an insignificant contribution to the global carbon budget, however, the Scarborough project would occupy approximately 0.439% of this budget. This is a significant contribution that must be qualified.
- **(28)** Estimates had not been provided of remaining carbon budgets as of the proposed start date of the project, and the resulting budget occupation.
- **(29)** The project's emissions will occupy 0.0976% of the carbon budget that is the difference between 1.5°C global heating and 2.0°C global heating. Estimates had not been provided of how many species would become extinct as a result of its contribution to a 2.0°C world.
- **(30)** Claimed it was incorrect to state there was no direct link between GHG emissions from Scarborough and climate change impacts.
- **(31)** Section 6.7.6 of the EP should include ecosystems/habitat, species, and socioeconomic considerations.
- **(32)** The statement that "emissions associated with the project are negligible" was misleading and its estimate of approximate annual scope 1 emissions of 6.4 MtCO₂-e were significant and material on both a state and national level.
- **(33)** The EP quoted the IPCC AR6 working group report, and suggested that the report noted that societal choices and actions implemented in the next decade will determine the extent to which medium and long-term pathways would deliver climate resilient development, and that projects such as Scarborough were exactly the choices the IPCC AR6 group referred to.
- **(34)** The "no consequence assigned" to GHG emissions was inaccurate and unacceptable.
- **(35)** The Statement of Reasons for the OPP made a case that natural gas was expected to play a key role in the future energy mix, and would therefore contribute to the IEA's sustainable development scenario (SDS), however the SDS had been updated.
- **(36)** The documents contain unsubstantiated claims that LNG would contribute to global emissions reduction effort, and adequate information had not been provided to show gas from the project would be replacing coal.
- **(37)** A recent paper noted IEA's 2023 NZE roadmap showed gas use needed to be declining already at 2% per year towards 2030 and accelerating to 8% per year between 2030 and 2040. Recent research showed LNG capacity greatly exceeded any needs for coal to gas switching as part of 1.5°C compatible, energy transitions.
- **(38)** Contested the claim that gas was less emissions intensive than coal when full lifecycle emissions were accounted for.
- **(39)** Estimates were not provided of the cumulative emissions that the Scarborough project would contribute to worldwide.
- **(40)** Woodside's Climate Transition Action Plan and 2023 Progress Report contained plans and targets that were unenforceable.
- **(41)** Abatement plans consisted nearly entirely of offsets, and offsetting was not sufficient to mitigate climate change impacts.
- **(42)** Good and achievable mitigation measures that sat above offsetting on the mitigation hierarchy were available. Woodside stated it would seek to reduce emissions as a priority but provided no estimates or any commitment to reducing emissions from the facility, including no consideration or commitment to reducing combustion emissions via more efficient combined cycle turbines or electrification options such as e-drives. This was not consistent with the OPP.
- **(43)** No commitments had been made to reducing Scope 3 emissions.
- **(44)** The project was not consistent with state aspirations of net zero by 2050.

- **(45)** The statement that “the majority of emissions and discharges, particularly those which will occur during the full lifecycle of Scarborough, will be made within the permit area” was not correct. The majority of Co2-e emissions would not be made within the permit area, and emissions made within the permit area were subject to dispersal to nearby population centres which must be notified and consulted about potential health impacts.
- **(46)** When referencing renewable power sources, Woodside displayed disregard for emissions reductions by stating implementation of the control required considerable cost with minimal environmental benefit.
- **(47)** The Paris Agreement was not accurately represented and it did not talk about limiting global warming to well below 2 degrees but holding warming to well below 2 degrees while pursuing efforts to limit warming to 1.5 degrees.
- **(48)** Stated Woodside was cherry-picking a certain scenario to make a general conclusion and that was not an appropriate use of the IPCC scenario database.
- **(49)** The P3 pathway relied on by Woodside referenced 687Gt of CO2 CCS, and it had not contributed to this CCS total.
- **(50)** Proper consideration was not given to the global carbon budget.
- **(51)** Scope 3 emissions could better be controlled by leaving them safely buried underground.
- **(52)** Referenced Australia’s legislated emission reduction target and said:
 - The target did not include Scope 3 emissions.
 - The target was not aligned with the temperature goals of the Paris Agreement.
 - The Scarborough Project would produce the majority of its emissions after 2030.
 - It was estimated that 960 Mt of emissions abatement would be achieved by federal reduction policies, which the Scarborough Project would cancel out over 91%.
- **(53)** Requested further information on how the Scarborough project fit into 1.5°C scenarios.
- **(54)** Disagreed with the assertion that the total lifecycle impact of gas, including the Scarborough project, was expected to result in lower net global atmospheric concentrations of GHG than would otherwise have been the case.
- **(55)** No specifics were given regarding monitoring and management actions to address uncertainties in the role of natural gas in displacing higher emission insensitive fuels.
- **(56)** Scarborough did not create an LNG demand but could contribute to meeting it, and claimed reductions in supply from the proponent would have climate benefits.
- **(57)** Woodside’s statements relating to net-zero and the lack of implications assigned to Scarborough gas amounted to greenwashing, according to the UN and International Standardisation Organisation. This was displayed by: Not supporting the phase out of fossil fuels; continuing to build and invest in new fossil fuels; not prioritising emissions reductions; not reducing absolute emissions; relying almost entirely on offsets; not including interim targets; not accounting for Scope 3 emissions reductions; lacking a detailed transition plan.
- **(58)** NOPSEMA should not rely upon information that did not pass greenwashing standards.
- **(59)** Ample evidence existed to show projects such as Scarborough and associated processing at the Pluto LNG facility were having negative impacts on Murujuga rock art.
- **(60)** The proposal did not mitigate any impacts on Murujuga rock art.
- **(61)** MRAMP’s first-year report showed the rock art to be in almost permanently acidic environment with all sites showing high acidity levels.
- **(62)** No management responses were proposed from MRAMP.
- **(63)** Woodside was not ensuring that “no air emissions from the proposal have an adverse impact accelerating the weathering of rock art within Murujuga beyond natural rates”

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- **(64)** The Scarborough project presented unacceptable risk and irreversible impacts to the environment and any approval would be a violation of the precautionary principle.
- **(65)** The Scarborough Project violated the intergenerational principle.
- **(66)** The project represented a violation of the biodiversity principle.
- **(67)** Further information, including reports, analyses, assessments, modelling and other documents, is required on a number of topics including: the environment that may be affected; environmental risks and impacts of the activities; potential impacts and risks on species; potential risks and impacts in relation to Sea Country; potential impacts and risks of GHG emissions; GHG control measures including any proposal for carbon capture and storage; potential cumulative impacts of the project.
- **(68)** More specific and up-to-date information on proposed control measures were required.
- **(69)** The EP needed to include an evaluation of “all the environmental impacts and risks arising directly or indirectly”. The indirect impacts and risks of GHG emissions associated with a new fossil fuel development must be evaluated.
- On 15 August 2024, Woodside emailed CCWA advising it was assessing the topics raised in CCWA’s consultation correspondence dated 12 July 2024, and offered to meet CCWA to discuss the items raised. Woodside noted it had previously offered to meet with CCWA when consultation on this EP began in August 2023 and was making that offer again (SI Report, reference 11.16).
- On 30 August 2024, CCWA emailed Woodside confirming it had received the offer to meet and asked whether Woodside’s assessment of the points raised in its correspondence would be made available to them before any potential meeting (SI Report, reference 11.17).
- On 8 October 2024, Woodside thanked CCWA for its correspondence dated 12 July 2024 and further correspondence in August 2024 regarding Woodside’s offer to meet (SI Report, reference 11.18). In the consultation correspondence on 8 October 2024, Woodside:
 - Advised it had assessed and responded to the topics and issues raised by CCWA, and confirmed that, following consultation with CCWA, updates had been made to the EP.
 - Described its consultation process which is consistent with regulation 25 of the Environment Regulations, and provided a summary of historical consultation between Woodside and CCWA regarding Scarborough EPs, as well as a summary of consultation regarding the Operations EP.
 - Advised it had recently reviewed CCWA’s website and noted statements that suggested CCWA was fundamentally opposed to the fossil fuel industry. It was also noted there were stated connections on CCWA’s website between CCWA and other NGOs who had campaigns against Woodside, including Doctors for the Environment Australia (DEA) and the Australian Conservation Foundation (ACF).
 - Noted CCWA was informed, resourced, had legal advisors, had brought or been involved in multiple Court cases against Woodside relating to environmental approvals associated with the Scarborough Project, and had made numerous detailed and informed submissions to the Western Australian Appeals Convenor about Woodside’s environmental approvals. These demonstrated CCWA had a sufficient understanding of the activities to allow CCWA to make an informed assessment of the possible consequences of the proposed activity on its functions, interests or activities.
 - In response to topics and issues raised by CCWA, Woodside:
 - **(8)** Confirmed that CCWA had been identified as a relevant person for the purposes of consultation for the Operations EP.
 - **(1)** Disagreed with CCWA’s position that the EP, OPP and fact sheets did not contain sufficient information. Woodside disagreed with the assertion that its fact sheets did not contain sufficient information on the activity in this EP, or that CCWA had not been given sufficient information for the purposes of consultation.
 - **(9)** Advised it did not author the Statement of Reasons therefore did not respond to CCWA’s criticism of it. Further, there was no requirement for NOPSEMA’s Statement of Reasons to mention or provide information on impacts to CCWA.

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- **(10)** Clarified the regulations require Woodside to provide sufficient information. Woodside has given CCWA sufficient information to allow CCWA to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of CCWA. Regarding the assertion that the Scarborough Project would exacerbate climate impacts in WA, Woodside:
 - Acknowledged climate science that stated climate change was understood to be caused by the net (cumulative) global concentration of GHG in the atmosphere. Changes in global atmospheric GHG concentration could not be attributed to any one activity or one project, including the Scarborough Project, as they were instead the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the start of the industrial revolution.
 - Woodside's view was that LNG could have a role in the energy transition and if the introduction of Scarborough LNG served to reduce GHG emissions elsewhere, in Woodside's view the full volume of GHG emissions associated with the project were not expected to be additive to global GHG concentrations. Therefore, Woodside did not accept the Scarborough Project would contribute to the exacerbation of climate change impacts in Western Australia.
 - However, to facilitate a comparison against carbon budgets, a hypothetical assumption where GHG emissions associated with the project were hypothetically treated as additive was considered in the latest version of the EP. The contribution was de minimis.
 - Woodside noted that notwithstanding this, climate change was recognised as a global issue and provided a summary of the contextual evaluation that is included in the EP, for reference, in Section 6.7.6.
- **(11)** Disagreed that the OPP was accepted on the basis of out of date, inadequate or misinterpreted information. Information has, by its nature, increased in volume since the Scarborough OPP was accepted, but more recently published information did not necessarily mean the information was different or contained new concepts. EPs were also designed to include updated information (if relevant).
- **(12)** Acknowledged updates and confirmed the 2023 IEA Net Zero Roadmap was aligned with references to the original 2021 report set out in the EP. Woodside confirmed the revised EP reflected the updated roadmap and noted Section 6.7.6 of the EP discussed the project in the context of gas demand in climate-related scenarios.
- **(13)** Acknowledged that Australian GHG emissions targets had been updated and the updated targets were incorporated in the Operations EP. The targets were relevant to the Federal Safeguard Mechanism (SGM) and further information was provided in Section 6.7.6 of the EP.
- **(14)** Acknowledged the EPA had provided advice regarding the Pluto LNG facility and advised that Woodside was currently updating the Pluto LNG Plant's Greenhouse Gas Abatement Program in accordance with Ministerial Statement 1208. Woodside advised the EPA report also included a recommendation of a requirement 'to ensure that air emissions from the (Pluto) proposal do not accelerate the weathering of rock art on Murujuga beyond natural rates'. The Pluto LNG facility's current Air Quality Management Plan (AQMP) managed potential impacts to Aboriginal rock art and Woodside noted further amendments may be made to Pluto documents after the outcomes of the Murujuga Rock Art Monitoring Program (MRAMP) were published.
- **(15)** Confirmed its view was that LNG could have a role in the energy transition and in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes. Woodside noted references to and quotes from the OPP and a CSIRO report were quoted by CCWA in isolation and should be read in their full context. Woodside noted the EP used a hypothetical assumption where anticipated GHG emissions associated with the project were assumed to be additive and, based on this hypothetical assumption, contributions of the project to the global carbon budgets estimated by the IPCC to achieve the goals of the Paris Agreement were de-minimis and therefore acceptable.
- **(16)** Disagreed with CCWA's assertion and advised the EP assessed GHG emissions associated with the project. Woodside noted that human-caused climate change was a consequence of net GHG emissions that had accumulated in the atmosphere since the start of the industrial revolution. A contextual evaluation of climate change impacts was included in the EP, and NOPSEMA had accepted the OPP on the basis that the impacts and risks of the Scarborough project were acceptable.
- **(17)** Disagreed with the assertion that direct and indirect emissions associated with the Scarborough project would have impacts that were of serious consequence on sensitive and high-quality environments. As set out in **(10)**, changes in global atmospheric GHG concentrations could not be attributed to any one activity or one project, including the

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Scarborough project. Even discounting the role gas could play in the energy transition, emissions associated with the project were negligible in the context of existing and future predicted global GHG emissions.

- (18) Noted the extract from the Statement of Reasons and disagreed that the OPP did not appropriately identify environmental impacts and risks and considered these were addressed in the OPP.
- (19) Advised Australia's carbon management framework had continued to develop since the OPP was accepted, and the current framework was reflected in the EP. Woodside provided an overview of the Federal SGM and noted further detail and context was set out in Section 6.7.6 of the EP.
- (20) Confirmed Woodside considered GHG emissions associated with the project, and the impact on global carbon budgets which were expected to achieve the goals of the Paris Agreement, would be managed to ALARP. Woodside provided details of its multiple project phases to design out and operate out direct GHG emissions. Woodside noted Scope 3 emissions associated with onshore processing of Scarborough gas were subject to GHG emissions frameworks and regulatory approvals. Woodside continued to pursue a range of management and mitigation measures relevant to GHG emissions associated with third party consumption of gas.
- (21) Disagreed with the assertion that it had actively lobbied against effective climate policy that would drive demand for low carbon fuels. Woodside's advocacy aimed to support the goals of the Paris Agreement. Woodside noted the corresponding reference to CCWA's assertion was unclear, but provided links to its Climate Policy, Climate Transition Action Plan and 2023 Progress Report, and a list of government submissions and reports made by Woodside.
- (22) Noted that if CCWA knew of relevant persons to be consulted, CCWA should identify them so that Woodside could apply its consultation methodology including assessing them for reference. This methodology was set out in Section 5.3.4 of the EP.
- (23) Confirmed routine and non-routine atmospheric and GHG emissions were covered in the information sheet, including indirect (Scope 3) emissions from support vessels and onshore processing. Woodside provided further information on sources and volumes of Scope 3 emissions.
- (24) Noted information on the topics of climate change and emissions was set out in the EP which was publicly available; referred to Woodside's methodology for identifying relevant persons; and confirmed Woodside had advertised consultation widely for this EP to allow broad awareness.
- (25) Acknowledged climate science and that human-caused climate change was understood to be the consequence of net GHG emissions that have accumulated in the atmosphere since the start of the industrial revolution from energy use, land use change, lifestyle patterns of consumption and production. Woodside acknowledged IPCC statements regarding the near linear relationship between cumulative anthropogenic CO₂ emissions and the global warming they caused and provided information on the IPCC's estimated global carbon budget related to Paris Agreement scenarios. Woodside noted the reduction in a carbon budget by emissions associated with the project, and therefore its alignment with Australia's targets aligned to the Paris Agreement, was a relevant measure to apply to assess acceptability of the project. Woodside provided its view that LNG could have a role in the energy transition and that the full volume of GHG emissions associated with the project were not expected to be additive. As described above, even in the hypothetical scenario when taken to be wholly additive, the GHG emissions created by and associated with the project represented a de minimis contribution to the carbon budgets anticipated to achieve the goals of the Paris Agreement.
- (26) Noted that CCWA had not included workings or figures for its emissions calculations and noted CCWA's ability to make the asserted calculations was inconsistent with its claims it had not been provided with sufficient information relating to GHG emissions associated with the project.
- (27) Maintained its position regarding the acceptability of the project. Woodside noted a portion of GHG emissions associated with the project were anticipated to contribute to a consumption of carbon budgets estimated to achieve the goals of the Paris Agreement. Woodside, however, noted CCWA had not provided background workings or figures underpinning its calculations and without that visibility it was not possible for Woodside to comment on CCWA's calculations. Woodside set out further information on how the project fit within carbon budgets.

- (28) Noted carbon budgets were subject to change and assessment was undertaken on the basis of information current and available at the time, and assuming the hypothetical scenario where the entirety of emissions associated with the project were hypothetically additive to global GHG concentrations.
- (29) Disagreed with CCWA's position and its calculations regarding carbon budgets and referred CCWA's to previous responses on Woodside's position on climate change and GHG emissions, and its position on carbon budgets related to the Paris Agreement.
- (30) Advised that changes in global atmospheric GHG concentrations could not be attributed to any one activity or one project, including the Scarborough project, as they were instead the result of global GHG emissions, minus global GHG sinks, that had accumulated in the atmosphere since the start of the industrial revolution. The accumulation of net GHG emissions in the atmosphere was, in turn, influenced by a number of factors including global energy demand and the composition of the global energy mix.
- (31) Confirmed that, in response to feedback, assessment of GHG emissions associated with the Scarborough project was undertaken against global GHG concentrations.
- (32) Stated that Woodside was not engaging in misleading or deceptive conduct and explained the context and background to the conclusion it made. Woodside disagreed with CCWA's estimate of GHG emissions associated with the project and advised the annual estimated Scope 1 emissions created by the activity were estimated to be 0.61 MtCO₂-e. Woodside also provided details of the Federal SGM, and regulatory frameworks for GHG emissions originating within WA.
- (33) Confirmed Woodside recognised the IPCC as a leading body on climate change science and acknowledged the AR6 report.
- (34) Confirmed the GHG emissions assessment in the current EP version focused on assessment of GHG emissions associated with the Scarborough Project against global GHG concentrations. As described in other responses, the contribution of the project to global carbon budgets estimated to achieve the goals of the Paris Agreement was de minimis. Woodside confirmed that, as part of the assessment process, the EP included further background and context and assigned a consequence of "F" in accordance with the Woodside risk matrix.
- (35) Noted CCWA's acknowledgement of the IEA's SDS update.
- (36) Advised that the regulations require Woodside to provide sufficient information. Woodside maintained the position that LNG could have a role in displacing higher carbon intensity fuels. Woodside advised expected customer nations' NDCs under the Paris Agreement pointed to the use of LNG as a means of achieving customer nation commitments and noted electricity generation using natural gas typically released about half the Lifecycle amount of GHG compared to electricity generation fuelled by coal (IEA 2019).
- (37) Disagreed with CCWA's position, including because the IEA NZE was not the only pathway to meet the objectives of the Paris Agreement. Woodside referred CCWA to other responses for further information on Woodside's position on climate change and GHG emissions, and Woodside's assessment of the hypothetical contribution of the Scarborough project on carbon budgets.
- (38) Advised that Woodside supports management of methane emissions. Woodside advised measures to mitigate methane emissions had been implemented on the FPU and further background, context and information was provided in Section 6.7.6 of the EP under the subheading *Management and Mitigation*. Woodside noted emissions factors used in the EP to estimate Scope 3 GHG emissions took into account expected methane emissions. Woodside further noted the IEA also stated in its 2024 Global Methane Tracker that the Australian upstream gas industry had the equal second-lowest methane intensity of the top oil and gas producing countries.
- (39) Advised a breakdown of emissions sources extended over 11 pages in Section 6.7.6 of the EP, which also included a definition from the GHG Protocol of direct and indirect emissions which was based on operational control of the project. Woodside advised the total estimated GHG emissions associated with the project, as presented in Table 6-21 of the publicly available EP, were approximately 880 MtCO₂-e over the life of the activity.
- (40) Advised the information and commitments in the EP were consistent with the OPGGS(E) Regulations and the CTAP provided broader business context and internal plans and targets, and was not published under regulatory requirement.

- (41) Referred CCWA to other responses which provided information on the mitigation and management approach undertaken for the project. Woodside confirmed avoiding and reducing GHG emissions was its priority and Woodside aimed to achieve this principally by pursuing opportunities in the design and operation of assets. Offsetting emissions allowed a reduction of net emissions while asset and technology decarbonisation plans were matured and implemented, and in the longer term, and in circumstances where emissions were hard-to-abate, residual emissions would be offset using carbon credits in order to achieve emission reduction requirements.
- (42) Confirmed that Woodside applied a framework to reduce emissions during the design phase, and that as a result of this process, some measures to reduce emissions had been implemented and others had not. Woodside noted that by way of example, combined cycle power generation turbines were considered but not selected for the Scarborough FPU, and set the reasons. Woodside noted electrification of compressor drive (e-drive compressors) may be a feasible alternative for onshore facilities where other power supply was available, however, the electricity used to power an e-drive on the facility would be generated by other turbines burning fuel gas and producing GHG emissions. Woodside advised that as a result of CCWA's feedback, Woodside had updated the latest version of the EP to include assessment of combined cycle turbines and electrification of compressors.
- (43) Confirmed the Woodside titleholder for this EP did not have operational control over Scope 3 emissions associated with third party consumption of Scarborough gas and in these circumstances, the measures in the EP were appropriate and practicable. Woodside further advised that emissions arising from the consumption of Scarborough gas along with other feed sources in customer markets would be considered under domestic and international emissions control framework, and that anticipated customers of gas from the Scarborough project were countries that were parties to the Paris Agreement.
- (44) Provided information on the Federal SGM regulation requirements. Woodside advised Scope 1 emissions from the project originated in Commonwealth waters and were not subject to WA carbon frameworks. Scope 3 emissions associated with onshore processing of Scarborough gas would originate within WA and these facilities were subject to WA legislation which was implemented in a number of ways. At a corporate level, Woodside was targeting a reduction of net equity Scope 1 and 2 GHG emissions of 15% by 2025 and 30% by 2030 relative to a starting base, with an aspiration of net zero by 2050 or sooner.
- (45) Advised the statement CCWA had replicated from the OPP was misconstrued. Read in context, the statement concerned aspects such as physical presence, light emissions and discharges from project vessels, where reference to the Permit Area was appropriate.
- (46) Advised that CCWA's referenced statement was made out of context. Woodside confirmed assessment of potential controls was undertaken in accordance with the ALARP framework and NOPSEMA guidance which stated that alternative control measures may be discounted if they were "grossly disproportionate to the benefit gained". In the case of supplying power from shore to the FPU, Woodside maintained that the cost associated with installation of a 430km cable from shore to the field location was grossly disproportionate to the environmental benefit gained.
- (47) Provided an extract from article 2 of the Paris Agreement in demonstration of its understanding of the overarching goal of the Agreement. Woodside referred CCWA to other responses for further information on Woodside's position on climate change and GHG emissions, and Woodside's assessment of the hypothetical contribution of the Scarborough project on carbon budgets.
- (48) Agreed that cherry-picking climate scenarios was not appropriate, which was why Woodside had considered the IPCC's range of scenarios and scenarios from other providers, and further information was set out in Figure 6-7 of the EP in Section 6.7.6. Woodside also noted it engaged directly with customer markets to understand market intentions.
- (49) Confirmed Woodside's assessment did not "favour" any particular climate scenario but rather aimed to show how the Scarborough project could fit within a range of Paris-aligned scenarios.
- (50) Referred CCWA to other responses for further information on Woodside's position on climate change and GHG emissions, and Woodside's assessment of the hypothetical contribution of the Scarborough project on carbon budgets.

- (51) Confirmed that Woodside was required, including under the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations to ensure that the plan to develop the resource was compatible with the optimum long-term recovery of petroleum from the offshore area.
- (52) Advised that:
 - ❖ Australia's targets include Scope 3, and confirmed that Australia's targets did include Scope 3 emissions as defined in relation to the Scarborough project.
 - ❖ CCWA's position that the target was not aligned with the temperature goals of the Paris Agreement was a matter on which the Australian Government had enacted legislation which Woodside was relevantly complying with.
 - ❖ Australia is anticipating setting a 2035 target consistent with the Paris Agreement.
 - ❖ It is inappropriate to conflate emissions that would occur internationally.
 - ❖ Emissions arising from the consumption of Scarborough and Pluto gas would be considered under domestic and international emissions control frameworks. Under the Paris Agreement and global GHG accounting conventions, each country was responsible for accounting for, reporting and reducing emissions that physically occurred in its jurisdiction.
- (53) Advised emissions associated with the project fit within Australia's NDC and the NDC of customer's nations. Both Australia and current expected customer nations had set targets consistent with the Paris Agreement to pursue efforts to limit global warming to 1.5°C. Woodside referred CCWA to other responses which set out in detail how GHG emissions associated with the project were assessed against global carbon budgets.
- (54) Confirmed it maintained that the total life cycle impact of gas, including Scarborough gas, is expected to result in lower net global atmospheric concentrations of GHGs than would otherwise have been the case.
- (55) Advised that at a corporate level, Woodside had measures for monitoring and managing uncertainty in the role of natural gas in displacing higher emission intensive fuels. This included engaging with customers and potential customers regarding demand and the carbon policies of the governments in the jurisdictions in which they operated.
- (56) Advised the assumption that global energy demand would decrease if the Scarborough project did not go ahead was flawed. Woodside noted global energy demand was influenced by a number of factors including population growth and government policy. Woodside also noted the statement from the OPP should be read in its full context.
- (57) Woodside understands CCWA's allegations regarding greenwashing to be an allegation that Woodside has engaged in misleading or deceptive conduct. Woodside does not agree. In Woodside's view, the a-h points provided by CCWA were no indicators of misleading or deceptive conduct. Woodside noted it was aware of the UN High Level Expert Group on Net Zero Integrity Matters – Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions and the ISO Net Zero Guidelines as well as a range of other forums, public dialogues and reports regarding purported greenwashing. Woodside recently participated in the Australian Senate Inquiry into Greenwashing. As per its statement, Woodside takes care with its statements, particularly in relation to climate change, so that these statements were accurate. Woodside provided further information on its climate targets from a corporate perspective and advised further information was available in its Climate Transition Action Plan and 2023 Progress Report.
- (58) In addition to its response to the previous point (57), Woodside noted it had a practice of carefully considering and verifying statements and disclosures. Woodside provided a link to the Fact Checker on its website.
- (59) Provided information from MRAS which stated that data currently available from previous monitoring projects did not allow for a conclusive answer on whether anthropogenic emissions were impacting Murujuga's rock art, and that the MRAS was therefore essential to fill these gaps in knowledge. Woodside directed CCWA to sections of the EP which discussed existing research on onshore emissions, and assessment of potential impacts of onshore emissions on rock art.
- (60) Referred CCWA to its previous response regarding the inconclusive position on rock art impacts. Woodside confirmed that nevertheless, precautionary measures were in place that reduce risk of impact, and further information was provided in the EP. Woodside also noted controls considered in the EP had been extended to reflect the requirement of the Pluto Gas Plant to implement best practice in minimising air emissions, and provided a list of examples.

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- **(61)** Noted the MRAMP report also stated that “data collected in the first year of observation do not permit any firm conclusions to be drawn about trends in rock surface condition and any relationship to air quality over time”. Woodside does not consider these results to be definitive and recognises that further work by MRAMP is required.
 - **(62)** Referred CCWA to other responses which addressed the uncertainty regarding the potential impact pathway from onshore atmospheric emissions on Murujuga rock art and noted onshore industrial air emissions were being managed by EPA, while DWER was also involved including via the MRAS.
 - **(63)** Referred CCWA to other responses which addressed the uncertainty regarding the potential impact pathway from onshore atmospheric emissions on Murujuga rock art, and precautionary measures taken to address the uncertainty.
 - **(64)** Disagreed with CCWA’s assertion that Scarborough Project presented an unacceptable risk and (would cause) irreversible impacts to the environment. Woodside noted the highest magnitude for the activity under the EP was: planned impact/consequence Slight, short-term impact (<1yr) on species and/or habitat (not affecting ecosystem function) physical or biological attributes. For unplanned activities, the highest level of impact or consequence is Moderate, medium-term impact (2-10 yrs) on ecosystems, habitat or physical/biological attributes. This relates to the low likelihood event of vessel collision resulting in marine diesel release along the Trunkline route.
 - **(65)** Noted the impacts and risks of the Scarborough project were determined to be acceptable in the Scarborough OPP through consideration of evaluation criteria which includes the principles of ecologically sustainable development consistent with the EPBC Act. Woodside also set out four points outlining how the Scarborough project was considered to align with the core objectives of ESD.
 - **(66)** Referred CCWA to other responses for further information on Woodside’s position on climate change and GHG emissions, and Woodside’s assessment of the hypothetical contribution of the Scarborough project on carbon budgets.
 - **(67)** Advised it was not reasonable for Woodside to provide information, technical evaluations and studies requested by CCWA which included commercially sensitive or confidential information, and it was not required in order to allow CCWA to make an informed assessment of the possible consequences of the activity on CCWA’s functions, interests or activities. Woodside again noted the full EP and OPP were publicly available, and referred CCWA to other responses regarding the volume of information already provided to CCWA relevant to this EP. Woodside also noted the EP included the information requested and provided references to relevant sections. Regarding CCS, Woodside noted it was not currently a feasible abatement measure for the Scarborough FPU due to infrastructure, non-concentrated Co2 sources, and reservoir requirements.
 - **(68)** Referred to other responses which provided an indication of the volumes of documents and pages of information Woodside had provided or were otherwise available to CCWA relevant to this EP. Woodside also noted the EP was publicly available and included a link to the EP on NOPSEMA’s website.
 - **(69)** Acknowledged that indirect impacts were assessed in environment plans. Woodside directed CCWA to Sections 6.6, 6.7 and 6.8 for further information on assessments of direct and indirect impacts associated with the EP. Woodside noted the indirect impacts and risks of GHG emissions were assessed in the EP.
- On 8 October 2024 and 21 October 2024, correspondence raising no claims or objections relating to the adverse impacts of the activity was erroneously sent to Woodside and does not require a response (SI Report, references 11.19 and 11.20).
 - On 9 December 2024, NOPSEMA provided Woodside with correspondence sent to NOPSEMA from CCWA on 4 December 2024 (SI Report, reference 11.21) which included feedback on a number of topics including:
 - **(70)** Woodside’s letter had taken the view that it was no longer required to meaningfully engage with CCWA because CCWA had consistently raised its concerns, through consultation and publicly, that fossil fuel projects such as the Scarborough Project posed unacceptable risks.
 - Woodside had undertaken a detailed review of CCWA’s activities, including trawling through CCWA’s website and websites of other environmental NGOs, and provided its own analysis of CCWA’s engagement in public participation on climate change and protection of the environment.

- CCWA called for NOPSEMA to conduct an investigation with respect to Woodside's ability to comply with the consultation requirements and the potential abuse of the consultation processes.
- CCWA stated environmental decision-making required robust and informed public participation which was the work of CCWA and NOPSEMA's role was to ensure organisations like CCWA were provided with information needed to meaningfully engage in consultation.
 - **(65)** The principles of ESD enshrined in s3A of the EPBC Act and the Environment Regulations at Regulation 4 guided NOPSEMA's task in deciding whether or not to accept an EP.
 - **(65)** The principles of ESD included the principle of intergenerational equity important for projects such as Scarborough where impacts will be passed on to future generations. The burden on NOPSEMA to ensure genuine and meaningful public participation on this project was high.
- **(1, 8, 70)** CCWA stated consultation was required.
 - CCWA was a relevant person; Woodside was obliged to consult CCWA with respect to the EP and NOPSEMA had to be satisfied that Woodside had consulted CCWA in line with the Regulations.
 - CCWA's position on the project was not relevant to consultation requirements in the Regulations. CCWA rejected any implication that Woodside did not have to continue consulting and providing information to CCWA because of generalised statements that CCWA does not support the development of fossil fuels (12) (14) (15) (16)
 - CCWA rejected any claim by Woodside that consultation was finished.
 - CCWA had continued to engage in good faith by requesting information necessary to understand the impacts of the activity on its functions, interests and activities, and Woodside was required to provide that information and could not unilaterally terminate consultation.
- **(1)** CCWA claimed sufficient information was lacking.
 - Woodside was obligated to provide CCWA with sufficient information.
 - **(1, 14)** The onshore processing of gas from the Scarborough fields had never been the subject of a proposal in WA (it was being undertaken pursuant to the original approval of the Pluto gas plant in 2014). That is, the Scarborough project had never been before the Appeals Convenor. As a relevant person, CCWA was entitled through that process to sufficient information and a reasonable period for consultation.
 - **(1, 4, 5, 10, 14, 36, 37, 38, 59)** Woodside had refused to provide information For example, CCWA had still has not been provided with sufficient information on the updated conditions to the Pluto gas facility and how Woodside proposed to address impacts and risks identified by the EPA. CCWA had also still not been provided with information about how the climate impacts caused by the proposal would affect its functions, interests and activities; nor had CCWA been provided with sufficient information or evidence that gas was displacing coal instead of renewables, or how polluting gas was when full lifecycle emissions were taken into account.
 - **(1, 4, 18, 64, 69)** CCWA could not make an informed assessment of the proposal as climate and environment impacts had not been fully explained, and requested information had not been provided.
 - **(4, 5, 44, 47, 50, 59, 60, 61, 63)** Regarding Australia's commitment to net zero emissions by 2050, there were concerns about the viability of the project from a climate and environment perspective. There were also concerns about impact on Murujuga Rock Art.
- CCWA included comments regarding Woodside's letter dated 8 October 2024 which included:
 - **(70)** After outlining past consultation with CCWA, Woodside's letter took an aggressive tone, and revealed Woodside had reviewed CCWA's website where CCWA stated it was "fundamentally opposed to the fossil fuel industry".

- **(70)** A statement regarding the context and history of consultation between CCWA and Woodside that raised serious concerns about Woodside's approach to the statutory consultation process.
- **(72)** Reference to proceedings commenced by ACF and a claim that CCWA was involved in those proceedings which CCWA was not.
- **(70)** Woodside had adopted an adversarial approach to consultation, suggesting it viewed CCWA as an opponent rather than a peak body representative of the broader public interest concerned with protection of the environment and the climate. CCWA's views represented concern about the impacts of the Scarborough Project, including contribution to climate change due to direct and indirect emissions over the life of the Project.
- **(70)** CCWA claimed that the flawed approach to consultation affected NOPSEMA's consideration of the EP acceptance criteria and that NOPSEMA could not accept the EP given Woodside's apparent position that it was not required to consider the issues raised by CCWA, and its view that it considered CCWA's submissions to be "meritless.". NOPSEMA could not be reasonably satisfied that the criteria in s34 had been met.
- **(70)** CCWA further claimed that the Letter had raised broader issues about abuse of process.
 - The letter could be interpreted as threatening in nature toward a relevant person; it revealed that CCWA was subject to a form of surveillance by Woodside that had an intimidatory effect. The power imbalance should be noted as Woodside was a billion dollar corporation while CCWA was an environmental charity with some AUD\$3.8 million in assets.
 - The letter could have discouraged CCWA from engaging further in consultation and in public participation on issues concerning Woodside's activities.
 - The fact that the letter had been written in the context of a statutory consultation process, where Woodside would be legally required to continue to engage with CCWA if NOPSEMA were to accept the EP, gave it all the hallmarks of an abuse of process that would discourage ongoing public participation by CCWA on the issue of environment protection.
- CCWA requested a response within 2 weeks as to what action NOPSEMA would take.
- On 17 January 2025, Woodside responded to CCWA (SI Report, reference 11.22). Woodside:
 - **(70)** Confirmed it had consulted CCWA as a relevant person for this EP and continued to review, assess and respond to CCWA correspondence. Woodside provided a summary of consultation that had taken place with CCWA and an overview of CCWA's topics of interest for this EP. Woodside further confirmed that, in complying with Regulation 25, it had assessed CCWA's consultation correspondence as well as CCWA's literature more broadly. This provided context for consultation on the EP and, for example, demonstrated that CCWA and Woodside had differing views and positions on matters related to the oil and gas industry. It was therefore likely that CCWA and Woodside would have differing views on Woodside's responses to CCWA's feedback and Woodside's assessment of the merits of CCWA's objections or claims. Woodside confirmed its consultation process was transparent and provided a summary of the consultation approach for the EP. Woodside further provided information on the purpose of consultation in accordance with the Regulations and NOPSEMA's Consultation Guideline and set out its consultation regime for the EP and OPP.
 - **(65)** Noted the principles of ESD as set out in s3A of the EPBC Act and confirmed these had been considered and assessed in the environmental approval process for the Scarborough Project and provided sections of both the OPP and EP which provided further information. Woodside confirmed the EP set out how impacts and risks were reduced to ALARP and Acceptable level, with further information available in specified sections of the OPP and EP.
 - **(1, 8, 70)** Confirmed it had consulted CCWA as a relevant person and referred CCWA to its responses regarding the context for this consultation, the transparent nature of consultation and the EP consultation regime.
 - **(1)** Confirmed it had given CCWA sufficient information to allow it to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, and provided an overview of information that had been given to CCWA regarding this EP.

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- (1, 14) Noted that, as previously confirmed to CCWA, the onshore processing of gas at the Pluto Gas Plant was considered in the EP, and noted that CCWA had made submissions on the Scarborough OPP during that consultation process in 2018. Woodside also noted that CCWA had instituted court proceedings relating to the primary approval for the Pluto Gas Plant, and had made submissions to the Appeals Convenor regarding Pluto Gas Plant approvals, and provided positions on CCWA’s position relating to Pluto Gas Plant and Pluto Train 2.
- (1, 4, 5, 10, 14, 36, 37, 38, 59) Disagreed with CCWA’s assertion that some requests for information remain unsatisfied and referred CCWA to Woodside’s previous response regarding the context for consultation which set out reasons why CCWA and Woodside’s differing viewpoints may mean that CCWA was unlikely to be satisfied with information provided by Woodside. Woodside further provided examples of where it had previously responded to CCWA on Pluto gas facility, greenhouse gas emissions, Murujuga rock art, gas displacing coal, and lifecycle emissions of gas.
- (1, 4, 18, 64, 69) Confirmed it had consulted CCWA in accordance with Regulation 25, and in addition, CCWA had had access to the full EP published on NOPSEMA’s website as well as the Scarborough OPP, both of which included an assessment of the risks and impacts of the project and activity.
- (4, 5, 44, 47, 50, 59, 60, 61, 63) Confirmed it had previously provided responses to CCWA regarding potential climate change impacts, evaluation criteria including the principles of ESD, and potential impacts to Murujuga rock art.
- (70) Did not agree with CCWA’s characterisation of tone and confirmed that, in complying with Regulation 25, Woodside had reviewed CCWA’s consultation correspondence as well as literature and information CCWA had published publicly. Woodside referred CCWA to its previous responses which set out some reasons why context was included in the consultation information.
- (72) Referred to letters received from CCWA’s lawyers which resolved the query.
- (70) Disagreed that Woodside had adopted an adversarial approach to consultation and confirmed it had consulted CCWA as a relevant person and referred CCWA to previous responses which set out reasons why context was included in the consultation information.
- (70) Disagreed that Woodside’s position was that it was not required to consider the issues raised by CCWA. Woodside confirmed it consulted CCWA in accordance with Regulation 25 and, in accordance with Regulation 24, had assessed the merits of CCWA’s objections or claims about the adverse impacts of the activity to which the EP related. Woodside also provided reference to Section 7 of the EP which set out the implementation strategy including ongoing consultation.
- (70) Disagreed with CCWA’s interpretation that Woodside’s correspondence was “threatening in nature” and confirmed Woodside’s intention was not to threaten or intimidate CCWA. Regarding a power imbalance, Woodside disagreed with CCWA’s characterisation and noted CCWA had received advice and been represented by the EDO – experienced environmental lawyers – and that CCWA had instituted court proceedings against Woodside. Woodside referred CCWA to previous responses regarding the transparent nature of consultation, the consultation assessment process, and some of the reasons for including context for consultation.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) Woodside’s consultation did not meet requirements:</p> <ul style="list-style-type: none"> • It was disingenuous for Woodside to state it had been in a continued dialogue with CCWA 	<p>(1) Woodside assessment: Woodside has provided CCWA with sufficient information, via the Consultation Information Sheet, publicly available EP, Scarborough OPP, assessing feedback provided by CCWA on other Scarborough EPs as it relates to this EP, and direct responses to CCWA’s feedback, for CCWA to make an informed assessment of the possible</p>	<p>(1) CCWA has been provided sufficient information and a reasonable period of time for consultation, as described in Section 5.4 of the EP.</p>

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<ul style="list-style-type: none"> Insufficient information and time provided for consultation, and consultation not wide enough As the EP covered decades of substantial fossil fuel production operations, there should be a high degree of consultation. 	<p>consequences of the activity. Woodside extended the consultation period to 4.5 months and has made it clear to CCWA that Woodside continues to accept feedback throughout the life of an EP.</p> <p>Woodside response: Woodside noted that CCWA had been a consultation participant since the Scarborough OPP document was released for public comment in 2018.</p> <p>For this EP, Woodside provided CCWA with a consultation information sheet on 9 August 2023 and requested feedback. Woodside also made multiple attempts to reach CCWA for the purposes of organising a meeting. In the absence of feedback, Woodside proactively reviewed prior feedback from CCWA regarding other Scarborough EPs that may be relevant to this EP. Woodside also extended the consultation period from an initial four-week period to 4.5 months.</p> <p>Once the EP was publicly available on the NOPSEMA website, Woodside provided CCWA with the link.</p>	
<p>(2) Impacts on Dampier Archipelago National Heritage Place need to be assessed.</p>	<p>(2) Woodside assessment: Impacts to cultural heritage places and values, including Dampier Archipelago National Heritage Place, are assessed in the EP.</p> <p>Woodside response: Woodside confirmed the EP would assess both direct and indirect environmental impacts and risks associated with the PAP. The EP assessed impacts to heritage places and values including the potential for unplanned impacts.</p>	<p>(2) Cultural features and heritage values are described in Section 4.9 of the EP. The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.</p>
<p>(3) Scarborough OPP not properly addressed under EPBC Act and potential impacts on World Heritage and National Heritage values of the Great Barrier Reef.</p>	<p>(3) Woodside assessment: The Scarborough OPP has been approved under the EPBC Act through its acceptance by NOPSEMA. Woodside does not accept the assertion that the Scarborough Project is likely to have a significant impact on the heritage values of the Great Barrier Reef.</p> <p>Woodside response: Woodside confirmed the Scarborough OPP had been approved under the EPBC Act through its acceptance by NOPSEMA. Woodside advised that specifically, the 'offshore component' of the Scarborough Project would be undertaken in accordance with the endorsed</p>	<p>(3) Not required.</p>

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	program referred to in the OPGGS Endorsed Program Approval. Woodside advised it did not accept the assertion that the Scarborough Project was likely to have a significant impact on the heritage values of the Great Barrier Reef.	
(4) Risks and impacts of GHG emissions on climate change caused by the Project should be evaluated.	(4) Woodside assessment: Woodside assesses emissions against a range of scenarios and assessment of these is described in the EP in Section 6.7.6 <i>Routine and Non-routine Greenhouse Gas Emissions</i> . Woodside response: Woodside confirmed it assessed indirect impacts associated with the project in the EP. Woodside noted that assessment of the broader Scarborough Project including the contribution to global GHG emissions and the potential impacts on sensitive receptors within Australian jurisdictions was described in the OPP.	(4) GHG emissions related to the proposed activity are assessed in Section 6.7.6 of the EP.
(5) Indirect impacts and risks in terms of climate change and degradation of rock art not properly addressed; more information about total acid gas and GHG emissions over life of Project required.	(5) Woodside assessment: There are no credible impacts to Murujuga cultural landscape including impacts on rock art in relation to air emissions produced at the FPU. Woodside supports the MRAMP and will implement feasible recommendations of the program. Woodside supports the decision of Traditional Owners and the State to pursue World Heritage listing for the Burrup Peninsula. Woodside response: Woodside confirmed it had carried out an assessment of the direct and indirect emissions from the Scarborough Project. It advised there were no credible impacts to Murujuga rock art in relation to air emissions produced at the offshore FPU. Woodside advised gas would be exported onshore and processed at the Pluto Gas Plant, for which the AQMP has been reviewed and approved by the WA EPA. Woodside confirmed it would implement feasible recommendations of the MRAMP and assess and implement Design Out and Operate Out opportunities to reduce emissions.	(5) Cultural features and heritage values are described in Section 4.9 of the EP. The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.
(6)	(6)	(6) Not required.

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<p>Some modelling on receptors and environment impacts is not relevant.</p>	<p>Woodside assessment: Woodside has commissioned a range of modelling related to the activities described in the EP and will include relevant information in the EP.</p> <p>Woodside response: Woodside confirmed the EP was informed and supported by a wide range of literature and studies, with many publicly available. Relevant information from modelling commissioned by Woodside was included within the EP to support relevant impact/risk evaluations.</p>	
<p>(7) Importance of epifauna and infauna to ecosystem health.</p>	<p>(7) Woodside assessment: Disturbance to the seabed and impacts to benthic habitat and communities are assessed in the EP.</p> <p>Woodside response: Woodside confirmed benthic epifauna and infauna living on or in the sediments may be impacted, particularly in the physical footprint of permanent infrastructure which would result in the displacement and/or permanent loss of epifauna and infauna. Demonstration of impacts reduced to ALARP and acceptable levels, with appropriate control measures are defined in the EP.</p>	<p>(7) Potential impacts to benthic habitats are described and assessed in Section 6.7.2 of the EP.</p>
<p>(8) CCWA is a relevant person and had the right to be consulted.</p>	<p>(8) Woodside assessment: Woodside complies with regulation 25 of the Environment Regulations. For this EP, CCWA has been assessed as a relevant person based on its functions, interests or activities.</p> <p>Woodside response: Woodside confirmed CCWA had been assessed as a relevant person for this EP based on its functions, interests and activities.</p>	<p>(8) Woodside's assessment of relevant persons for this EP is described in Appendix F, Table 1.</p>
<p>(9) The Scarborough OPP Statement of Reasons outlined which impacts were taken into consideration with no mention of, or inadequate information provided on, impacts that would affect CCWA.</p>	<p>(9) Woodside assessment: Woodside is not the author of the Statement of Reasons therefore it does not respond to this criticism.</p> <p>Woodside response: Woodside advised that, given it was not the author, it would not respond to criticism of the Statement of Reasons. Further, there was no requirement for the Statement of Reasons to provide information on impacts to CCWA.</p>	<p>(9) Not required.</p>

<p>(10) Inadequate information had been provided on emissions from the Scarborough project and climate change in WA.</p>	<p>(10) Woodside assessment: Woodside acknowledges climate science that states climate change was understood to be caused by the net cumulative global concentration of GHG in the atmosphere and changes in concentration could not be attributed to any one project or activity, including the Scarborough project. Further, Woodside's view is that the full volume of GHG emissions associated with the project will not be additive to global GHG concentrations. Therefore, Woodside does not accept the project will contribute to the exacerbation of climate change impacts in Western Australia. Woodside response: Woodside confirmed its view was that LNG could have a role in the energy transition, however, to facilitate a comparison against carbon budgets, a hypothetical assumption had been used in the EP where GHG emissions associated were hypothetically treated as additive, and the contribution was de minimis. Woodside confirmed climate change was recognised as a global issue, and, for reference, a contextual evaluation of climate change impacts was set out in detail in the EP. Woodside provided a list of relevant projections for climate change in Australia as well as nine key climate risks for the Australasian region.</p>	<p>(10) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>.</p>
<p>(11) Scarborough OPP was reliant on out-of-date, inadequate or misinterpreted information.</p>	<p>(11) Woodside assessment: Woodside disagrees that the OPP was accepted on the basis of out-of-date or misinterpreted information. Woodside response: Woodside noted that while information had naturally increased in volume since the OPP was published, more recently published information did not necessarily mean the information was different or contained new concepts, and the EPs were designed to include updated information, if relevant.</p>	<p>(11) Not required.</p>
<p>(12) The current EP referenced an IEA Net Zero Roadmap which had been updated but not referenced by the EP.</p>	<p>(12) Woodside assessment: Woodside has reflected the updated roadmap in the latest version of the EP. Woodside response: Woodside confirmed the 2023 roadmap was aligned with references to the original 2021</p>	<p>(12) Gas demand in climate-related scenarios is set out in Section 6.7.6 of the EP.</p>

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	report but confirmed the latest version of the EP reflected the updated roadmap.	
(13) The NDC referenced in the OPP had been updated in the EP.	(13) Woodside assessment: Australian GHG emissions targets have been updated and are incorporated in the EP. Woodside response: Woodside confirmed Australian GHG targets had been updated relevant to the Federal SGM and were incorporated in the EP.	(13) Further detail on the Federal SGM is described in Section 6.7.6 of the EP, <i>Management and Abatement</i>
(14) The WA EPA had provided advice that the conditions set out for the Pluto LNG facility were inadequate.	(14) Woodside assessment: Woodside acknowledges the EPA has provided advice. Woodside is currently updating the Pluto GGAP in accordance with Ministerial Statement 1208. Woodside response: Woodside acknowledged that the EPA had provided advice and provided CCWA with context on the EPA report. Woodside noted it was updating its GGAP and advised its Pluto LNG AQMP managed potential impacts to Aboriginal rock art in accordance with the MRAS. Woodside noted further amendments may be made to Pluto documents after the outcomes from the MRAMP were published.	(14) The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.
(15) Validity of claims LNG was expected to play a key role in the future energy mix and in displacing more carbon intensive power generation.	(15) Woodside assessment: Woodside's view is that LNG can have a role in the energy transition and in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes. Woodside notes CCWA's references to the OPP and CSIRO report are used in isolation and should be read in their full context. Woodside response: Woodside confirmed its view was that the full volume of GHG emissions associated with the project would not be additive to global GHG concentrations, however, for a hypothetical assumption where GHG emissions associated with the project were treated as additive had been considered in the EP. The contribution to global carbon budgets was de minimis.	(15) Comparisons against carbon budgets are set out in EP Section 6.7.6, <i>Gas's Role in the Energy System</i> .
(16)	(16)	(16)

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<p>Long-term economic, environmental, social and equitable considerations due to climate change had not been adequately considered by NOPSEMA.</p>	<p>Woodside assessment: Woodside disagrees with CCWA's assertion. The EP has assessed GHG emissions associated with the project, including an assessment against relevant acceptability criteria.</p> <p>Woodside response: Woodside noted human-caused climate change was a consequence of net GHG emissions that accumulated in the atmosphere since the start of the industrial revolution, and a contextual evaluation of climate change impacts was included in the EP. Woodside advised NOPSEMA had accepted the OPP on the basis that the impacts and risks of the project were acceptable.</p>	<p>Not required.</p>
<p>(17) The associated GHG emissions would have impacts that were of consequence on sensitive and high-quality environments.</p>	<p>(17) Woodside assessment: Woodside disagrees with CCWA's assertion that direct and indirect GHG emissions from the Scarborough project will have impacts that are of serious consequence on sensitive and high-quality environments.</p> <p>Woodside response: Woodside noted changes in global atmospheric GHG concentration could not be attributed to any one activity or one project, including the Scarborough Project, as they were instead the result of global GHG emissions, minus global GHG sinks, that had accumulated in the atmosphere since the industrial revolution started. Woodside advised that even discounting the role gas could play in the energy transition, emissions associated with the project were negligible in the context of existing and future predicted global GHG emissions.</p>	<p>(17) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>.</p>
<p>(18) Environmental impacts and risks not appropriately identified in the OPP.</p>	<p>(18) Woodside assessment: Woodside disagrees the OPP does not appropriately identify environmental impacts and risks.</p> <p>Woodside response: Woodside confirmed it considered environmental risks and impacts were appropriately identified in the OPP.</p>	<p>(18) Not required.</p>
<p>(19) Lack of information as to how the project would fit into Australia's NDC.</p>	<p>(19) Woodside assessment: Australia's carbon management framework has continued to develop and the current framework is reflected in the EP.</p>	<p>(19) Further detail on Federal SGM is described in Section 6.7.6 of the EP, <i>Management and Abatement</i>.</p>

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	Woodside response: Woodside provided an overview of the Federal SGM and advised further detail and context was set out in the EP.	
(20) Statements regarding concerns that GHG emissions from the project would not be reduced to ALARP levels.	(20) Woodside assessment: Woodside considers GHG emissions associated with the project, and the impact on global carbon budgets which are expected to achieve the goals of the Paris Agreement, will be managed to ALARP. Woodside response: Woodside provided details of its multiple project phases to design out and operate out direct GHG emissions as well as measures related to Scope 3 emissions.	(20) Management and abatement measures are set out in Section 6.7.6 of the EP. Woodside's demonstration of ALARP is also set out in Section 6.7.6 of the EP.
(21) Claims Woodside lobbied against climate policy that would drive demand for low carbon fuels.	(21) Woodside assessment: Woodside disagrees with CCWA's assertion and notes the corresponding reference to CCWA's assertion is not clear. Woodside response: Woodside confirmed its advocacy aimed to support the goals of the Paris Agreement, and provided links to further information on Woodside's climate policy, CTAP, and government submissions.	(21) Not required.
(22) Not all relevant persons have been consulted.	(22) Woodside assessment: Woodside disagrees with CCWA's assertion and has consulted relevant persons in accordance with regulation 25 of the Environment Regulations. Woodside response: Woodside advised that if CCWA knew of relevant persons to be consulted, it should identify them so Woodside could apply its methodology for identifying relevant persons. Woodside advised it had advertised consultation for this EP widely to ensure broad awareness, and further information was set out in the Consultation Approach in Appendix F.	(22) Woodside's assessment of relevant persons is set out in Appendix F, Table 1.
(23) Insufficient information on Scope 3 emissions in the Consultation Information Sheet.	(23) Woodside assessment: Woodside has given CCWA sufficient information regarding GHG emissions via the Consultation Information Sheet, Scarborough OPP, publicly	(23) Not required.

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	<p>available EP, and direct responses to CCWA, for CCWA to make an informed assessment of the possible consequences of the activity.</p> <p>Woodside response: Woodside confirmed the EP, OPP, fact sheets and website material contained more than 2000 pages of information relating to the Scarborough Operations EP. Woodside also confirmed routine and non-routine atmospheric and GHG emissions were covered in the Consultation Information Sheet, including Scope 3 emissions from support vessels and onshore processing.</p>	
<p>(24) Further information should be distributed to all relevant persons.</p>	<p>(24) Woodside assessment: Woodside has consulted relevant persons in accordance with regulation 25 of the Environment Regulations and in line with its methodology as set out in Section 5.</p> <p>Woodside response: Woodside confirmed the EP was publicly available, Woodside had consulted in line with its methodology, and Woodside had widely advertised consultation of this EP to allow for broad awareness.</p>	<p>(24) Not required.</p>
<p>(25) Every tonne of CO2-e emitted into the atmosphere added to global warming.</p>	<p>(25) Woodside assessment: Woodside acknowledges climate science and that human-caused climate change is understood to be a consequence of net GHG emissions that have accumulated in the atmosphere since the start of the industrial revolution. A hypothetical assumption where GHG emissions associated with the project are treated as hypothetically additive has been considered in the EP and the contribution to carbon budgets is de minimis.</p> <p>Woodside response: Woodside acknowledged IPCC statements regarding climate change and advised the reduction in a carbon budget by emissions associated with the project, and therefore its alignment with Australia's targets aligned to the Paris Agreement, was a relevant measure to apply to assess acceptability of the project. Woodside set out its view that LNG could have a role in the energy transition but noted that for comparison against carbon budgets, the EP had considered a scenario where all GHG emissions</p>	<p>(25) Assessment of potential climate change impacts is set out in Section 6.7.6 of the EP.</p>

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	associated with the project were hypothetically treated as additive.	
(26) Claims the 878MtCO ₂ -e from the Scarborough gas project is likely to cause an approximate increase of 0.0003951°C in global surface temperature, and Pluto/Burrup Hub emissions would be in addition.	(26) Woodside assessment: Woodside disagrees with CCWA's assertion and notes that CCWA had sufficient information on GHG emissions to make its own calculations. Woodside response: Woodside noted CCWA had not included workings or figures behind its calculations, but, for context, noted that onshore emissions were included in the Scope 3 estimates and were contained within the 878 MtCo ₂ -e estimate. Woodside also noted CCWA's ability to make calculations was inconsistent with previous claims it had not been provided sufficient information.	(26) Estimates of GHG emissions associated with the project are described in Section 6.7.6 of the EP and summarised in Table 6-22.
(27) Claims emissions from the project would make a significant contribution to the global carbon budget.	(27) Woodside assessment: Woodside disagrees with CCWA's position and maintains the contribution to carbon budgets is de minimis even if GHG emissions associated with the project are wholly additive. Woodside response: Woodside noted a portion of GHG emissions associated with the project were anticipated to contribute to a consumption of carbon budgets estimated to achieve the goals of the Paris Agreement. Woodside noted CCWA had not provided workings underpinnings it calculations, therefore it was not possible for Woodside to comment. Woodside provided further information on how the project fit within carbon budgets.	(27) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.
(28) Estimates of remaining carbon budgets as of the proposed start date of the project, and the resulting budget occupation.	(28) Woodside assessment: Woodside's assessment has been undertaken on the basis of current and available information. Woodside response: Woodside noted carbon budgets were subject to change and the assessment assumed a hypothetical scenario where the entirety of emissions associated with the project were additive to global GHG concentrations.	(28) Comparisons against carbon budgets are set out in EP Section 6.7.6.
(29)	(29)	(29)

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<p>Claims the project's emissions will occupy 0.0976% of the carbon budget that is the difference between 1.5°C global heating and 2.0°C global heating, and estimates of how many species would become extinct as a result of its contribution to a 2.0°C world.</p>	<p>Woodside assessment: Woodside disagrees with CCWA's position and calculations regarding carbon budgets. Woodside response: Woodside referred CCWA to other detailed responses regarding Woodside's position on climate change and GHG emissions, and its position on carbon budgets related to the Paris Agreement.</p>	<p>A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>. Comparisons against carbon budgets are also set out in Section 6.7.6 of the EP.</p>
<p>(30) Claims it was incorrect to state there was no direct link between GHG emissions from Scarborough and climate change impacts.</p>	<p>(30) Woodside assessment: Woodside disagrees with CCWA position. Changes in global atmospheric GHG concentrations cannot be attributed to any one activity or one project, including the Scarborough project, as they are instead the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the start of the industrial revolution. Woodside response: Woodside referred CCWA to other detailed responses regarding Woodside's position on climate change and GHG emissions, and its position on carbon budgets related to the Paris Agreement.</p>	<p>(30) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>. Comparisons against carbon budgets are also set out in Section 6.7.6 of the EP.</p>
<p>(31) Section 6.7.6 of the EP should include ecosystems/habitat, species, and socioeconomic considerations.</p>	<p>(31) Woodside assessment: Woodside disagrees with CCWA's position and assessment of GHG emissions associated with the Scarborough project is undertaken against global GHG concentration. Woodside response: Woodside referred CCWA to other detailed responses regarding Woodside's position on climate change impacts and noted additional information evaluating potential impacts of climate change on Australian and global receptors was presented in Section 6.7.6 of the EP.</p>	<p>(31) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>.</p>
<p>(32) Claims the statement that "emissions associated with the project are negligible" was misleading and inaccurate.</p>	<p>(32) Woodside assessment: Woodside disagrees with CCWA's assertion which appears to assert that Woodside is engaging in misleading or deceptive conduct. Woodside response: Woodside noted that it had explained the context and background to conclusions it had made. Woodside confirmed it disagreed with CCWA's estimate of emissions associated with the project and advised the annual</p>	<p>(32) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.</p>

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	estimated Scope 1 emissions created by the activity were estimated to be 0.61 MtCO ₂ -e.	
(33) Projects such as Scarborough were the choices the IPCC AR6 group referred to when it noted societal choices and actions in the next decade would determine the extent to which medium and long-term pathways would deliver climate resilient development.	(33) Woodside assessment: Woodside disagrees with CCWA's assertion and recognises IPCC as a leading body on climate change science. Woodside response: Woodside acknowledged the AR6 report and referred CCWA to its advice in other responses on IEA and roadmaps, Woodside's position on climate change and GHG emissions, and Woodside's assessment of the hypothetical contribution of the Scarborough project to carbon budgets.	(33) Not required.
(34) Claims "no consequence assigned" to GHG emissions was inaccurate and unacceptable.	(34) Woodside assessment: Woodside disagrees with CCWA's assertion. The contribution of the project to global carbon budgets estimated to achieve the goals of the Paris Agreement is de minimis. Woodside response: Woodside confirmed the GHG assessment in the current EP version focused on assessment of GHG emissions associated with the Scarborough project against global GHG concentrations. Woodside advised the contribution of the project to global carbon budgets estimated to achieve the goals of the Paris Agreement was de minimis. As part of the assessment process, Woodside assigned a consequence of "F" in accordance with the Woodside risk matrix.	(34) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.
(35) Updates to SDS since it was referenced in Scarborough OPP.	(35) Woodside assessment: Woodside notes CCWA's acknowledgement regarding the IEA's SDS. Woodside response: Woodside noted CCWA's acknowledgement that the IEA's SDS had been updated.	(35) Not required.
(36) "Unsubstantiated" claims that Woodside's LNG would contribute to global emissions reduction effort and inadequate information to show its product was replacing coal.	(36) Woodside assessment: Woodside is required to give sufficient information and maintains its position that LNG can have a role in displacing higher carbon intensity fuels.	(36) Gas's role in the energy system is set out in Section 6.7.6 of the EP.

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	<p>Woodside response: Woodside reiterated the regulatory requirements regarding sufficient information and confirmed its view that LNG could have a role in displacing higher carbon intensity fuels. Woodside again noted that the latest draft of the EP had been updated to consider a hypothetical assumption where GHG emissions associated with the project were assumed to be additive to global atmospheric GHG concentrations.</p>	
<p>(37) Recent research showed the LNG capacity greatly exceeded any needs for coal to gas switching.</p>	<p>(37) Woodside assessment: Woodside disagrees with CCWA's position, including because the IEA NZE is not the only pathway to meet the objectives of the Paris Agreement. Woodside response: Woodside referred CCWA to other detailed responses on Woodside's position on climate change and GHG emissions, and Woodside's assessment of the hypothetical contribution of the Scarborough project on carbon budgets.</p>	<p>(37) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>. Comparisons against carbon budgets are also set out in Section 6.7.6 of the EP.</p>
<p>(38) Contested the claim that gas was less emissions intensive than coal when full lifecycle emissions were accounted for.</p>	<p>(38) Woodside assessment: Woodside disagrees with CCWA's position, however it does support management of methane emissions. Woodside response: Woodside confirmed measures to mitigate methane emissions had been implemented on the FPU and further information was set out in Section 6.7.6. Woodside also noted emissions factors used in the EP to estimate Scope 3 emissions took into account expected methane emissions.</p>	<p>(38) Measures to mitigate methane emissions associated with the FPU are set out in Section 6.7.6 of the EP.</p>
<p>(39) Estimates have not been provided of the cumulative emissions that the Scarborough project would contribute to worldwide.</p>	<p>(39) Woodside assessment: Woodside disagrees with CCWA's position. A breakdown of emissions sources extends over 11 pages in the EP. Woodside response: Woodside provided an overview of the GHG emissions sources included in the EP and advised the total estimated GHG emissions associated with the project, as presented in Table 6-21, were approximately 880 MtCO₂-e over the life of the activity.</p>	<p>(39) Estimates of GHG emissions associated with the project are described in Section 6.7.6 of the EP and summarised in Table 6-22.</p>

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<p>(40) CTAP and 2023 Progress Report contained plans and targets that were unenforceable.</p>	<p>(40) Woodside assessment: Woodside does not consider this assertion relevant to the assessment of the EP. Woodside response: Woodside confirmed the information and commitments in the EP were consistent with the OPGGS(E) Regulations and that the CTAP provided broader business context and was not published under regulatory requirement.</p>	<p>(40) Not required.</p>
<p>(41) The offsetting proposed was not sufficient to mitigate climate change impacts.</p>	<p>(41) Woodside assessment: Woodside does not agree with CCWA's position. Avoiding and reducing GHG emissions are Woodside's priority. Woodside response: Woodside referred to prior information on mitigation and management measures. Woodside confirmed avoiding and reducing GHG emissions were Woodside's priority, however, offsetting emissions allowed a reduction of net emissions while asset and technology decarbonisation plans were matured and implemented.</p>	<p>(41) Management and abatement measures are set out in Section 6.7.6 of the EP.</p>
<p>(42) No consideration or commitment to reducing combustion emissions via more efficient combined cycle turbines or electrification options such as e-drives.</p>	<p>(42) Woodside assessment: Woodside has assessed the feasibility of combined cycle turbines and electrification of compressors in the EP. Woodside response: Woodside confirmed it applied a framework to reduce emissions during the design phase, and that as a result of this process, some measures to reduce emissions had been implemented and others had not. Woodside provided information on the feasibility of combined cycle turbines and e-drive compressors and advised that based on feedback, assessment of combined cycle turbines and e-drive compressors had been included in the EP.</p>	<p>(42) In response to feedback, Woodside has included assessment of combined cycle turbines and electrification of compressors in EP Section 6.7.6.</p>
<p>(43) No commitments to reducing Scope 3 emissions.</p>	<p>(43) Woodside assessment: Woodside disagrees with CCWA's position. In the circumstances of Scope 3 emissions associated with third party consumption of Scarborough gas, the measures in the EP are appropriate and practical. Woodside's corporate approach to Scope 3 targets is outlined</p>	<p>(43) Not required.</p>

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	<p>in its Climate Transition Action Plan and 2023 Progress Report.</p> <p>Woodside response: Woodside confirmed it did not have operational control over Scope 3 emissions associated with third party consumption of Scarborough gas and therefore, the measures in the EP were appropriate and practicable. Woodside advised that emissions arising from the consumption of Scarborough gas along with other feed sources in customer markets would be considered under domestic and international emissions control framework.</p>	
<p>(44) The project was not consistent with state aspirations of net zero by 2050.</p>	<p>(44) Woodside assessment: Woodside disagrees with CCWA's assertion. Emissions associated with the onshore processing of Scarborough gas are subject to Western Australian legislation and frameworks which manage GHG emissions under WA requirements (and aspirations). Woodside response: Woodside outlined regulatory frameworks for managing Scope 1 emissions – which originated in Commonwealth waters - and Scope 3 emissions and confirmed at a corporate level Woodside was targeting a reduction of net equity Scope 1 and 2 GHG emissions of 15% by 2025 and 30% by 2030 relative to a starting base, with an aspiration of net zero by 2050 or sooner.</p>	<p>(44) Further detail on the Federal SGM is described in Section 6.7.6 of the EP, <i>Management and Abatement</i>.</p>
<p>(45) Claims the majority of Co2-e emissions would not be made within the permit area, and emissions made within the permit area were subject to dispersal to nearby population centres.</p>	<p>(45) Woodside assessment: Woodside disagrees with CCWA's position which is based on an OPP statement that has been taken out of context. Woodside response: Woodside confirmed the statement CCWA had replicated from the OPP had been misconstrued, and referred to aspects such as physical presence, light emissions and discharges from project vessels.</p>	<p>(45) Not required.</p>
<p>(46) Disregard for emissions reductions in reference to renewable power sources.</p>	<p>(46) Woodside assessment: Woodside disagrees with CCWA's assertion and considers it has been taken out of context. Woodside response: Woodside confirmed assessment of potential controls was undertaken in accordance with the</p>	<p>(46) Assessment of adopted controls is set out in Section 6.7.6 <i>Demonstration of ALARP</i>.</p>

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	ALARP framework and NOPSEMA guidance which stated that alternative control measures may be discounted if they were "grossly disproportionate to the benefit gained". Woodside maintained its position in the case of supplying power from shore to the FPU.	
(47) The Paris Agreement has not been accurately represented.	(47) Woodside assessment: Woodside acknowledges the goals of the Paris Agreement. Woodside response: Woodside provided an extract from article 2 of the Paris Agreement in demonstration of its understanding of the goals of the Agreement.	(47) Not required.
(48) Cherry-picking single scenarios wasn't the purpose of the scenario database, and claims that Woodside had cherry-picked a scenario to make a general conclusion.	(48) Woodside assessment: Woodside agrees that cherry-picking climate scenarios is not appropriate and has therefore considered the IPCC's range of scenarios and scenarios from other providers. Woodside response: Woodside noted that gas demand was depicted in a range of Paris aligned scenarios, and further information was provided in Figure 6-6 of EP section 6.7.6. Woodside considered the IPCC's range of scenarios and scenarios from other providers.	(48) Gas demand in climate-related scenarios is set out in Section 6.7.6 of the EP.
(49) Claims Woodside favoured the P3 pathway which relied on 687Gt of CO2 CCS, and it had not contributed to this CCS total.	(49) Woodside assessment: Woodside disagrees with CCWA's position. Woodside's assessment does not "favour" any particular climate scenario and considers a range of scenarios in the EP. Woodside response: Woodside stated its assessment aimed to show how the Scarborough project could fit within a range of Paris-aligned scenarios and directed CCWA to Section 6.7.6 of the EP for further information and context.	(49) Gas demand in climate-related scenarios is set out in Section 6.7.6 of the EP.
(50) Claims Woodside had not given proper consideration to the global carbon budget.	(50) Woodside assessment: Woodside disagrees with CCWA's position. Even in the hypothetical scenario when taken to be additive, GHG emissions associated with the project represent a de minimis contribution to carbon budgets.	(50) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.

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	<p>Woodside response: Woodside referred CCWA to other responses for further information on Woodside’s position on climate change and GHG emissions, and Woodside’s assessment of the hypothetical contribution of the Scarborough project on carbon budgets.</p>	
<p>(51) Woodside was not in a position to control Scope 3 emissions which were currently safely underground.</p>	<p>(51) Woodside assessment: Woodside disagrees with CCWA’s position. Woodside is required to ensure that the plan to develop the resource is compatible with the optimum long-term recovery of petroleum from the offshore area. Woodside response: Woodside noted it anticipated demand among potential customer nations for LNG to meet their climate goals. Further information was available in the EP as well as Woodside’s Climate Transition Action Plan and 2023 Progress Report, to which Woodside provided a link and a section reference.</p>	<p>(51) Further information on customer markets’ NDCs and commitments is set out in Section 6.7.6 of the EP.</p>
<p>(52) Assertions that Australia’s legislated emission reduction target didn’t include Scope 3 emissions, was not aligned with the Paris Agreement, the Scarborough project would produce the majority of emissions after 2030, and emissions would cancel out federal abatement reduction policies.</p>	<p>(52) Woodside assessment: Woodside disagrees with CCWA’s assertions regarding Scope 3 emissions and Scarborough’s impact on national abatement measures. Woodside response: Woodside noted Australia’s targets did include Scope 3 emissions and CCWA’s position that Australia’s target was not Paris-aligned was a matter on which the Australian Government had enacted legislation. Woodside noted Australia was anticipating setting a 2035 target, and advised it was inappropriate to conflate emissions that would occur internationally.</p>	<p>(52) Not required.</p>
<p>(53) Further information requested on how the Scarborough project fit into 1.5°C scenarios and claims the proponent did not present any carbon removal strategies.</p>	<p>(53) Woodside assessment: Woodside disagrees with CCWA’s position and notes that it appears inconsistent with other claims from CCWA. Woodside has provided CCWA with volumes of information on these topics. Woodside response: Woodside advised emissions associated with the project fit within Australia’s NDC and the NDC of customer nations. Both Australia and current expected customer nations had set targets consistent with the</p>	<p>(53) Gas demand in climate-related scenarios is set out in Section 6.7.6 of the EP.</p>

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	Paris Agreement to pursue efforts to limit global warming to 1.5°C.	
(54) Contested the claim that the total lifecycle impact of gas, including the Scarborough project, was expected to result in lower net global atmospheric concentrations of GHG than would otherwise have been the case.	(54) Woodside assessment: Woodside maintains its position regarding the role of LNG in the energy transition. Woodside response: Woodside confirmed it maintained that the total lifecycle impact of gas, including Scarborough gas, is expected to result in lower net global atmospheric concentrations of GHGs than would otherwise have been the case.	(54) Gas's role in the energy system is set out in Section 6.7.6 of the EP.
(55) Monitoring and management actions to address uncertainties in the role of natural gas in displacing higher emission insensitive fuels.	(55) Woodside assessment: Woodside has corporate-level measures for monitoring and managing uncertainty in the role of natural gas in displacing higher emission intensive fuels. Woodside response: Woodside confirmed its measures included engaging with customers and potential customers regarding demand and the carbon policies of the governments in the jurisdictions in which they operated.	(55) Not required.
(56) Contested the statement that Scarborough did not create this demand but could contribute to meeting it.	(56) Woodside assessment: Woodside does not agree with CCWA's position. Global energy demand is influenced by a number of factors including population growth and government policy. Woodside response: Woodside stated that the assumption that global energy demand would decrease if the Scarborough project does not go ahead was flawed and noted that global energy demand was influenced by a number of factors.	(56) Not required.
(57) Believed Woodside's claims to net-zero and the lack of implications assigned to Scarborough gas amounted to greenwashing.	(57) Woodside assessment: CCWA makes a serious allegation regarding greenwashing which Woodside understands to be an allegation that it has engaged in misleading or deceptive conduct. Woodside does not agree. Woodside response: Woodside confirmed it did not consider CCWA's a-h points to be indicators of misleading or	(57) Not required.

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	deceptive conduct. Woodside noted it recently participated in the Australian Senate Inquiry into greenwashing where its statement, the transcript of which is available Hansard, confirmed Woodside takes care with statements, especially in relation to climate change. Woodside provided further corporate perspective on climate policies and included at link to Woodside's CTAP and 2023 Progress Report.	
(58) Claims NOPSEMA should not rely on information from Woodside that did not pass greenwashing standards.	(58) Woodside assessment: Woodside does not agree with CCWA's assertions. Woodside response: Woodside noted that in addition to its response to the previous point (57), Woodside had a practice of carefully considering and verifying statements and disclosures. Woodside provided a link to the Fact Checker on its website.	(58) Not required.
(59) Claims ample evidence existed to show projects such as Scarborough and associated processing at the Pluto LNG facility were having negative impacts on Murujuga rock art	(59) Woodside assessment: Woodside does not agree with CCWA's position. There is inconclusive evidence of a causal link between industrial air emissions and anthropogenic change to rock art on Murujuga. Woodside response: Woodside directed CCWA to sections of the EP which discussed existing research on onshore industrial emissions and assessment of potential impacts. Woodside also provided information from MRAS that the data currently available from previous monitoring did not allow for a conclusive answer on whether anthropogenic emissions were impacting Murujuga's rock art.	(59) Assessment of the potential risks and impacts to Murujuga rock art is set out in Section 6.7.7 of the EP.
(60) The EPA had stated remediation of Murujuga rock art was not possible after it was impacted and the proposal did not mitigate any impacts.	(60) Woodside assessment: Woodside does not agree with CCWA's position. There is inconclusive evidence of a causal link between industrial air emissions and anthropogenic change to rock art on Murujuga and uncertainty regarding impact pathway. Woodside response: Woodside confirmed precautionary measures were in place to reduce the impact of risk to Murujuga rock art. Woodside also extended the controls	(60) Assessment of the potential risks and impacts to Murujuga rock art is set out in Section 6.7.7 of the EP.

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	considered in the EP to reflect the requirement of the Pluto Gas Plan to implement best practice in minimising air emissions, and Woodside included a list of examples in its response.	
(61) MRAMP's first-year report showed the rock art to be in almost permanently acidic environment with all sites showing high acidity levels.	(61) Woodside assessment: Woodside does not consider these results to be definitive and recognises that further work by MRAMP is required. Woodside response: Woodside noted the statement from the MRAMP report but noted the same report stated that "data collected in the first year of observation do not permit any firm conclusions to be drawn about trends in rock surface condition and any relationship to air quality over time". Woodside directed CCWA to the Summary of Existing Research on Onshore Industrial Emissions section of the EP for further information.	(61) Existing research on onshore industrial emissions is set out in Section 4.9.6 of the EP.
(62) Claims no management responses proposed from MRAMP.	(62) Woodside assessment: Operators of the Pluto LNG Facility and Northwest Shelf Karratha Gas Plant have both made public commitments to supporting the outcomes of MRAS. Woodside response: Woodside referred CCWA to other responses which addressed the uncertainty regarding the potential impact pathway from onshore atmospheric emissions on Murujuga rock art and noted onshore industrial air emissions were being managed by EPA, while DWER was also involved including via the MRAS.	(62) Assessment of the potential risks and impacts to Murujuga rock art is set out in Section 6.7.7 of the EP.
(63) Asserted Woodside was in no way ensuring that "no air emissions from the proposal have an adverse impact accelerating the weathering of rock art within Murujuga beyond natural rates.	(63) Woodside assessment: Woodside does not agree with CCWA's assertion. There is inconclusive evidence of a causal link between industrial air emissions and anthropogenic change to rock art on Murujuga and uncertainty regarding impact pathway. Woodside will continue to assess science on this topic. Woodside response: Woodside referred CCWA to other responses which addressed the uncertainty regarding the potential impact pathway from onshore atmospheric	(63) Assessment of the potential risks and impacts to Murujuga rock art is set out in Section 6.7.7 of the EP.

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	emissions on Murujuga rock art, and precautionary measures taken to address the uncertainty.	
(64) Claims the Scarborough project presented unacceptable risk and irreversible impacts to the environment	(64) Woodside assessment: Woodside does not agree the Scarborough project represents an unacceptable risk and will cause irreversible impacts to the environment. Woodside response: Woodside noted the highest magnitude for the activity under the EP was: planned impact/consequence Slight, short-term impact (<1yr) on species and/or habitat (not affecting ecosystem function) physical or biological attributes. For unplanned activities, the highest level of impact or consequence is Moderate, medium-term impact (2-10 yrs) on ecosystems, habitat or physical/biological attributes.	(64) Assessments of the potential impacts of environmental risks and impacts are set out in sections 6.7 and 6.8 of the EP.
(65) Claims Woodside could not ensure the Scarborough Project would maintain or enhance the health, diversity and productivity of the environment for future generations and therefore violated the intergenerational principle. The principles of ESD guided NOPSEMA's task in deciding whether to accept an EP.	(65) Woodside assessment: Woodside does not agree with CCWA's position. Evaluation criteria which includes the principles of ESD has been considered. Woodside response: Woodside noted the impacts and risks of the Scarborough project were determined to be acceptable in the Scarborough OPP through consideration of evaluation criteria which included the principles of ecologically sustainable development consistent with the EPBC Act. Woodside further set out how the EP and OPP complied with regulations 4(a) and 4(b) and advised CCWA further information was available in Section 2.3.6 of the EP.	(65) Not required.
(66) Claims the project represented a violation of the biodiversity principle.	(66) Woodside assessment: Woodside does not agree with CCWA's position. Woodside does not accept that the Scarborough project will contribute to the exacerbation of climate change impacts in Western Australia. Woodside response: Woodside referred CCWA to other responses for further information on Woodside's position on climate change and GHG emissions, and Woodside's assessment of the hypothetical contribution of the Scarborough project on carbon budgets.	(66) Not required.

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<p>(67) Further information including reports, analyses, assessments, modelling and/or other documents on a number of topics including: The environment that may be affected; environmental risks and impacts of the activities; potential impacts and risks on species; potential impacts and risks on Scott Reef Marine Park; potential risks and impacts in relation to Sea Country risks; potential impacts and risks of GHG emissions; GHG control measures including any proposal for carbon capture and storage; potential cumulative impacts of the project.</p>	<p>(67) Woodside assessment: Woodside declines to provide the information requested and that it is not required to allow CCWA to make an informed assessment of the possible consequences of the activity on CCWA’s functions, interests or activities. Woodside response: Woodside noted it was not reasonable to provide information, technical evaluations and studies which included commercially sensitive or confidential information, and it was not required to allow CCWA to make an informed assessment of the possible consequences of the activity on CCWA’s functions, interests or activities. Woodside noted the EP and OPP were publicly available and referred CCWA to other responses regarding the volume of information already provided. Woodside noted the EP included information on the topics raised and provided section references. Woodside also noted CCS was not currently a feasible abatement measure for the Scarborough FPU.</p>	<p>(67) In response to feedback, Woodside has included assessment of the feasibility of CCS in Section 6.7.6 of the EP.</p>
<p>(68) Requested more specific and up-to-date information on proposed control measures compared to the OPP.</p>	<p>(68) Woodside assessment: Woodside has provided CCWA with volumes of information relevant to this EP, and the EP is publicly available. Woodside response: Woodside referred CCWA to other responses which provided an indication of the volumes of documents and pages of information Woodside had provided or were otherwise available to CCWA relevant to this EP</p>	<p>(68) Not required.</p>
<p>(69) Statements that the EP needed to include an evaluation of “all the environmental impacts and risks arising directly or indirectly.</p>	<p>(69) Woodside assessment: Woodside assesses potential direct and indirect impacts in the EP. Woodside response: Woodside directed CCWA to Sections 6.6, 6.7 and 6.8 for further information on assessments of direct and indirect impacts associated with the EP. Woodside noted the indirect impacts and risks of GHG emissions were assessed in the EP.</p>	<p>(69) Direct and indirect impacts are assessed in sections 6.6-6.8 of the EP.</p>
<p>(70)</p>	<p>(70)</p>	<p>(71)</p>

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<p>Statements that Woodside’s correspondence took the view that Woodside was no longer required to meaningfully engage with CCWA due to CCWA’s views on fossil fuel projects, was aggressive, and took an adversarial approach, and therefore NOPSEMA should investigate Woodside’s ability to comply with consultation requirements, and the potential abuse of the consultation process.</p>	<p>Woodside assessment: Woodside does not agree with CCWA’s assertions. Woodside has consulted CCWA as a relevant person for this EP, in accordance with Regulation 25. In complying with Regulation 25, Woodside has reviewed CCWA’s consultation correspondence as well as literature and information CCWA has published publicly. This information provides context for consultation.</p> <p>Woodside response: Woodside confirmed it had consulted CCWA in accordance with the Regulations and continued to review, assess and respond to CCWA correspondence. Woodside provided summaries of its consultation for this EP; set out reasons for including context to the consultation; provided information on the consultation regime, the transparent nature of consultation, the assessment process, and the implementation strategy.</p>	<p>Not required.</p>
<p>(71) Reference to court proceedings commenced by ACF and Woodside’s claim that CCWA was involved in the proceedings, for which Woodside did not provide any basis.</p>	<p>(71) Woodside assessment: Woodside has relevant documents related to this claim. Woodside response: Woodside referred to letters received from CCWA’s lawyers which resolved the issue but would not be replicated for confidentiality reasons.</p>	<p>(71) Not required.</p>
<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>The measures and controls in the EP address CCWA’s functions, interests or activities.</p>

Summary Report – Consultation Complete

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with CCWA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given CCWA sufficient information to allow CCWA to make an informed assessment of the possible consequence of the activity on CCWA's functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided the information directly to CCWA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the information provided in the Consultation Information Sheet for this EP, information about this activity is contained in the OPP which has been publicly available since 2018, and information relevant to this EP was provided to CCWA on previous consultations. Woodside also gave CCWA further detailed information which addressed CCWA's specific topics of interest and feedback, objections or claims related to this EP (see information given on 12 December 2023, 19 December 2023, 7 March 2024, 4 July 2024, 8 October 2024, 17 January 2025).
- Given CCWA's interest in climate-related matters, Woodside also proactively reminded CCWA about the ability to provide feedback on this EP and gave CCWA information on Woodside's Climate Transition Action Plan and 2023 Progress report (email of 7 March 2024).
- In addition, Woodside proactively provided CCWA with a link to the full EP when it was published on NOPSEMA's website (email of 4 July 2024). In its email to CCWA, Woodside also provided specific references within the EP that pointed to climate-related topics and interests that CCWA had previously sought information on. Woodside also reminded CCWA again that it could provide feedback on this EP.
- On 8 October 2024, Woodside confirmed it would shortly resubmit the EP for assessment and reminded CCWA that Woodside remained open to receiving feedback.
- On 13 December 2023 and 12 July 2024, CCWA claimed it had not been provided with sufficient information, either from the EP, OPP or fact sheets. Woodside disagrees with this assertion because CCWA responded to Woodside's consultation information with feedback specific to the activity, indicating the information provided was sufficient to enable CCWA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. CCWA shared its feedback, claims and objections based on its understanding of the project, which Woodside assessed and responded to as demonstrated in the summary of consultation above. Further, CCWA's feedback on 12 July 2024 included calculations with multiple decimal numbers, indicating the information provided was sufficient for CCWA to make its own calculations regarding this EP.

Reasonable Period

Woodside has allowed CCWA a reasonable period for consultation in the preparation of this EP has been provided because:

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- A consultation period was advised in the initial correspondence to CCWA. That consultation correspondence advised when consultation closed for purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside ultimately allowed CCWA over 4.5 months for consultation period.
- During the consultation period and following it, Woodside proactively sent follow-up emails to CCWA to remind CCWA of consultation and timeframes on numerous occasions (4 September 2023, 14 September 2023, 10 October 2023, 12 December 2023, 19 December 2023, 7 March 2024, 4 July 2024, 8 October 2024).
- In this context, Woodside allowed CCWA a reasonable period for consultation in preparation of the EP.
- On 13 December 2023, CCWA claimed it had not been provided with a reasonable period of time to provide feedback and it considered the 2025 start date of the activity should allow for additional time. Woodside disagrees with this assertion as Woodside commenced consultation on 9 August 2023, and extended the consultation period to 4.5 months.
- As has been made clear during consultation, Woodside is open to receiving feedback after EP submission and throughout the life of the EP. CCWA has demonstrated it understands this and is willing to provide feedback irrespective of consultation timeframes as demonstrated in its feedback received on 12 July 2024.
- Woodside has never-the-less continued to respond to feedback, claims and objections from CCWA.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with CCWA is appropriate and adapted to the nature of interests of CCWA:

- Woodside published 8 advertisements in national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to CCWA because Woodside notes CCWA regularly uses social media as a means to share its views. It also allowed for broad awareness of the activity and consultation.
- In previous consultations, CCWA has engaged by email. Woodside therefore followed this approach.
- Woodside also provided CCWA with a link to NOPSEMA's various information sheets and brochures assisting to provide CCWA with context around the consultation process (9 August 2023).
- In response to Woodside's consultation information, CCWA advised on 17 August 2023 it would like to meet with Woodside. Woodside followed up 3 times on this request in September and October 2023, providing multiple time/date suggestions for a meeting and asking CCWA to nominate its own date if preferred. Woodside copied multiple staff members in the emails. Woodside did not receive any further response from CCWA regarding a meeting. Woodside again offered to meet with CCWA on subsequent occasions.
- On 13 December 2023, CCWA claimed it was not aware of the previous requests to consult, despite the correspondence between Woodside and CCWA in September and October regarding a meeting on this EP.
- Following publication of the EP on NOPSEMA's website, Woodside proactively provided CCWA with correspondence on climate-related matters and directed them to the sections of the EP which contain additional information relevant to their interests. This enabled CCWA to engage with those specific topics of interest and Woodside gave CCWA yet another opportunity to consult on this EP.
- Woodside considers a reasonable opportunity was provided to CCWA as evidenced in its exchanges with CCWA and in particular as evidenced by CCWA's responses on 13 December 2023 and 12 July 2024 where it provided feedback, claims and objections.

Outcomes of Consultation:

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Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- CCWA provided feedback or claims or objections regarding the adverse impact of the proposed activities to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from CCWA and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
 - Based on CCWA's feedback, assessed the feasibility of combined cycle turbines, electrification of compressors, and CCS in Section 6.7.6 of the EP. No new measures were adopted as a result of CCWA's feedback. However, as a result of consultation, Woodside has updated its EP to include assessment of combined cycle turbines, electrification of compressors and CCS.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Greenpeace (GAP)

Context

GAP is a campaigning organisation with campaigns that target Woodside.^v On its website, GAP states it is 'working to take on the biggest polluters and stop new coal, oil and gas projects in Australia'.^{vi} GAP's website also states it 'has been fighting Woodside's Burrup Hub', which includes the Scarborough Project, since 2021 and has been 'working to stop the Burrup Hub'.^{vii} GAP's website states one of the issues it works on is 'No New Fossil Fuels'.^{viii} GAP currently has a campaign titled 'Woodside's Dirty Gas' inviting donations to 'stop the biggest fossil fuel project currently proposed in Australia' (including the Scarborough Project),^{ix} a current campaign to 'Stop Woodside',^x and a petition titled 'Whales NOT Woodside'.^{xi} GAP also ran a campaign against Woodside: 'Blasting our ocean: Woodside's dangerous seismic plan'.^{xii}

In addition to this, GAP has engaged in unsafe conduct including by entering the designated petroleum safety zone, climbing onto Woodside's Nganhurra riser turret mooring in Commonwealth waters and attaching a banner.^{xiii} It also climbed a crane next to Woodside's Perth headquarters and displaying a banner stating STOP WOODSIDE.^{xiv}

On 29 August 2023, GAP commenced proceedings against Woodside in the Federal Court of Australia in relation to the Scarborough 4D B1 Marine Seismic Survey Environment Plan. GAP discontinued these proceedings around a week later, on 7 September 2023.^{xv}

GAP also initiated proceedings against Woodside in December 2023 in the Federal Court of Australia alleging 'that the fossil fuel giant has been misrepresenting its climate performance and plans'.^{xvi} In those proceedings, GAP 'claims that the Woodside Energy Group Ltd has made and continues to make misleading or deceptive representations about its plans to reduce its greenhouse gas emissions in response to climate change'.^{xvii} GAP is legally represented in those proceedings by the Environmental Defenders Office.^{xviii}

In 2018, GAP was invited to participate in consultation on the Scarborough Energy Project OPP. GAP chose not to participate in that consultation process.

Since that time, Woodside has consulted GAP in relation to the Scarborough D&C, SITI, Subsea and Seismic Environmental Plans.

Woodside also consulted GAP in relation to this EP and offered to meet with GAP. However GAP indicated its preference was for Woodside to only consult in writing (email 20 December 2023 and 9 January 2024). Consultation with GAP on this EP has therefore involved the exchange of written correspondence between Woodside and GAP. GAP has confirmed it has a fundamental objection to Woodside developing the Scarborough gas project and undertaking the activities under this EP (9 January 2024). It also has an objective to phase out all fossil fuel use (9 January 2024).

Historical Engagement:

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2018 – 2020

- GAP has been aware of the Scarborough Project (including operations) for around 6 years. In 2018, GAP was invited to consult on three phases (preliminary, formal, ongoing) of consultation the Scarborough Offshore Project Proposal (OPP). Preliminary consultation commenced in 2018. An eight-week formal consultation period ran from 5 July to 30 August 2019. Ongoing consultation continued on acceptance of the OPP in March 2020.
 - The activities under this EP are described in the OPP. GAP chose not to take up the opportunity to participate in consultation.

2022 – 2023

- From 2022 to 2023 Woodside consulted GAP on the Scarborough D&C, SITI, Subsea and Seismic EPs. Woodside has carefully considered the topics and issues raised by GAP during consultation on those EPs. A number of topics and issues raised by GAP during consultation on those EPs have been raised again by GAP as part of consultation on this EP. These include:
 - Routine light emissions including external lighting on project vessels.
 - Information on the direct and indirect GHG emissions of the activity.
 - How expected emissions from the activities align with global temperature and decarbonisation goals.
 - Summary of the expected offsets to be provided in the EP.
 - Inclusion of indirect scope 3 emissions in the assessment of impacts and risks.
 - Assessment of climate-related impacts to MNES coral reef systems such as Ningaloo Marine Park and the Great Barrier Reef.
 - Unplanned hydrocarbon release – vessel collision.
 - Risk of collision with marine fauna and vessel speed.
 - Routine acoustic emissions, including potential cumulative impacts from Scarborough activities.
 - Adapting the consultation process to GAP's needs, including that consultation be in writing.
 - A public statement by GAP stating its objective was to use every means possible to stop Woodside.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed GAP advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 13 September 2023, GAP sent a letter to Woodside (SI Report, reference 1.1) and stated the following:
 - **(1)** GAP was a relevant person and GAP asked that Woodside provide written confirmation that Woodside considered Greenpeace to be a relevant person under regulation 25 of the Environment Regulations.
 - **(2)** As per Regulation 25(2), GAP required additional information about the activities in the EP to make an informed assessment of the possible consequences of the activities on its functions, interests or activities. GAP advised it needed:

- Approximately one month to consider and respond to additional information provided by Woodside. An opportunity to respond within the above timeframe to any additional information including an expectation that Woodside would not resubmit EPs to NOPSEMA for assessment without first allowing GAP approximately one month (or longer if advised by GAP) to consider and respond to additional information.
- The full text of any changes made to a published draft EP. For clarity and to prevent confusion, GAP preferred this to be provided as an updated version of the EP.
- GAP expected Woodside to be open and generous with the provision of additional information, and GAP expected Woodside to directly address the questions and concerns GAP raised.
- GAP required any additional information provided to be at a similar level of detail and supported by a similar level of evidence that was normally provided to NOPSEMA within an EP. GAP needed all descriptions, statements, justifications, reasonings, etc to be fully referenced and the underlying technical or scientific evidence provided.
- Additional information required:
 - **(3)** Comprehensive information setting out the sources and volumes of GHG emissions considered in the EP, as well as those GHG emissions Woodside has chosen not to consider in the EP.
 - **(4)** Detailed, comprehensive and fully justified information about each potential planned and unplanned risk and impact, and proposed mitigation actions.
 - **(5)** Copies of any full text modelling, reports or analyses underlying the Proponent's risk assessment.
 - **(6)** The states and countries in which the direct and indirect GHG emissions were expected to be released, and the volume of greenhouse gases to be released in each state and country.
 - **(7)** Full explanation and justification as to whether and/or how the expected direct and indirect GHG emissions in the EP fit within:
 - ❖ Australia's portion of the remaining global carbon budget needed to limit global warming to 1.5°C (with a 66% probability).
 - ❖ Western Australia's portion of the remaining global carbon budget needed to limit global warming to 1.5°C (with a 66% probability).
 - ❖ the remaining carbon budget for Australia that would allow the nation to reach net zero GHG emissions by 2050, and
 - ❖ the remaining carbon budget for Western Australia that would allow the state to reach net zero GHG emissions by 2050.
 - **(8)** Comprehensive information about any carbon offsets that may be used to offset the direct or indirect GHG emissions from the activities, and
 - **(9)** Comprehensive information about the species and protected areas at risk from the planned and unplanned activities.
- On 6 December 2023, Woodside responded to GAP in a letter (SI Report, reference 1.2). Woodside stated:
 - **(2)** Woodside had been in a continued dialogue, with a significant exchange of information, with GAP since December 2018 around the Scarborough Project which had been acknowledged by GAP.
 - This exchange of information continued from April 2022 around the 4 Scarborough EPs.
 - GAP had shown a high level of technical awareness of the Scarborough Project which demonstrated a comprehensive and detailed understanding of the potential environmental risks and potential impacts and Woodside's mitigations.
 - Woodside had advertised about this EP extensively in media and social media and run Community Information Sessions in regional WA.
 - Woodside had offered to meet with GAP but this had not been taken up and instead, GAP had run an ongoing campaign called Stop Woodside where protestors had scaled a crane next to the Woodside Perth office and unlawfully entered offshore safety exclusion zones and boarded decommissioned infrastructure.

- Woodside advised GAP consultation would close on 20 December 2023 and asked if GAP had any feedback before this time or would like to meet.
- (2) Woodside complied with regulation 25 of the Environment Regulations in relation to the consultation process for this EP. Woodside engaged in ongoing consultation with stakeholders throughout the life of an EP.
- (2) Woodside provided information on this EP via the Consultation Information Sheet to GAP on 9 August 2023 and had provided a reasonable period of time for GAP to submit feedback in relation to the EP. Feedback and comments received continued to be assessed and responded to, as required, through the life of an EP, including during EP assessment and throughout the duration of the accepted EP, in accordance with the intended outcome of consultation.
- (2, 4, 9) The Consultation Information Sheet provided to GAP provided information to enable a person to make an informed assessment of the possible consequences of the activity on their functions, interests or activities of the activity description, the receiving environment, a comprehensive summary of impacts and risks associated with Petroleum Activities Program (PAP) and a summary of proposed mitigation and management measures. The information contained within the Consultation Information Sheet was sufficient to inform consultation. Woodside does not provide drafts of EPs and while content was subject to change. Publicly available versions assisted stakeholders to access and comment on the same information and removes confusion when iterations of the EP are submitted during the assessment process. The EP would be made publicly available on NOPSEMA's website once it had been submitted and is under assessment by NOPSEMA.
- (2) Woodside has had ongoing contact with GAP throughout the Scarborough Project, this had included correspondence and offers to meet with GAP regarding the Scarborough Project. Woodside continued to welcome the opportunity to meet with GAP to discuss any specific questions or concerns regarding the activity.
- (2) The Woodside response contained responses to GAP questions, topics and issues raised by GAP.
- (5) The EP would be informed and supported by literature and studies (many of these being publicly available). The relevant information from these will be included within the EP to support the relevant impact and risk evaluation and will be referenced as appropriate, in response to questions, topics and issues of interest to GAP.
- (5) The EP and relevant appendices (such as reports, analyses and modelling) would be made publicly available once the EP is submitted to NOPSEMA and was under assessment by NOPSEMA.
- (3) GHG emissions relevant to the PAP, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008*. The EP would assess Direct Emissions (Scope 1) and Indirect Emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*.
- (3) The EP would assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. Direct GHG emissions of carbon dioxide, methane and nitrous oxide, and Total carbon dioxide equivalent emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
- (3) Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rates estimated by contractors, internal helicopter fuel consumption data and emission factors from the NGER Scheme.
 - An impact assessment of GHG from the Scarborough facility and mitigation and management controls to reduce GHG emissions had been undertaken. This included development of a decarbonisation plan for the Pluto Hub. Woodside also had in place a Climate Strategy which was an integral part of the company strategy. The strategy had two key elements: reducing Woodside's net equity Scope 1 and 2 GHG emissions and investing in the products and services that Woodside's customers needed as they secured their energy needs and reduced their emissions.

- Woodside's net equity reduction targets had an aspiration of net zero by 2050 or sooner. In 2022, Woodside achieved 11% reduction compared to starting base. Woodside planned to achieve net equity Scope 1 and 2 GHG emissions reduction targets in three ways:
 - ❖ Avoiding GHG emissions through the way we designed our assets.
 - ❖ Reducing GHG emissions through the way we operated our assets.
 - ❖ Originating and acquiring carbon credits to use as offsets for the remainder.
- (7) Avoiding and reducing emissions were Woodside's first priorities for meeting the net equity emissions reduction targets. However, offsetting emissions would allow Woodside flexibility to meet these targets, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions proved to be hard-to-abate, residual emissions would likely be offset using carbon credits in order to achieve its net zero aspiration.
- (4, 9) The existing environment that may be affected by the PAP would be described in the EP. This included details of values and sensitivities of the environment, including species and protected areas, which would be used for the assessment of impacts and risks for planned and unplanned activities. A specific assessment would be undertaken to confirm that the PAP would not be inconsistent with a recovery plan or threat abatement plan for a listed threatened species or ecological community and would be consistent with the principles of Ecologically Sustainable Development.
- On 20 December 2023, GAP emailed Woodside (SI Report, reference 1.3) and:
 - Confirmed it did have additional feedback.
 - (10) Advised it preferred all relevant person consultation to be in writing and it generally required one month to consider and respond to information. As such, GAP asked to have until 6 January 2023 to respond. GAP also requested that Woodside respond to this email by 10 January 2023.

Ongoing engagement:

- On 21 December 2023, Woodside responded to GAP (SI Report, reference 1.4) as follows:
 - (1, 2, 10) It had responded to feedback, claims and objections and advised consultation would close on 20 December 2023.
 - (2, 10) It had extended its consultation period from four weeks to 4.5 months giving GAP time and opportunity to provide feedback, claims and objections.
 - (2) On the basis of the extended period for consultation, numerous attempts to engage GAP, and provision of information sheets as well as the 6 December 2023 response to feedback, claims and objections; sufficient information, a reasonable period of time and opportunity for consultation has been provided to GAP.
 - It advised that consultation continued to occur during the life of an EP and that the Management of Change and Review process could be applied if appropriate.
 - (10) Noted GAP preferred to be consulted in writing however, Woodside was still open to meeting in the future.
- On 9 January 2024, GAP responded to Woodside (SI Report, reference 1.5) as follows:
 - (1, 10) GAP is a relevant person but does not want to meet with Woodside and wants all communications in writing.
 - (2, 10) The consultation process should be adjusted to allow access to more detailed information.
 - (11) GAP objected to Woodside developing the Scarborough gas field and undertaking the activities in the EP.
 - (4) GAP required detailed additional information on each of the potential impacts that posed a risk to marine wildlife, habitats or environments including:
 - Physical presence – seabed disturbance.
 - Routine light emissions – FPU and project vessels.

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- Routine acoustic emissions – FPU and project vessels including intensity and frequency, distances which marine fauna may be impacted and mitigations.
- Routine and non-routine discharges from project vessels including make-up, toxicity, characteristics, volumes, frequency and impacts on marine wildlife, habitats and environments, and mitigations.
- Routine and non-routine discharges from FPU operations (waste water streams).
- Routine and non-routine discharges from FPU and subsea commissioning.
- Routine and non-routine discharges from FPU operations.
- Routine and non-routine discharges from FPU operations (commingled produced water/cooling water stream).
- Routine and non-routine discharges subsea operations and activities.
- Unplanned hydrocarbon release – FPU loss of structural integrity including volumes released, time to stop and contain a spill, adequacy of actions to prevent unplanned release, environmental impacts of unplanned release and remediation.
- Unplanned hydrocarbon release – vessel collision.
- Unplanned hydrocarbon release – loss of well containment.
- Unplanned hydrocarbon release – trunkline, flowline and riser loss of containment.
- Unplanned hydrocarbon or chemical release – hydrocarbon release during bunkering/refuelling and chemical release during transfer, storage and use
- Unplanned discharges – deck and subsea spills.
- Unplanned discharges – loss of hazardous and non-hazardous wastes/equipment.
- Physical presence (unplanned) seabed disturbance.
- Physical presence (unplanned): vessel collision with marine fauna.
- Physical presence (unplanned): introduction of invasive marine species.
- Potential impacts associated with climate change, including routine and non-routine atmospheric and GHG emissions. GAP was concerned about:
 - **(3)** The sources and volumes of GHG emissions.
 - **(6)** The volumes of GHG emissions expected to be released in Western Australia, Australia and overseas.
 - **(7)** How these compare to the remaining carbon budgets (allowing for a 66% probability of limiting global warming to 1.5 degrees Celsius) for Western Australia, Australia and globally.
 - **(12)** The effectiveness of the decarbonisation plan for the Pluto Hub.
 - **(13)** Environmental harm that may result from warming associated with the release of the GHG emissions.
 - **(14)** The full extent of Scarborough Scope 3 emissions (and their associated environmental impacts) are not being considered in the EP.
 - **(15)** Residual GHG emissions will remain high, even after mitigation efforts.
 - **(8)** There will be an overreliance on carbon offsets to mitigate the GHG emissions.

- **(16)** GAP was concerned that Woodside may rely on its Climate Strategy to mitigate the potential impacts of the direct and indirect GHG emissions that may result from the activities.
- **(17)** The integrity of the modelling underlying any assessment of GHG emissions and their potential impacts.
- On 1 February 2024, Woodside responded to GAP (SI Report, reference 1.6) as follows:
 - **(10)** Woodside noted GAP's objection to meeting but still extended its offer for GAP to meet with Woodside.
 - **(2, 10)** Information had been provided which addressed the key issues raised, sufficient for GAP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities and specifically to understand the nature of the GHG emissions that were estimated to be associated with the activity and the overall Scarborough project. The global context on emissions were also public.
 - **(10, 11)** While the information in this EP Consultation Information Sheet may not meet GAP's objective to phase out all fossil fuel use (i.e. fundamental opposition to the Scarborough Project), that was not required in order for the consultation requirements under the Regulations to be met.
 - **(3)** Woodside had also referred GAP to the published OPP for further detailed information and quantification of Scope 3 emissions estimates from the overall project.
 - **(11)** Woodside noted GAP's fundamental opposition to the activities described in this EP and would cite GAP's fundamental objection to Woodside and its activities in this EP when it was submitted to NOPSEMA.
 - **(4, 9)** Woodside noted GAP's request for more detailed additional information on each of the potential impacts that posed a risk to marine wildlife, habitats or environmental, plus those associated with climate change.
 - **(2, 9, 10)** Woodside considered the information in the Scarborough OPP as well as previous information provided to GAP to be sufficient to allow GAP to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of GAP.
 - **(2, 10)** Woodside also noted that GAP was contacted in 2018 to provide comment on the Scarborough Project OPP. GAP did not provide any comment regarding its functions, interests or activities nor any claims or objections regarding the Scarborough Project OPP.
 - **(3)** It should be noted this EP would include a revised estimate of emissions, taking into account changes since the OPP was accepted by NOPSEMA, including but not limited to:
 - Updated GHG emission factors.
 - Maturation of FPU design and operational details.
 - Changes in associated regulatory requirements such as the updated Pluto LNG Facility GHG Abatement Program and associated conditions in Ministerial Statement 1208.
 - **(3)** The Scarborough OPP acknowledged that GHG estimates were subject to a range of variables that may change and presented a description of the methodology and emission factors used to quantify emission estimates. The total GHG emission estimates for the field life had not changed, although some annual variations were anticipated, consistent with the narrative set out in the Scarborough OPP.
 - **(7, 13)** Climate science had drawn a robust link between cumulative net emissions of greenhouse gases and global temperature levels. The link between cumulative net emissions and temperature levels allowed a carbon budget to be calculated. This was the remaining amount of net emissions (i.e. all global sources of emissions minus all global sinks of emissions) that could occur before today's concentration of greenhouse gases increased to the concentration associated with potential temperature outcomes.
 - However, the distribution of this carbon budget across different human activities required additional judgements about a wider range of social, economic and technological factors and consumer and policy choices. Strategies to achieve emissions reductions included transitioning from fossil fuels without Carbon Capture Storage (CCS) to very low-

or zero-carbon energy sources, such as renewables or fossil fuels with CCS, demand side measures and improving efficiency, reducing non-CO₂ emissions, and deploying carbon dioxide removal methods to counterbalance residual GHG emissions.

- Pathways to limit warming therefore show different combinations of sectoral mitigation strategies consistent with a given warming level.
- As a result the demand for oil and gas in climate-related scenarios that could limit global warming to 1.5°C or 2°C was uncertain. For example in the AR6-WG3 report, the IPCC stated that in pathways that limit warming to 1.5°C (with a greater than 50% probability and with no or limited overshoot) the potential global use of gas in 2050 ranged from 30% above 2019 levels to 85% below them with a median 45% decline.
- (7) Woodside sees an ongoing role for Scarborough LNG and pipeline gas to support its customers' plans to secure their energy needs, while they reduce their emissions. The Scarborough reservoir contained only around 0.1% carbon dioxide and would be combined with processing design efficiencies at the FPU (offshore) and at Pluto Train 2 (onshore) to deliver one of the lowest carbon intensity projects for LNG delivered into Asian markets.
- (17) On the integrity of the modelling underlying the assessment of GHG emissions and their potential impacts, Woodside emphasised that, due to the high level of complexity and numerous variables associated with climate and ecological processes, it was not considered feasible to correlate the potential impact of Scarborough GHG emissions on receptors given:
 - That it is the net global GHG concentrations that caused climate change and climate related impacts.
 - The inability to precisely predict the amount of total future global GHG emissions.
 - The inability to predict future national and international initiatives on climate change and the impact they would have on total future global GHG emissions, including Scarborough emissions.
- (12) On the effectiveness of the decarbonisation plan for the Pluto Hub, Woodside noted that interim and long-term emission reduction targets for the Pluto LNG Facility had been set to achieve net zero emissions by 2050. Following the State Minister's inquiry under section 46 of the *Environmental Protection Act* 1986, these emission reduction targets had become emission limits in Ministerial Statement 1208. Furthermore, public reporting by Woodside would be undertaken to confirm compliance with the various emission limits, providing assurance of the effectiveness of the Pluto LNG Facility Greenhouse Gas Abatement Program.
- (3, 13, 14) It was important to acknowledge that climate change impacts could not be directly attributed to any one project as they were instead the result of GHG emissions, minus GHG sinks, that had accumulated in the atmosphere since the industrial revolution started. This meant there was no link between GHG emissions from Scarborough and climate impacts.
- (3) The EP would assess both direct and indirect impacts and risks associated with the Petroleum Activities Program (PAP), having regard to the nature and scale of the proposed PAP. Direct estimated GHG emissions of carbon dioxide, methane and nitrous oxide and Total carbon dioxide equivalent emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
- (3, 14) Indirect estimated GHG emissions associated with the PAP from offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
- (8) Avoiding and reducing GHG emissions were a Woodside priority, and this was principally achieved through pursuing opportunities in the design and operation of our assets that were economically viable when assessed using an internal long-term cost of carbon, currently US\$80/tCO₂e, which exceeded the current market price of Australian Carbon Credit Units (ACCU).

- (8) Offsetting emissions allowed Woodside flexibility to reduce net emissions, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions proved to be hard-to-abate, residual emissions would be offset using carbon credits in order to achieve our emission reduction requirements.
- (5) Woodside's climate strategy was an integral part of the company strategy. It had two key elements: reducing Woodside's net equity Scope 1 and 2 GHG emissions, and investing in the products and services that its customers needed as they secured their energy needs and reduced their emissions.
- (17) Woodside announced a Scope 3 emissions plan in 2021, which had three key elements:
 - 1. Invest: New energy products and lower carbon services – Woodside expected increasing demand for new energy products such as hydrogen and ammonia, and lower carbon services such as CCUS. These could reduce the emissions arising when our customers consumed energy compared to unabated use of fossil fuels.
 - ❖ Woodside was investing to add these new products and services to its portfolio, seeking to match the pace, scale and needs of its customers as they determined their own decarbonisation pathways.
 - ❖ In December 2021, Woodside announced a US\$5 billion investment target in new energy products and lower carbon services by 2030. The US\$5 billion was intended for investments that helped its customers decarbonise by using these products and services. It was not used to fund reductions of Woodside's net equity Scope 1 and 2 emissions which were managed separately through asset decarbonisation plans.
 - 2. Support: Customer and supplier emissions reduction – Woodside could support its customers and suppliers by identifying opportunities to collaborate on their decarbonisation pathways.
 - 3. Promote Global measurement and reporting – Woodside was actively participating in industry collaboration initiatives to mature, harmonise and advocate for accurate and transparent measurement and reporting.
- (17) GAP was advised that Woodside's Climate Strategy was not the governing framework outlining the management and mitigation measures to reduce GHG emissions associated with the Scarborough Project, the Scarborough OPP outlined the management and mitigation measures already adopted by Woodside for the Scarborough Project.
 - Furthermore, the Pluto LNG Facility Greenhouse Gas Abatement Program outlined the strategies adopted to avoid, reduce, mitigate and offset GHG emissions associated with the Pluto LNG Facility.
- On 7 February 2024, Woodside emailed GAP correcting a date on previous correspondence (SI Report, reference 1.7).
- On 7 March 2024, Woodside sent GAP an email stating that as they had shown an interest in climate-related matters, they may be interested in the release of Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report which summarised Woodside's climate-related plans, activities, progress and climate-related data (SI Report, reference 1.8).
 - (7, 8) The email included links to the CTAP and the ASX Announcement.
 - (1, 10) It also re-iterated that consultation in the preparation of this EP had closed however, feedback could continue to be provided during the life of an EP, including after consultation had closed on the EP, during EP assessment, and after an EP had been accepted by NOPSEMA.
 - (1, 10) Finally it stated Woodside was available to meet with GAP to discuss this EP should they be interested.
- On 4 July 2024, Woodside emailed GAP and provided a link to the publicly available EP on the NOPSEMA website (SI Report, reference 1.9). Based on GAP's previous feedback, Woodside noted:
 - (7) Information on how expected emissions aligned with global temperature and decarbonisation goals could be found in EP section 6.7.6 under subheadings *Context – Relevant Energy Mixes and Climate Related Scenarios* and *Management and Mitigation*.
 - (3, 13) Information on the impacts associated with climate change, including routine and non-routine GHG emissions, could be found in Section 6.7.6 and 6.7.7.

- (17) Information on the integrity of the modelling underlying any assessment of GHG emissions could be found in Section 6.7.6 under subheading *Description of Source*.
- (3, 6, 14) Information regarding sources and volumes of emissions, including the full extent of Scarborough Scope 3 emissions, could be found in Section 6.76 under subheading *Description of Source*.
- (8) Further information regarding carbon offsets could be found in Section 6.7.6 under subheading *Management and Mitigation, Offset*.
- Woodside advised that it continued to assess and respond to feedback throughout the life of an EP, and that Woodside was available to meet with GAP over the next month.
- On 8 October 2024, Woodside emailed GAP to thank it for its feedback and for engaging in consultation with Woodside on this EP (SI Report, reference 1.10). Woodside advised it would shortly resubmit the EP to NOPSEMA for further assessment and that as part of the consultation process, Woodside had further assessed the merits of a number of objections and claims raised by GAP. Woodside reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:
 - (1) Confirmed GAP had been identified as a relevant person for this EP.
 - (4) Advised the EP – specifically sections 6.7 and 6.8 – contained detailed and comprehensive information about the planned and unplanned risks/events relevant to the PAP, and that each of the risk assessments contained proposed mitigative actions. In response to GAP’s particular concern regarding the risk of vessel collision with marine fauna, Woodside confirmed Control 4.8 in the EP committed to the reduction of vessel speeds within the Operational Area during pygmy blue and humpback whale migration seasons.
 - (5) Noted the EP and relevant appendices were publicly available on NOPSEMA’s website and that it was not reasonable for Woodside to provide technical evaluations and studies, nor was it necessary for GAP to have those documents in order to assess the potential consequences of the activity on its functions, interests or activities.
 - (3) Provided an overview of GHG sources and volumes associated with the project, including estimates for Scope 1 and Scope 3 emissions.
 - (6) Advised that based on Table 6-21 of the EP, over the life of the facility approximately 12 MtCO₂-e was expected to be emitted in Commonwealth Waters and approximately 88 MtCO₂-e in Western Australia associated with onshore processing of Scarborough Gas. Of the approximately 780 MtCO₂-e expected to be emitted in association with third party consumption, a small portion was expected to be emitted in WA via the domestic gas network, but the vast majority would be international.
 - (7) Advised its view was that LNG could have a role in the energy transition and in displacing higher carbon intensity fuels, therefore, if the introduction of Scarborough LNG served to reduce GHG emissions elsewhere, then in Woodside’s view the full volume of GHG emissions associated with the project were not expected to be additive to global GHG concentration. However, Woodside confirmed a hypothetical assumption where GHG emissions associated with the project were treated as additive had been considered in the EP and the contribution was de minimis.
 - (8) Disagreed with GAP’s assertion regarding an overreliance on carbon offsets. Woodside confirmed avoiding and reducing GHG emissions was Woodside’s priority, however, offsetting emissions allowed a reduction of net emissions while asset and technology decarbonisation plans were matured and implemented.
 - (9) Advised that information on species and protected areas relevant to the PAP were provided in various places in the EP, including Sections 4.6, 6.7, 6.8 and 6.9.
 - (12) Advised access to the Pluto Decarbonisation Plan was not required for GAP to assess how its functions, interests or activities may be affected, but noted the Pluto Greenhouse Gas Abatement Program was publicly available.
 - (13) Advised contextual evaluation of climate change impacts on global and Australian receptors was set out in the EP for reference, and provided GAP with a list of relevant projections for climate change in Australia.
 - (14) Confirmed Scope 3 emissions were assessed in the EP and that the total estimated Scope 3 emissions associated with the project, as set out in Table 6-21 of the EP, were approximately 870 MtCO₂-e.

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- (15) Confirmed it had considered GAP's feedback.
- (16) Advised Woodside's Climate Strategy provided broader business context and as such, Woodside would not respond to feedback on the Climate Strategy in consultation in the course of preparing the EP.
- (17) Noted that Woodside used publicly available and reputable sources for climate science, including the IPCC.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) GAP self-identified as a relevant person and requested to be consulted on Scarborough EPs.</p>	<p>(1) Woodside assessment: Woodside complies with regulation 25 of the Environment Regulations and has assessed GAP as a relevant person for this EP based on its functions, interests or activities. Woodside response: Woodside confirmed GAP had been identified as a relevant person for the purposes of the Operations EP and had been provided with consultation information on the activity.</p>	<p>(1) Woodside has assessed GAP as a relevant person in its Assessment of Relevance (see Appendix F, Table 1 of this EP).</p>
<p>(2) Additional information and time required to make informed assessments about possible consequences on its functions, interests or activities.</p>	<p>(2) Woodside assessment: Woodside has provided GAP with sufficient information and a reasonable period of time to make an informed assessment of the possible consequences of the proposed activity on its functions, interests or activities. Woodside commenced consultation with GAP in August 2023 and has given volumes of information to GAP and has addressed and responded to GAP's feedback over a 14-month period. Through its feedback, GAP has also demonstrated a high level of technical awareness of the Scarborough Project. Woodside response: Woodside confirmed it had provided GAP with a Consultation Information Sheet for this EP on 9 August 2023 and had extended the consultation period from an initial four weeks to 4.5 months. Woodside also provided direct responses to GAP's feedback, and emailed GAP a link to the EP when it was publicly available on NOPSEMA's website. Woodside noted it had been in a continued dialogue with GAP regarding Scarborough EPs since April 2022, and</p>	<p>(2) GAP has been provided with sufficient information and a reasonable period for consultation, as described in Section 5.4 of the EP.</p>

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	GAP had shown a high level of technical awareness of the Scarborough Project, demonstrating a comprehensive and detailed understanding of the potential environmental risks and impacts.	
<p>(3) Comprehensive information setting out sources and volumes of direct and indirect emissions related to the EP.</p>	<p>(3) Woodside assessment: GAP has been provided with sufficient information regarding sources and volumes of emissions related to the EP, via the Consultation Information Sheet, Scarborough OPP (which contains emissions estimates consistent with the EP), publicly available EP and responses directly to GAP correspondence, for GAP to make an informed assessment of the possible consequences of the proposed activity on its functions, interests or activities.</p> <p>Woodside response: Woodside provided GAP with an overview of sources and volumes of direct and indirect emissions related to the EP, including estimated Scope 1 and Scope 3 emissions. Woodside advised the total estimated GHG emissions associated with the project, as presented in Table 6-21 in the publicly available EP, were approximately 880 MtCO₂-e over the life of the activity.</p> <p>Woodside also provided GAP with a link to the publicly available EP and advised further information on emissions sources and volumes was set out in Section 6.7.6. Further, Woodside had previously advised GAP the various direct and indirect sources and volumes of emissions were included in the OPP, on which GAP was invited to comment in 2018.</p>	<p>(3) Direct and indirect emissions associated with the proposed activity are presented and assessed in Sections 6.7.6 and 6.7.7 of the EP.</p>
<p>(4) Detailed comprehensive information about each potential planned and unplanned risk to marine wildlife or habitats, and proposed mitigating actions, including the risk of vessel collision with marine fauna.</p>	<p>(4) Woodside assessment: GAP has been provided with sufficient information on the potential planned and unplanned risk to marine wildlife or habitats, via the Consultation Information Sheet, Scarborough OPP, publicly available EP and responses directly to GAP correspondence, for GAP to make an informed assessment of the possible consequences of the proposed activity on its functions, interests or activities.</p> <p>Woodside response: Woodside provided GAP with a link to the publicly available EP and set out which specific sections provided further information and mitigation measures for each</p>	<p>(4) Woodside has assessed the potential impacts and risks to marine wildlife from planned and unplanned activities in Sections 6.7 and 6.8 of the EP.</p> <p>Woodside will manage vessel speed in the humpback and PBW whale BIAs in migration seasons within the trunkline Operational Area, as referenced as C 4.8 in the EP.</p>

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	<p>of the planned and unplanned risks to marine wildlife raised by GAP.</p> <p>Regarding the risk of vessel collision with marine fauna, Woodside confirmed Control 4.8 in the EP committed to the reduction of vessel speeds within the Operational Area in the pygmy blue and humpback whale migration BIAs, during migration seasons.</p> <p>Woodside also noted GAP was contacted in 2018 to provide comment on the Scarborough OPP, which included information on potential risks to marine wildlife, habitats or environments.</p>	
<p>(5) Copies of any full text modelling, reports or analyses underlying the risk assessment.</p>	<p>(5) Woodside assessment: GAP does not require copies of the full text modelling, reports or analyses in order to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.</p> <p>Woodside response: Woodside advised the EP and relevant appendices were publicly available on NOPSEMA's website, and it was not reasonable for Woodside to provide the level of detail, technical evaluations and studies which included commercially sensitive or confidential information. Woodside confirmed the final outcomes of technical evaluations and studies relevant to the activity were described in the EP and in Woodside responses to GAP.</p>	<p>(5) Not required.</p>
<p>(6) Requested information on the states and countries in which direct and indirect GHG emissions are expected to be released, and the volumes.</p>	<p>(6) Woodside assessment: Woodside has provided GAP sufficient information on GHG emissions sources via the Scarborough OPP, publicly available EP, and direct responses to GAP, for GAP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.</p> <p>Woodside response: In addition to previous information on emissions sources provided to GAP through the Consultation Information Sheet and Scarborough OPP, Woodside confirmed that based on estimates presented in the EP, over the life of the facility approximately 12 MtCO₂-e was expected to be emitted in Commonwealth Waters and</p>	<p>(6) A breakdown of emissions sources and volumes is provided in Section 6.7.6 of the EP and summarised in Table 6-22.</p>

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	<p>approximately 88 MtCO₂-e was expected to be emitted in Western Australia associated with onshore processing of Scarborough Gas. Regarding third party consumption of product, a small portion of this was expected to be emitted in WA via the domestic gas market but the vast majority would be international.</p>	
<p>(7) Full explanation as to whether/how expected GHG emissions fit within temperature and decarbonisation goals.</p>	<p>(7) Woodside assessment: A hypothetical assumption where GHG emissions associated with the Scarborough project are treated as additive is considered in the EP. This scenario is not expected to eventuate. Woodside response: Woodside advised a portion of GHG emissions associated with the project were anticipated to contribute to carbon budgets estimated to achieve the goals of the Paris Agreement. Woodside advised its view was that LNG could have a role in the energy transition and in displacing higher carbon intensity fuels, and in Woodside's view the full volume of GHG emissions associated with the project were not expected to be additive to global GHG concentration. Regardless, to facilitate a comparison against carbon budgets, Woodside confirmed a hypothetical assumption where GHG emissions associated with the project were treated as additive had been considered in the EP. Based on this hypothetical assumption, the contribution of the project to carbon budgets was de minimis.</p>	<p>(7) Section 6.7.6 of the EP discusses the Scarborough Project in the context of gas demand in climate-related scenarios.</p>
<p>(8) Concerns there will be an overreliance on carbon offsets to mitigate GHG emissions.</p>	<p>(8) Woodside assessment: Avoiding and reducing GHG emissions are Woodside's priority, however offsetting emissions allows a reduction of net emissions while asset and technology decarbonisation plans are matured and implemented. Woodside response: Woodside confirmed avoiding and reducing GHG emissions were its priority and that Woodside aimed to achieve this principally by pursuing opportunities in the design and operation of its assets that were economically viable when assessed using an internal long-term cost of carbon, currently US\$80/tCO₂e, which exceeds the current market price of Australian Carbon Credit Units (ACCU).</p>	<p>(8) Management and abatement measures are set out in Section 6.7.6 of the EP.</p>

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	Offsetting emissions allowed a reduction of net emissions while asset and technology decarbonisation plans were matured and implemented. In the longer term, and in circumstances where emissions were hard to abate, residual emissions would be offset using carbon credits.	
<p>(9) Requested comprehensive information about the species and protected areas at risk from the planned and unplanned activities.</p>	<p>(9) Woodside assessment: Woodside has provided GAP sufficient information on the species and protected areas at risk from the planned activities via the Consultation Information Sheet, Scarborough OPP, references to specific sections of the publicly available EP, and direct responses to GAP, for GAP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Woodside response: Woodside confirmed information on species and protected areas relevant to the PAP was provided in the EP, including Section 4.6 which described species, habitats and communities in the EMBA and Operational Area that might be affected; Sections 6.7 and 6.8 which provided risk assessments for impacts to particular species and environments; and Section 6.9 which looked at the assessed impacts in the context of Principles of ESD, MNES, and recovery/threat abatement plans. Woodside further noted that additional information had been available to GAP via the Scarborough OPP since 2018.</p>	<p>(9) Species and protected areas are described in Section 4.6 of the EP. Risk assessments for planned and unplanned activities are set out in Sections 6.7 and 6.8 of the EP. Assessment of environment protection and Biodiversity Conservation Act is set out in Section 6.9.</p>
<p>(10) Statements that the consultation process did not incorporate all relevant persons and needed to be adapted for GAP, including all claims in writing, highly detailed and specific information, timeframes for consultation prior to resubmission, and full text of any changes to the EP.</p>	<p>(10) Woodside assessment: Woodside complies with regulation 25 of the Environment Regulations in relation to the consultation process for EPs. Woodside accepts GAP's preference is not to meet, but nevertheless remains open to meet with GAP should GAP's position change. Sufficient information has been provided which addresses the key issues raised. Woodside response: Woodside advised that it noted GAP's objection to meeting and that it complied with regulation 25 of the Environment Regulations in relation to the consultation</p>	<p>(10) Woodside's consultation methodology is described in Section 5 of the EP and its assessment of relevant persons is described in Appendix F, Table 1 of the EP.</p>

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	<p>process for this EP. Woodside confirmed it engaged in ongoing consultation throughout the life of an EP.</p> <p>Woodside advised it considered sufficient information had been provided via the Consultation Information Sheet, Scarborough OPP and previous responses provided to GAP which addressed the key issues raised, for GAP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.</p>	
<p>(11) GAP has called on Woodside to abandon fossil fuel expansion plans particularly in relation to the proposed development of the Burrup Hub.</p>	<p>(11) Woodside assessment: Woodside is aware of GAP's fundamental opposition to the activities described in this EP. Woodside response: Woodside confirmed it had noted GAP's fundamental opposition to the activities and advised GAP it would cite this opposition in the EP.</p>	<p>(11) Not required.</p>
<p>(12) The effectiveness of the decarbonisation plan for the Pluto Hub.</p>	<p>(12) Woodside assessment: Access to the Pluto Hub Decarbonisation Plan is not required for GAP to assess how its functions, interests or activities may be affected by activities described in the EP. Woodside response: Woodside advised the Pluto Greenhouse Gas Abatement Program was publicly available on Woodside's website. Woodside also noted that interim and long-term emission reduction targets for the Pluto LNG Facility had been set to achieve net zero emissions by 2050.</p>	<p>(12) Not required.</p>
<p>(13) Environmental harm that may result from warming associated with the release of GHG emissions.</p>	<p>(13) Woodside assessment: Woodside acknowledges climate science and that climate change is understood to be caused by the net cumulative global concentration of GHG in the atmosphere. However, changes in global atmospheric GHG concentration cannot be attributed to any one activity or one project, including the Scarborough Project, as they are instead the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution started. Woodside response: Woodside advised GAP that contextual evaluation of climate change impacts on global</p>	<p>(13) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>.</p>

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	and Australian receptors was set out in Section 6.7.6 of the EP. While noting the full section in the EP was pages long, Woodside provided a list of relevant projections for climate change in Australia based on IPCC AR6-WG11.	
<p>(14) The full extent of Scarborough Scope 3 emissions are not being considered in the EP.</p>	<p>(14) Woodside assessment: Woodside does not agree with GAP's assertion and confirms that Scope 3 GHG emissions associated with the Scarborough Project are assessed in the EP. Woodside response: Woodside confirmed the estimated Scope 3 emissions associated with the project were presented in Table 6-21 of the EP and, in total, were approximately 870 MtCO₂-e over development life, sensitive to production rate which was subject to uncertainty associated with reservoir and process performance. Woodside advised Scope 3 sources summarised in Table 6-21 included Scope 3 GHG emissions associated with support vessels and helicopters, Scope 3 emissions associated with onshore processing of Scarborough gas, and Scope 3 emissions associated with third party consumption.</p>	<p>(14) Emissions associated with the proposed activities are assessed in Sections 6.7.6 and 6.7.7 of the EP.</p>
<p>(15) Concerns residual GHG emissions will remain high even after mitigation efforts.</p>	<p>(15) Woodside assessment: Woodside notes GAP's feedback regarding residual GHG emissions. The EP sets out Woodside's approach to mitigation efforts and approach to offsets. Woodside response: Woodside acknowledged that it had noted GAP's feedback.</p>	<p>(15) Management and abatement measures are set out in Section 6.7.6 of the EP.</p>
<p>(16) Concerns Woodside may rely on its climate strategy.</p>	<p>(16) Woodside assessment: Woodside's climate strategy is an integral part of the company's strategy but is not the governing framework for management and mitigation measures to reduce GHG emissions associated with the Scarborough Project. Information and commitments required to meet the OPGGS(E)R are contained in the EP. Woodside response: Woodside advised its climate strategy provided broader business context and was not enforceable</p>	<p>(16) Not required.</p>

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	by NOPSEMA. As such GAP's feedback on Woodside's corporate climate strategy is not specific to this EP.	
(17) Integrity of the modelling underlying any assessment of GHG emissions and their potential impacts.	(17) Woodside assessment: Woodside uses outcomes from publicly available and reputable sources including the Intergovernmental Panel on Climate Change (IPCC) which Woodside recognises as a leading body on climate change science. Woodside response: Woodside advised that as described in Section 6.7.6 of the EP, outcomes from publicly available and reputable sources such as the IPCC were drawn upon to provide contextual evaluation of the impacts of climate change.	(17) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i> .
Woodside has addressed objections and claims as noted above.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2).	The measures and controls described within this EP address the potential impact from the proposed activities on GAP's functions, interests or activities.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with GAP for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given GAP sufficient information to allow GAP to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to GAP on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity and receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.

- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure: Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the information about this activity contained in the OPP, and the initial EP consultation information provided to GAP, Woodside provided GAP with further detailed information which addressed GAP's specific feedback, objections or claims (see information given on 6 December 2023, 21 December 2023, 1 February 2024, 7 March 2024, 4 July 2024, 8 October 2024).
- Woodside proactively reminded GAP it could provide feedback on this EP and given GAP's interest in climate-related matters, provided GAP with information on Woodside's Climate Transition Action Plan and 2023 Progress Report (email of 7 March 2024).
- Woodside again proactively reminded GAP it could provide feedback on this EP and proactively provided GAP with a link to the full EP when it was published on NOPSEMA's website (email of 4 July 2024). Woodside also provided specific references within the EP that addresses areas of interest identified by GAP.
- On 8 October 2024, Woodside also emailed GAP to confirm it would shortly resubmit the EP for assessment and reminded GAP that Woodside remained open to receiving feedback.
- In total, excluding the Consultation Information Sheet and publicly available EP, Woodside has provided GAP with volumes of additional information and responses addressing GAP's claims and objections in relation to this EP.
- On 13 September 2023 and 9 January 2024, GAP claimed it had not been provided with sufficient information as the information in the Consultation Information Sheet was too brief and high-level. Woodside disagrees with this assertion because GAP responded to Woodside's Consultation Information Sheet with questions and concerns regarding the specific activity, indicating the information provided was sufficient to enable GAP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- Further, GAP's feedback on the Scarborough Project, including this EP, has shown a high level of technical awareness, demonstrating a comprehensive and detailed understanding of the potential environmental risks and impacts. GAP shared its feedback, claims and objections based on its understanding of the project, which Woodside assessed and responded to as demonstrated in the summary of consultation above.

Reasonable Period

Woodside allowed GAP a reasonable period for consultation in the preparation of this EP because:

- A consultation process and period was stated in the initial correspondence to GAP advising of consultation as well as when consultation would close for purposes of preparing the EP (email dated 9 August 2023). This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed GAP over 4.5-months for consultation.
- During the consultation period and following it, Woodside sent follow-up emails to GAP to remind GAP of consultation and timeframes on numerous occasions (30 August 2023, 6 December 2023, 1 February 2024, 7 March 2024, 4 July 2024, 9 October 2024).
- In this context, Woodside allowed GAP a reasonable period for consultation in preparation of the EP.
- On 13 September 2023 and 20 December 2023, GAP stated that it had not been provided with a reasonable time to provide feedback. Woodside disagrees with this assertion as Woodside commenced consultation on 9 August 2023, and on 6 December 2023 provided additional information to GAP and advised it had extended the consultation period to 20 December 2023. The consultation requirement under Reg 25 cannot be one that is incapable of being complied with within a reasonable time (Tipakalippa Full Court para 136).

- As has been made clear during consultation, Woodside is open to receiving feedback after EP submission and throughout the life of the EP. GAP has demonstrated it understands this and it continues to provide feedback to Woodside, irrespective of consultation timeframes as demonstrated in GAP's emails received on 13 September 2023 and 9 January 2024.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with GAP is appropriate and adapted to the nature of interests of GAP:

- Woodside published 8 advertisements in national, state and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to GAP because Woodside notes GAP regularly uses social media as a means to share its views. It also allowed for broad awareness of the activity under the EP and also of consultation.
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP. These events were promoted in local newspapers and on social media.
- Woodside provided an alternative method for GAP to provide feedback by offering meetings. The offer to meet was not taken up by GAP, which advised written communication was its preferred method of consultation (20 December 2023 and 9 January 2024) (which Woodside has done). This demonstrates Woodside has received input from GAP on its preferred consultation method and has respectfully followed that method.
- Following publication of the EP on NOPSEMA's website, Woodside provided GAP with correspondence on climate-related matters and directed it to sections of the EP which contain additional information relevant to its interests.
- GAP confirmed it has a fundamental objection to Woodside developing the Scarborough gas field and undertaking the activities under the EP and has an objective to phase out all fossil fuel use (email 9 January 2024). This informs the way Woodside's efforts to consult with GAP should be considered.
- Woodside considers a reasonable opportunity was provided to GAP as evidenced in its exchanges with GAP and in particular as evidenced in GAP's responses on 13 September 2023, 20 December 2023 and 9 January 2024 when GAP provided feedback, claims and objections.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- GAP provided feedback or objections or claims about the adverse impact of the proposed activities to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2, Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from GAP and has assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - Made no changes or inclusions to the EP as a result of consultation with GAP because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Australian Conservation Foundation (ACF)

Context

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ACF is an advocacy organisation which has the stated goal 'to have 80% of coal, gas and uranium exports replaced by renewables by 2030'.^{xix}

ACF has several active petitions and campaigns against gas, the Scarborough Project and Woodside including: urging the Australian government to stop all subsidies and tax breaks for fossil fuels and end new climate-heating coal and gas projects and infrastructure in Australia, quoting Woodside's Scarborough project^{xx}, "Stop Woodside's Scarborough Gas project climate bomb"^{xxi}, "Pre-written message to the Prime Minister to stop Woodside and Santos"^{xxii}, and "Ask your super fund to announce their intention to vote against Woodside's board directors who don't respond to climate damage".^{xxiii} In June 2022, ACF commenced legal proceedings in the Federal Court against Woodside's Scarborough Gas Project calling it 'one of the most polluting new fossil fuel proposals in Australia'.^{xxiv}

On 21 December 2023, ACF publicly stated it would ask the Federal Court to stop Woodside's Scarborough Project until its impact on the Great Barrier Reef was assessed.^{xxv} On 19 August 2024, ACF discontinued its case against Woodside's Scarborough Project stating "it became apparent that the case was unlikely to succeed."^{xxvi}

In 2018, ACF was invited to participate in consultation on the Scarborough Energy Project OPP. ACF chose not to participate in that consultation process.

During 2023, Woodside consulted with ACF on other Scarborough-related EPs and commenced consultation with ACF on this EP on 9 August 2023.

Historical Engagement:

2018 – 2020

- ACF has been aware of the Scarborough Project (including operations) for around 6 years. In 2018, ACF was invited to consult on the Scarborough Offshore Project Proposal (OPP) during the three phases of consultation for the Scarborough Project (preliminary, formal and ongoing). Preliminary consultation commenced in 2018. An eight-week formal consultation period ran from 5 July to 30 August 2019. Ongoing consultation continued on acceptance of the OPP in March 2020.
- The activities under this EP are described in the OPP. ACF chose not to take up the opportunity to participate in consultation on the OPP.

2022 – 2023

- From 2022 to 2023 Woodside consulted ACF on the Scarborough D&C, SIT1, Subsea and Seismic EPs. Woodside has carefully considered the topics and issues raised by ACF during consultation on those EPs. A number of topics and issues raised by ACF during consultation on those EPs were addressed and have been raised as part of consultation on this EP and include:
 - Several vulnerable and endangered marine and avian species within the Operational Areas.
 - Impacts and risks from light emissions on seabirds.
 - Impacts and risks from acoustic emissions on cetaceans, turtles, pygmy blue whales, fish and sharks.
 - Impacts to benthic habitats and communities and the Gascoyne Marine Parks.
 - Purported impacts of GHG emissions.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed ACF advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 5 December 2023, in the absence of feedback from ACF, Woodside proactively emailed ACF (Record of Consultation, reference 2.20) and stated:

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- Woodside had met with ACF in October 2022 and had briefed it on the Scarborough Project and related EPs. Since then, ACF and Woodside had engaged in consultation on all four EPs.
- Woodside had emailed ACF and provided the Consultation Information Sheet for the Scarborough Operations EP on 9 and 30 August 2023 and had also included a link to the online Consultation Information Sheet.
- Woodside advised that consultation in the course of preparing the EP had closed on 20 December 2023 and asked if ACF had feedback and/or would like to meet.
- In the absence of feedback from ACF on this EP, the letter also reviewed past feedback from ACF and topics of interest on the Scarborough D&C, SIT1, Seismic and Subsea EPs and provided an assessment and response as follows:
 - **(1)** The Scarborough Project EPs should include an evaluation of all impacts and risks related to the GHG emissions that would be caused by the Project.
 - ❖ **(1)** GHG emissions relevant to the PAP, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008* and other industry standard database.
 - ❖ **(1)** The EP would assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. Direct GHG emissions of carbon dioxide, methane and nitrous oxide and Total carbon dioxide equivalent emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
 - ❖ **(1)** Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
 - **(2)** There were several vulnerable, endangered and critically endangered marine species within both the Operational Area and the environment that may be affected (EMBA) including loggerhead and leatherback turtles, blue whales and the eastern curlew.
 - ❖ **(2)** In accordance with regulation 13(2) and 13(3) of the Environment Regulations, the EP would describe the existing environment that may be affected by the activity, including details of the particular relevant values and sensitivities of the environment. This included the presence of turtles, whales and seabirds. Controls would be implemented to reduce risks to As Low as Reasonably Possible (ALARP) and acceptable levels.
 - **(3)** Light emissions from the activities were expected to have potential impacts and risks including behavioural disturbance, injury and mortality to seabirds while the activities were underway.
 - ❖ **(3)** Evaluation of risks and impacts associated with routine light emissions from the Field Production Unit (FPU) and Project Vessels would be presented in the EP. This included routine lighting from FPU and vessel operation. As the FPU was approximately 430 km offshore and away from islands or other emergent features, including a 105 km separation from a breeding Biologically Important Area (BIA) for the wedge-tailed shearwater, any presence of seabirds or shorebirds was considered likely to be of a transient nature only.
 - ❖ **(3)** The Trunkline Operational Area was in proximity to and overlapped breeding and foraging habitat for a number of seabird species, with descriptions and impacts evaluated in the EP. However, planned activities in the Trunkline Operational Area were minimal, limited to infrequent and short-term vessel presence. The Trunkline Operational Area also represented a relatively small portion of the seabird BIAs and while seabird presence may occur, it was considered likely to be of a transient nature only.
 - ❖ **(3)** Further details including demonstration that impacts of lighting on seabirds would be reduced to ALARP and acceptable levels, with controls implemented would be presented in the EP.
 - **(4)** Acoustic emissions from the activities were expected to have potential impacts and risks on marine species, including:
 - ❖ **(4)** Recognition that noise interference was a key threat to migratory and threatened cetaceans and marine turtles within the Operational Area.

- ❖ (4) The potential for pygmy blue whales to deviate from their migration course.
- ❖ (4) Noise emissions exceeding thresholds for behavioural impacts on cetaceans.
- ❖ (4) A risk of moderate impacts on marine turtles, in the context of a “paucity of data” on these species.
- ❖ (4) Behavioural impacts on fish and sharks in the Operational Area.
 - The PAP would be comprised of different acoustic emissions sources, primarily associated with infield vessel operations and support activities, such as geophysical surveys and other IMMR activities. Sound levels would fluctuate over the course of the PAP.
 - Woodside had undertaken a comprehensive assessment of routine acoustic emissions, including underwater noise emissions modelling, with justification of the impacts and risks for the Regulator to assess in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009*, and NOPSEMA Guidance Note (N-04750-GN1344 A339814) EP Content Requirement.
- (5) Localised impacts to benthic habitat and communities including displacement and/or permanent loss of epifauna and infauna within the physical footprint.
 - ❖ (5) Disturbance to the seabed and impacts to benthic habitat and communities was assessed in the EP. Benthic epifauna and infauna living on or in the sediments may be impacted by the activities that cause disturbance to the seabed. Permanent infrastructure would be present for the duration of field life and would result in the displacement and/or permanent loss of epifauna and infauna within the physical footprint. Gravimetry surveys or IMMR activities may cause temporary disturbance to the seabed as a result of working close to or on the seabed.
 - ❖ (5) No threatened or migratory species, or ecological communities (as defined under the EPBC Act), were identified in the benthic communities during studies completed in the Petroleum Activities Area (PAA).
 - ❖ Demonstration of impacts reduced to ALARP and acceptable levels, with appropriate controls measures was defined in the EP.
- (6) Hydrocarbon spill to Ningaloo Coast and Gascoyne marine parks.
 - ❖ (6) The EP would assess potential impacts of a highly unlikely hydrocarbon spill. This included a combination of modelling at three locations in the PAA from a worst-case release of marine diesel from a vessel collision resulting in rupture of a tank.
- On 20 December 2023, ACF responded to Woodside (SI Report, reference 55.1) and raised the following issues:
 - (7) ACF was a relevant person under regulation 25 and understood Woodside accepted this.
 - (8) The Consultation Information Sheet did not comply as the information was not sufficient to enable ACF to make an informed assessment of the possible consequences on its functions, interests or activities.
 - ACF requested further information on:
 - (9) Process for and results of the assessment of potential impacts and risks to the environment
 - (1) Consequences of emissions on Australia’s and Western Australia’s carbon budgets to limit global warming to 1.5°C and the release of GHGs
 - (10) Details of any offsetting regime or CCS being considered
 - (11) Details of surveys undertaken to understand marine fauna and flora
 - (12) The basis for conclusions regarding the impact of marine discharges on marine fauna
 - (13) The basis for the conclusion that collisions with marine fauna are considered unlikely
 - ACF requested to meet with Woodside to discuss the EP.

Ongoing engagement:

- On 8 January 2024, Woodside responded to ACF (SI Report, reference 55.2), as follows:
 - (8) Woodside provided to ACF information and a Consultation Information Sheet including a link to NOPSEMA's *Consultation on offshore petroleum environment plans: Information for the community* on 9 and 30 August 2023.
 - As well as directly consulting ACF, Woodside advertised this EP and consultation opportunities in The Australian, The West Australian, regional newspapers and Indigenous newspapers, and ran two social media campaigns across Facebook and Instagram. Woodside also had experts and information on this project available at community events in the Gascoyne, Pilbara and Murchison, as well as a tailored community roadshow in these regions throughout September and October 2023.
 - In the absence of a response from ACF, Woodside proactively addressed previously raised issues and topics of interest (see 5 December 2023 summary).
 - (8) Woodside had extended the consultation period from four weeks to 4.5 months.
 - (7) Sufficient information and a reasonable period of time had been provided.
 - Woodside asked ACF to advise a date which suited ACF so that arrangements could be made to meet.
- On 1 February 2024, Woodside responded to ACF's feedback, claims, objections, further information from 20 December 2023 (SI Report, reference 55.3), as follows:
 - (8) Woodside had provided sufficient information, and a reasonable period of time and opportunity for consultation.
 - As offered in December 2023 and January 2024 and as requested by ACF, Woodside was still willing to meet and consult with ACF on this EP at its convenience.
 - ACF had made it clear in multiple forums that its functions, interests, or activities included efforts to phase out fossil fuel use and development in Australia and specifically to block new gas field developments. Woodside noted ACF's fundamental opposition to the activities described in this EP.
 - Woodside noted ACF's published response to the Australian Future Gas Strategy around its push for a rapid exit from gas. In the submission ACF stated:
 - Recommendation 1: Add an explicit objective to the strategy to rapidly phase out gas, starting with a ban on new gas.
 - Recommendation 2: New fossil fuel developments are incompatible with a safe climate. The science is very clear on this, there is no role for new gas in Australia's energy future. None! The strategy needs to aggressively phase out fossil gas. Future gas supply should only be short term to satisfy the planned and phased reduction of fossil gas demand.
 - Given ACF's fundamental objection to the Australian gas industry, and considering the information already exchanged between Woodside and ACF during consultation, and a reasonable period of time of 4.5 months being provided, Woodside considered consultation with ACF for the purpose of preparing this EP under the Environment Regulations had been completed.
 - (8, 9) Woodside also noted that a significant volume of information on the Scarborough Project had been provided to ACF in the Scarborough Offshore Project Proposal (Scarborough OPP) which had been publicly available since 2020. Woodside noted that ACF was contacted in 2018 to provide comment on the Scarborough Project OPP. ACF did not provide feedback regarding the Scarborough Project OPP.
 - (8, 9) The Consultation Information Sheet provided by Woodside on 9 August 2023 also set out the relevant activity description as well as a summary of the key risks and impacts and preliminary management measures.
 - (1) It was important to acknowledge that climate change impacts could not be directly attributed to any one project, as they were instead the result of GHG emissions, minus GHG sinks that had accumulated in the atmosphere since the industrial revolution started. This means there was no link between GHG emissions from Scarborough and climate change impacts.

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- **(1)** An updated estimate of the total direct and indirect GHG emissions associated with the Scarborough facility and trunkline operations (Petroleum Activities Program) would be included in the EP, noting that estimates of the annual average and total GHG emissions were included in the Scarborough OPP, Section 7.1.3.
- **(1)** Avoiding and reducing emissions was Woodside's first priority for reducing GHG emissions. However, offsetting emissions provided flexibility in reducing net emissions, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions proved to be hard-to-abate, residual emissions would be offset using carbon credits in order to achieve emission reduction requirements.
- **(11)** With regards to Carbon Capture and Storage, for which ACF had requested more information, assessment of this opportunity would form part of Woodside's assessment in the EP to demonstrate that direct and indirect emissions would be reduced to as low as reasonably practicable (ALARP).
- **(12)** Consistent with information supplied in the Consultation Information Sheet, Woodside would implement appropriate controls (as required) so that potential environmental impacts resulting from marine discharges were reduced to ALARP and acceptable levels.
- **(2, 13)** In assessing potential impacts from vessel collisions with cetaceans, Woodside had analysed publicly available data and information in peer reviewed papers. An assessment of the likelihood based on these sources would be presented in the EP.
 - Woodside considered there was a low likelihood of a vessel interaction with a cetacean in the offshore operational area as it did not overlap with any migratory or foraging biologically important areas (BIA) for cetaceans.
 - Although there was increased likelihood of marine mammal presence within the Trunkline Operational Area, vessel presence would be significantly reduced, and would be transiting the area for short periods of time only as required to undertake inspection, monitoring, maintenance, and repair activities.
- **(1)** On 7 March 2024, Woodside proactively sent ACF an email stating that as ACF had shown an interest in climate-related matters, they may be interested in the release of Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report which summarised Woodside's climate-related plans, activities, progress and climate-related data (SI Report, reference 55.4).
 - The email included links to the CTAP and the ASX Announcement.
 - It also re-iterated that consultation in the preparation of this EP had closed however, feedback could continue to be provided during the life of an EP, including after consultation had closed on the EP, during EP assessment, and after an EP had been accepted by NOPSEMA.
 - Finally, it stated Woodside was available to meet with ACF to discuss this EP should they be interested.
- On 4 July 2024, Woodside again proactively emailed ACF and provided a link to the publicly available EP on the NOPSEMA website (SI Report, reference 55.5). Woodside advised that it continued to assess and respond to feedback throughout the life of an EP, and that Woodside was available to meet with ACF over the next month. Based on ACF's previous feedback, Woodside also included a table of specific climate topics which ACF might be interested in, and where to find that topic in the EP, including:
 - **(1)** Further information on GHG emissions associated with the project was provided in sections 6.7.6 and 6.7.7 of the EP.
 - **(10)** Further information on offsetting regimes was provided in Section 6.7.6 of the EP.
- On 8 October 2024, Woodside emailed ACF to thank it for its feedback and for engaging in consultation with Woodside on this EP (SI Report, reference 55.6). Woodside advised it would shortly resubmit the EP to NOPSEMA for further assessment and that as part of the consultation process, Woodside had further assessed the merits of a number of objections and claims raised by ACF. Woodside reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:
 - **(1)** Advised that it acknowledged climate science and that climate change was understood to be caused by the net (cumulative) global concentration of GHG in the atmosphere. To facilitate a comparison against carbon budgets, Woodside advised a hypothetical assumption had been used in the EP where GHG emissions associated with the project were

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hypothetically treated as additive, and the contribution was de minimis. Woodside also provided a contextual list of projections for climate change in Australia, noting that further information was available in Section 6.7.6 of the EP.

- (2) Referred to sections 6.7 and 6.8 of the EP where impact assessments were summarised in Table 6-1 and showed the highest impact/consequence rating was Slight; short-term impact (<1yr) on species, habitat (but not affecting ecosystems function), physical or biological attributes. Further, an assessment of Recovery Plans and Threat Abatement Plans was carried out in Section 6.9.3 of the EP.
- (3) Advised the impact assessment of Routine Light Emissions from the FPU and other vessels in Section 6.7.3 of the EP concluded the isolated and remote location of the Offshore Operational Area relative to sensitive receptors would reduce light impacts to 'no lasting effect'. The magnitude of impact to seabirds and migratory shorebirds in the Trunkline Operational Area from artificial light emissions was determined to be 'no lasting effect'. For all the PAA, the receptor sensitivity was high and therefore the impact significance level had been identified as Slight (short-term impact (<1 year)).
- (4) Noted the Operations EP covered the FPU which was a moored facility that didn't actively make noise. Machinery noise might be radiated into the underwater environment and other sources of noise included intermittent and infrequent support vessel transit and the once-off noise associated with the installation of the FPU. Due to the open water location of the FPU, and the mobility of fish and their known behaviours, behavioural impacts on cetaceans, fish and sharks were predicted to have no lasting effect, with an impact significance level of Slight.
- (5) Confirmed the risk assessment in Section 6.7.2 of the EP concluded that the scale and magnitude of potential impacts would be limited to the offshore seabed infrastructure and trunkline physical footprint. The impact magnitude for epifauna and infauna was predicted to be Slight, with a Negligible Impact Significance Level. This risk was mitigated through controls in the EP.
- (6) Provided an overview of the EMBA and noted the worst-case credible spill scenarios for this EP were the highly unlikely loss of marine diesel during a vessel collision at the FPU location, from a vessel along the trunkline in the Montebello MUZ, or from a vessel along the trunkline at the Commonwealth/State waters boundary. Based on modelling, if a spill scenario occurred there was a 0.5% chance of entrained diesel at >100 ppb contacting the Ningaloo Australian Marine Park. No surface or dissolved hydrocarbon contact above thresholds was predicted. No hydrocarbon contact above impact thresholds was expected at the Gascoyne Marine Park.
- (9) Advised the publicly available EP contained comprehensive information about the planned and unplanned risks/events. It was not reasonable for Woodside to provide further documents such as technical evaluations and studies, nor were further documents required for ACF to assess the potential consequences of the activity on its functions, interests or activities.
- (10) Advised that proposed GHG abatement measures were described in Section 6.7.6 of the EP in the Demonstration of ALARP table, and that in response to feedback, Woodside had updated the latest draft of the EP to include assessment of carbon capture and storage opportunity. Woodside further noted that CCS was not currently a feasible abatement measure for the Scarborough FPU due to infrastructure, non-concentrated Co2 sources, and reservoir requirements.
- (12) Outlined the types of marine discharges which were assessed in the EP and advised the impact or consequence potential of Slight was primarily driven by the deep-water open ocean receiving environment.
- (13) Advised various studies were used to understand collision risk with cetaceans and included three examples. Woodside advised that information was coupled with contextual information specific to the PAA, including BIAs and vessel presence/speed.
- On 18 October 2024, Woodside sent a follow-up email to ACF, addressing an additional query made in ACF's 20 December 2023 correspondence (SI Report, reference 55.7).
Woodside:

<p>- (11) Confirmed it utilised data from a range of sources including marine sediment quality surveys, geophysical surveys of the seafloor, and scientific studies of habitat and benthic communities to understand marine fauna and ecosystems which may be affected by the PAP. Woodside provided a list of some Scarborough Project specific studies and advised further data was obtained from government databases and reputable research. Woodside noted a description of the existing environment was provided in Section 4 of the EP.</p>		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Evaluation of all impacts and risks related to the GHG emissions that will be caused by the Project, including the impact of emissions anticipated on carbon budgets and the consequences on the environment.</p>	<p>(1) Woodside assessment: A hypothetical assumption where GHG emissions associated with the Scarborough project are treated as additive is considered in the EP to facilitate a comparison against carbon budgets. Woodside does not expect this scenario to eventuate. Woodside response: Woodside acknowledged that climate science suggests that climate change was understood to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one project or activity including the Scarborough Project. Woodside advised it had used a hypothetical assumption in the EP where GHG emissions were treated as additive, and the amount was de minimis. However, Woodside noted climate change was recognised as a global issue and advised contextual evaluation of climate change impacts was set out in the EP for reference. Woodside noted the section of the EP was pages long, however provided a list of some relevant projections for Australia.</p>	<p>(1) GHG emissions and indirect emissions associated with the activity are considered in sections 6.7.6 and 6.7.7 of the EP.</p>
<p>(2) There were several vulnerable, endangered and critically endangered marine species within both the Operational Area and the EMBA that may be affected.</p>	<p>(2) Woodside assessment: Woodside has considered ACF's feedback regarding vulnerable, endangered and critically endangered marine species. The measures and controls described within this EP address the potential impact from the proposed activities on ACF's functions, interests or activities. Woodside response: Woodside advised sections 6.7 and 6.8 of the EP set out impact assessments for relevant receptors. The impact assessments were summarised in Table 6-1 and showed the highest impact/consequence rating was Slight; short-term impact on species, habitat, physical or biological attributes. Woodside confirmed an assessment was also carried out in Section 6.9.3 of the EP to ensure the PAP was not inconsistent with recovery plans or threat abatement plans.</p>	<p>(2) Woodside has assessed the potential impacts and risks to marine and avian species in sections 6.7 and 6.8 of the EP. Assessment of recovery plans and threat abatement plans is set out in Section 6.9.3 of the EP.</p>
<p>(3)</p>	<p>(3)</p>	<p>(3)</p>

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<p>Light emissions from the activities were expected to have potential impacts and risks including behavioural disturbance, injury and mortality to seabirds while the activities were underway..</p>	<p>Woodside assessment: Woodside has considered ACF's claim relating to the potential risks of light emissions and particularly the impact potential on birds. The measures and controls described within this EP address the potential impact from the proposed activities.</p> <p>Woodside response: Woodside confirmed the isolated and remote location of the FPU and related vessels in the Offshore Operational Area, and the intermittent IMMR activity in the Trunkline Operational Area, reduced light impacts to 'no lasting effect'. For all the PAA, the receptor sensitivity was high and thus the impact significance level had been identified as 'slight'. Woodside noted controls in place to reduce impact included IMMR activities within 20km of wedge-tail shearwater rookeries to be avoiding during April where practicable, and implementation of the Woodside Seabird Management Plan.</p>	<p>Woodside has assessed the potential impacts and risks associated with routine light emissions in Section 6.7.3 of the EP.</p>
<p>(4) Acoustic emissions from the activities were expected to have potential impacts and risks on marine species, including cetaceans, turtles, pygmy blue whales, fish and sharks.</p>	<p>(4) Woodside assessment: Woodside has considered ACF's claim relating to the potential risks and impacts of acoustic emissions from the PAP. The measures and controls described within this EP address the potential impact from the proposed activities.</p> <p>Woodside response: Woodside noted the FPU was a moored facility that didn't actively make noise. Machinery noise might be radiated into the underwater environment and other sources of noise included intermittent and infrequent support vessel transit and the once-off noise associated with the installation of the FPU. Due to the open water location of the FPU, and the mobility of fish and their known behaviours, behavioural impacts on cetaceans, fish and sharks were predicted to have no lasting effect, with an impact significance level of Slight.</p>	<p>(4) Potential impacts associated with routine acoustic emissions are assessed in Section 6.7.5 of the EP.</p>
<p>(5) Localised impacts to benthic habitats and communities including displacement and/or permanent loss of epifauna and infauna.</p>	<p>(5) Woodside assessment: Woodside has considered ACF's claim regarding potential risks and impacts to benthic habitats and communities. The measures and controls described within this EP address the potential impact from the proposed activities.</p> <p>Woodside response: Woodside advised the risk assessment in the EP concluded that the scale and magnitude of potential impacts would be limited to the offshore seabed infrastructure and trunkline physical footprint. The impact magnitude for epifauna and infauna was predicted to be Slight, with a Negligible Impact Significance Level. This risk was mitigated through controls in the EP.</p>	<p>(5) Disturbance to the seabed and impacts to benthic habitat and communities is assessed in Section 6.7.2 of the EP.</p>

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<p>(6) Hydrocarbon spill to Ningaloo Coast and Gascoyne Marine Parks.</p>	<p>(6) Woodside assessment: Woodside notes ACF’s feedback regarding potential hydrocarbon spill risks. No hydrocarbon contact above impact thresholds is expected at the Gascoyne Marine Park. Woodside has a well-developed hydrocarbon spill response management framework in place in the highly unlikely event of a spill. Woodside response: Woodside noted the worst-case credible spill scenarios for the EP were highly unlikely loss of marine diesel during a vessel collision at the FPU, in the Montebello MUZ, or at the Commonwealth/State waters boundary. Based on a modelling, in a spill scenario there was a 0.5% chance of entrained diesel at >100ppb contacting Ningaloo Marine Park, but no surface or dissolved hydrocarbon contact above thresholds was predicted. No hydrocarbon contact above impact thresholds would be expected at the Gascoyne Marine Park.</p>	<p>(6) Credible spill scenarios are described in Section 6.8 of the EP. Woodside has addressed oil spill preparedness and response strategy in Appendix H of the EP.</p>
<p>(7) ACF is a relevant person.</p>	<p>(7) Woodside assessment: In accordance with regulation 25 of the Environment Regulations, Woodside has assessed ACF as a relevant person for this EP based on its functions, interests or activities. Woodside response: Woodside provided ACF with sufficient information and a reasonable period in which to make an informed assessment of the possible consequences of the activity on its functions, interests or activities, including directly providing consultation information to ACF on 9 August 2023 and subsequent correspondence on 30 August 2023, 5 December 2023, 8 January 2024, 1 February 2024, 7 March 2024, 4 July 2024, 8 October 2024 and 18 October 2024.</p>	<p>(7) Woodside’s assessment of ACF as a relevant person is set out in Appendix F, Table 1.</p>
<p>(8) Statements that the Consultation Information Sheet for the Scarborough Operations EP did not comply with Regulation 25(2) as the information was not sufficient.</p>	<p>(8) Woodside assessment: Woodside has complied with regulation 25 of the Environment Regulations in relation to the consultation process for this EP. The Consultation Information Sheet contains sufficient information for ACF to have made an informed assessment of the possible consequences of the activity on its functions, interests and activities, as demonstrated by its feedback on 20 December 2023 which included questions related to specific expected risk assessment results. Woodside response: Woodside confirmed the Consultation Information Sheet provided by Woodside on 9 August 2023 set out the relevant activity description as well as a summary of the key risks and impacts</p>	<p>(8) ACF has been given sufficient information and a reasonable period in which to make an informed assessment of the possible consequences of the activity on its functions, interests or activities, as described in Section 5.4 of the EP.</p>

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	and preliminary management measures. Woodside noted the EP would be made publicly available on NOPSEMA's website upon submission (and later provided the link to ACF) and also noted ACF had been invited to comment on the Scarborough OPP in 2018.	
(9) Assessment of the potential impacts and risks to the environment, including documents which set out the process and results.	(9) Woodside assessment: Woodside has provided ACF with sufficient information on potential impacts and risks to the environment, via the Consultation Information Sheet (in which Table 3 sets out a summary of key risks and/or impacts and preliminary management measures), publicly available EP, and Scarborough OPP, for ACF to make an informed assessment of the possible consequence of the activity on its functions, interests or activities. This is demonstrated by ACF's feedback on 20 December 2023, which included references to the expected risk assessment results for marine discharges and vessel collisions. Woodside response: Woodside advised it had provided ACF with sufficient information, via the Consultation Information Sheet and Scarborough OPP, to allow ACF to make an informed assessment of the possible consequences that the activity may have on its functions, interests or activities. In addition, once the EP was publicly available on the NOPSEMA website, Woodside directed ACF to the sections of the EP where further detailed and comprehensive information regarding potential impacts and risks could be found. Woodside noted it was not reasonable to provide more detailed or technical documents to ACF as it was not necessary for ACF to have those documents in order to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.	(9) Risk assessments for planned and unplanned activities are set out in Sections 6.7 and 6.8 of the EP.
(10) Details of any offsetting regime or CCS being considered.	(10) Woodside assessment: Woodside assesses the feasibility of CCS in the EP and has incorporated this into Section 6.7.6 of the EP. Woodside response: Woodside confirmed abatement measures were assessed in Section 6.7.6 of the EP and that based on feedback, it had included assessment of CCS in the EP. Woodside advised that CCS was currently not a feasible abatement measure for the Scarborough FPU as it would require additional infrastructure, it remained difficult to capture CO2 from the non-concentrated sources on the FPU, and required a suitable reservoir.	(10) Based on feedback, Woodside has included assessment of CCS in Section 6.7.6 of the EP.
(11)	(11)	(11)

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<p>Details of surveys undertaken to understand marine flora and fauna present in locations relevant to the EP.</p>	<p>Woodside assessment: Information regarding surveys undertaken to support the Scarborough Project has been publicly available via the Scarborough OPP since 2020. Woodside has used data from a range of sources, including Scarborough specific studies, to understand marine fauna and ecosystems relevant to the PAP.</p> <p>Woodside response: Woodside advised data from sources including marine sediment quality surveys, geophysical surveys, and scientific studies of habitat and benthic communities had been used to understand marine fauna and ecosystems relevant to the PAP. Woodside provided some examples of Scarborough-specific studies and confirmed a description of the existing environment was provided in Section 4 of the EP.</p>	<p>A Description of the Existing Environment is provided in Section 4 of the EP, including Section 4.5 <i>Habitats and Biological Communities</i> and 4.6 <i>Protected Species</i>.</p>
<p>(12) The basis for conclusions regarding the impact of marine discharges on marine fauna.</p>	<p>(12) Woodside assessment: Woodside notes ACF's request for further information on the basis for marine discharge risk ratings. Risk ratings in the EP are consistent with those in the publicly available Scarborough OPP, to which ACF has had access since at least 2020.</p> <p>Woodside response: Woodside advised five marine discharge risk assessments were included in the EP. Each relevant receptor was then considered and a risk rating or impact significance rating assigned. Woodside advised that of the five, all were determined to have an impact of Slight – short-term impact (<1 yr) on species, habitat (but not affecting ecosystem function), physical or biological attributes. Woodside noted the risk ratings were consistent with those from the OPP and primarily driven by the deep-water open-ocean environment with no immediate proximity to sensitive receptors.</p>	<p>(12) Risk assessments for marine discharges are set out in sections 6.7.9 – 6.7.13 of the EP.</p>
<p>(13) The basis for the conclusion that collisions with marine fauna are considered unlikely.</p>	<p>(13) Woodside assessment: Woodside notes ACF's request for further information regarding collision risk for cetaceans. Woodside has drawn on various studies to understand collision risk with cetaceans, coupled with contextual information specific to the PAP.</p> <p>Woodside response: Woodside provided a list of studies used to understand collision risk with cetaceans and advised the information was coupled with contextual information such as the offshore operational area not overlapping with migratory or foraging BIAs, the significantly reduced vessel presence in the trunkline, vessels within the operational areas are likely to be travelling <8 knots unless operating in an emergency, and</p>	<p>(13) Collision risk with marine fauna is assessed in Section 6.8.10 of the EP, <i>Physical Presence (Unplanned): Interactions with Marine Fauna</i>.</p>

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	vessels will follow the EPBC Regulations 2000 – Part 8 Division 8.1 which prescribes vessel speeds and distances around cetaceans.	
Woodside has addressed objections and claims as noted above.	Woodside has assessed the merits of each objection or claim about the adverse impact of the activity to which the EP relates (if any), as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	The measures and controls described within this EP address the potential impact from the proposed activities on ACF's functions, interests or activities.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with ACF for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Sufficient information has been provided because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to ACF on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity and receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the information about this activity contained in the OPP, and the initial EP consultation information provided to ACF, Woodside provided ACF with further detailed information which addressed ACF's specific feedback, objections or claims (see information given on 5 December 2023, 8 January 2024, 1 February 2024, 7 March 2024, 4 July 2024, 8 October 2024, 18 October 2024).
- Woodside proactively reminded ACF it could provide feedback on this EP and given ACF's interest in climate-related matters, provided ACF with information on Woodside's Climate Transition Action Plan and 2023 Progress Report (email of 7 March 2024).
- Woodside again proactively reminded ACF it could provide feedback on this EP and proactively provided ACF with a link to the full EP when it was published on NOPSEMA's website (email of 4 July 2024). Woodside also provided specific references within the EP that addresses areas of identified by ACF.

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- On 8 October 2024, Woodside also emailed ACF to confirm it would shortly resubmit the EP for assessment and reminded ACF that Woodside remained opened to receiving feedback.
- In total, excluding the Consultation Information Sheet and publicly available EP, Woodside has provided ACF with a volume of additional information and responses addressing ACF's claims and objections in relation to this EP.
- On 20 December 2023, ACF claimed it had not been provided with sufficient information because the Consultation Information Sheet did not comply with regulation 25(2) of the Environment Regulations as it did not allow ACF to make an informed assessment of the possible consequences of the activity on its functions, interest or activities. Woodside disagrees with this assertion because ACF responded to Woodside's email with informed questions, specific to the activity, including references to expected risk assessment results, indicating the information provided was sufficient to enable ACF to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. ACF shared its feedback, claims and objections based on its understanding of the project, which Woodside assessed and responded to as demonstrated in the summary of consultation above. We also note that ACF received a significant amount of information about the Scarborough Project during the Federal Court proceedings it commenced in relation to the Scarborough Project's environmental approvals and OPP.

Reasonable Period

Woodside allowed ACF a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to ACF advising of consultation as well as when consultation closed for the purposes of preparing the EP (email dated 9 August 2023). This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed ACF over 4.5 months for consultation.
- During the consultation period and following it, when ACF did not provide a response, Woodside proactively sent follow-up emails to ACF to remind ACF of consultation and timeframes. This was done on numerous occasions (30 August 2023, 5 December 2023, 8 January 2024, 1 February 2024, 7 March 2024, 4 July 2024, 8 October 2024, 18 October 2024).
- In this context, Woodside allowed ACF a reasonable period for consultation in preparation of the EP.
- As has been made clear in consultation emails, Woodside is open to receiving feedback after EP submission and throughout the life of an EP.

Reasonable Opportunity

A reasonable opportunity has been provided because Woodside's consultation was appropriate and adapted to the nature of the interests of ACF:

- Woodside published 8 advertisements in national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to ACF because Woodside notes ACF regularly uses social media as a means to share its views. It also allowed for broad awareness of the activity under the EP and also of consultation.
- When no response was received from ACF, Woodside proactively sent ACF a follow-up consultation email on 30 August 2023, followed by a proactive letter on 5 December 2023 which addressed previous topics of interest and feedback received from ACF on the Scarborough Project that was relevant to this EP.
- Woodside consulted ACF in writing and via email which is consistent with the way ACF has engaged in consultation with Woodside. Woodside also provided an alternative method for ACF to provide feedback by offering meetings. In response to Woodside's 5 December 2023 email, ACF advised it wished to meet with Woodside. Woodside responding agreeing to a meeting and requesting dates and availability from ACF. Woodside has reiterated this offer on a number of occasions. However ACF has not responded on dates for a meeting or when Woodside followed up on opportunities to hold a meeting.

- Following publication of the EP on NOPSEMA's website, Woodside proactively provided ACF with correspondence on climate-related matters and directed it to sections of the EP which contain additional information relevant to its interests. This enabled ACF to engage with those specific topics of interest and Woodside gave ACF yet another opportunity to consult on this EP.
- Woodside considers a reasonable opportunity was provided to ACF as evidenced in its exchanges with ACF and in particular as evidenced in ACF's response on 20 December 2023 when it provided feedback, claims and objections.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- ACF provided feedback or objections or claims about the adverse impact of the proposed activities to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulation 24, Woodside has:
 - Responded to feedback from ACF and has assessed the merits of any objection or claim about the adverse impacts of activities to which this EP relates.
 - Based on ACF's feedback, assessed the feasibility of Carbon Capture and Storage in EP Section 6.7.6, *Management and Mitigation*. No new measures were adopted as a result of ACF's feedback. However, as a result of consultation, Woodside has updated its EP to include an assessment of CCS.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

350 Australia (350A)

Context

350A states on its website that 350.org is "one of the world's largest creative activism groups working to build a powerful movement demanding climate change action. We work in almost every country in the world to stop new fossil fuel project and speed up the transition to renewable energy".

350A states on its website that it is a 'growing grassroots movement to end fossil fuels built through leaders forming local groups and running strategic campaigns in their communities'.^{xxvii} In 2021, 350A promoted the #NoNeedForScarboroughGas campaign which was supported by Friends of Australian Rock Art (FARA).^{xxviii} 350A also currently has an active petition calling on people to stop Woodside from sponsoring the Western Australian Symphony Orchestra.^{xxix}

During 2023, Woodside consulted with 350A on other Scarborough-related EPs and consulted with 350A on this EP in September 2023.

Historical Engagement:

2022- 2023

- From 2022 to 2023 Woodside consulted 350A on the Scarborough D&C, SIT1, Subsea and Seismic EPs. A number of topics and issues raised by 350A during consultation on those EPs were addressed and have been raised again as part of consultation on this EP and include:
 - The Scarborough development's potential to impact marine wildlife.
 - Access to JASCO acoustic modelling.
 - Impacts from all pollution sources on all potential receptors and information about monitoring and pollution response programs.

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- Carbon emissions associated with the Scarborough Development in next 25 years adding to WA's emissions and accelerating climate change.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed 350A advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 September 2023, 350A sent an email to Woodside (SI Report, reference 22.1):
 - **(1)** Stating 350A was a relevant person.
 - **(2)** Requesting further information on routine acoustic emissions from the FPU and project vessels.
 - **(3)** Requesting further information on routine and non-routine atmospheric and GHG emissions.
- On 6 December 2023, Woodside responded thanking 350A for its email (SI Report, reference 22.2). Woodside stated 350A had been provided with sufficient information. Woodside also advised that consultation in the course of preparing this EP would close on 20 December 2023 and asked if 350A had further feedback or would like to meet. Woodside noted any further feedback received after 20 December 2023 would be accepted and considered as part of ongoing consultation. Woodside also stated:
 - **(1)** Woodside complied with Regulation 11A (now Regulation 25) in relation to the consultation process for this EP.
 - **(2)** The Petroleum Activities Program (PAP) would comprise a number of different acoustic emissions sources, primarily associated with vessel operations and support activities, such as geophysical surveys and other inspection, maintenance, monitoring and repair (IMMR) activities. Some sound will also be associated with the start-up and operations phase of the Floating Production Unit (FPU) and subsea facilities. Sound levels will fluctuate over the course of the PAP. Generally, underwater sound associated with steady state operations will be limited as the FPU is moored and not dynamically positioned. Woodside has undertaken an assessment of routine acoustic emissions, including an assessment of the impacts and risks. Acoustic modelling results and other pertinent information related to modelling completed for the assessment of noise impacts would be presented in the EP. The EP would be made publicly available once submitted to NOPSEMA for assessment. The area over which sound may adversely impact marine species depends upon multiple factors including the extent of sound propagation relative to the location of receptors, and the sensitivity and range of spectral hearing of different species. Based on the implementation of controls, the potential impacts of noise emissions from the activity on cetaceans were likely to be limited to temporary behavioural changes (avoidance) in individuals moving through the Petroleum Activity Area, with predicted noise not considered likely to cause injury effects. The impact assessment in the EP would provide a suite of management actions that would be in place to avoid or minimise potential impacts to relevant threatened fauna, and specifically whales, as a result of the PAP.
 - **(3)** GHG emissions relevant to the PAP, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008*. The EP would assess Direct Emissions (Scope 1) and Indirect Emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*.
 - Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
 - An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions had been undertaken. This included development of a decarbonisation plan for the Pluto Hub.
 - There were no credible impacts to Murujuga cultural landscape including impacts on rock art in relation to air emissions produced at the Floating Production Unit (FPU). Gas would be exported on shore and processed at Pluto Train 2.

- Pluto LNG's Air Quality Management Plan had been reviewed and approved by the Western Australian Environment Protection Authority as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant.
- Woodside would implement feasible recommendations of the Murujuga Rock Art Monitoring Program (MRAMP), run by the Murujuga Aboriginal Corporation and Western Australian Department of Water and Environmental Regulation.
- Woodside would optimise flaring at the FPU to reduce GHG emissions and allow for safe operation of the facility through design measures and a suite of management actions.
- On 6 December 2023, 350A responded to the Woodside email with an out of office reply asking that Woodside forward urgent emails to another email address (SI Report, reference 22.3).
- On 6 December 2023, Woodside forwarded the letter to the new email address as requested (SI Report, reference 22.4).
- On 20 December 2023, 350A emailed Woodside attaching a letter and copying in NOPSEMA (SI Report, reference 22.5), which stated:
 - **(1)** 350A was a relevant person and should be consulted. Woodside must provide sufficient information and a reasonable period for consultation. 350A was also willing to assist Woodside to identify other relevant persons.
 - **(3)** Climate change impacts, including Scope 3 emissions which would result from the Scarborough Project, fell under the scope of indirect consequences that must be assessed.
 - **(4)** The information provided in the Consultation Information Sheet and the response to the letter dated 6 December 2023 were not sufficient. As Woodside had not yet provided sufficient information, further time was required to consider information.
 - **(5)** This EP should not be finalised, submitted to NOPSEMA or assessed until Regulation 25 had been met and Woodside should respond to this letter within two weeks, no later than 1 January 2024.
 - 350A requested Woodside to respond to Attachment A as a minimum to assess effects of this EP. Attachment A included the following feedback, objections/claims/requests for further information:
 - **(3)** Estimates of greenhouse gas and other emissions, including Scope 3 emissions from the Scarborough project. At a minimum, this should include:
 - ❖ Independent assessment of all emissions that would arise from the development, including all emissions sources and scopes (direct and indirect), annually and over the lifetime of the project with evidence of independent verification.
 - ❖ A breakdown of each emissions source, its nature and location, whether it was under the operational control of Woodside, and how it would be reduced or otherwise abated in each year that the project was operational.
 - **(6)** Independent assessment of the compatibility of the project with internationally agreed temperature and decarbonisation goals, including 1.5°C scenarios, including the IEA's NZE. At a minimum this should include:
 - ❖ Independent evaluation of the impacts of the Scarborough Project on global temperature scenarios, global GHG concentrations in the atmosphere, and globally agreed temperature and fossil fuel phase down goals, including what incremental warming was anticipated to occur as a result of the direct and indirect emissions from the Scarborough project.
 - ❖ Independent evaluation of the alignment and compatibility of the Scarborough Project with global 1.5 degree compatible energy scenarios, including what global 1.5 degree scenarios were considered by Woodside to be aligned with the Scarborough project, and which global energy scenarios were not considered to be aligned with the project.
 - ❖ Where global energy scenarios relied on carbon removals from the atmosphere, what was the volume of carbon removals that was assumed, how and where and by what means Woodside expected this to occur, and what (if any) carbon removals would be implemented by Woodside.
 - ❖ What fossil fuel phase down scenarios were considered by Woodside to be compatible with the Scarborough project.

- ❖ What effect the Scarborough Project would have on GHG concentrations in the atmosphere, including how long CO₂ from direct and indirect emissions associated with the Scarborough Project would remain in the atmosphere, and what effect this would have on global concentrations of GHG over this period.
- ❖ Analysis of the GHG concentrations that would be in the atmosphere, and climate effects that would be felt as a result of the global energy scenario that the Scarborough Project was consistent with. For example, if global demand for fossil gas was maintained and increased as anticipated by Woodside in commercial decisions to proceed with the Scarborough project, what GHG concentrations and temperature outcomes would result from this global energy scenario on an annual and decade basis for the life of the project and its impacts.
- **(7)** Independent assessment of the climate change impacts of the Scarborough Project on the Australian environment: At a minimum, this should include:
 - ❖ Analysis of sensitive environmental receptors in Australia and internationally that would be impacted by global climate change, including the Great Barrier Reef, Ningaloo Reef, other Matters of National Environmental Significance (MNES) and other cultural and environmental values.
 - ❖ What the anticipated effects of the Scarborough Project would be on these receptors, both as a result of emissions from the Scarborough Project itself, and from the international energy scenario that the Scarborough Project is compatible with.
- **(8)** Assessment of the climate change impacts of the Scarborough Project on communities that were impacted by climate change: At a minimum, this should include:
 - ❖ Evidence of consultation that had been undertaken by Woodside pursuant to the Environment Regulations to understand the particular interests and activities of communities affected by climate change, including but not limited to: island nations and communities, indigenous communities, farmers, young people, people with special needs and other groups. This should include evidence of what attempts at consultation with such communities had been made by Woodside, a summary of responses received by Woodside to date, and Woodside's responses to issues raised.
 - ❖ Evidence of Woodside's own analysis of impacts of the Scarborough Project and this EP on communities that were affected by climate change, including those listed above, including information on what communities had been considered, what baseline information had been used by Woodside regarding climate impacts to these communities, and what impacts were anticipated by Woodside, both as a result of the Scarborough Project itself, and from the international energy and global gas demand scenario that the Scarborough Project was compatible with.
- **(9)** Independent analysis of mitigation options and commitments. At a minimum, this should include:
 - ❖ The impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions, including a decarbonisation plan for the Pluto Hub as described in the letter from Woodside to 350 Australia dated 6 December 2023. This should include all technical studies, consultation, and other data that was relied upon or used in the development of these documents, including details of what (if any) independent review had been undertaken, including the outcomes of such independent review.
 - ❖ An independent analysis of all available mitigation options that had been considered by Woodside in relation to Scope 1, 2, and 3 emissions that would result from the project.
 - ❖ Detailed information on what (if any) mitigation of emissions were expected to occur at each stage or facility in the extraction, processing, transport and end use of gas from the Scarborough field. This should include information on whether this mitigation effort is voluntary commitment from Woodside or another party or resulting from an enforceable regulatory requirement. If the latter, describe the regulatory arrangements and jurisdiction as applicable.
 - ❖ Independent analysis to demonstrate that mitigation efforts at each stage and scope (including Scope 1,2 and 3 emissions) result in emissions reduced to As Low As Reasonably Practicable (ALARP)
 - ❖ Evidence to demonstrate why any potential mitigation efforts that would not be undertaken by Woodside or third parties on behalf of Woodside had not been considered reasonably practicable, including detailed independent evaluation of the cost impacts and operational consequences of each available mitigation option.
 - ❖ Identification of any third parties which Woodside relied upon in delivering mitigation actions for direct and indirect emissions from the project, and evidence of contractual obligations or other binding agreements to demonstrate the mitigation efforts would be delivered.

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- ❖ Independent assessment of abatement options for the Scarborough Project according to a mitigation hierarchy which prioritised avoidance and at source mitigation before offsets and other forms of abatement, with justification for Woodside's chosen mitigation commitments over the life of the project.
- ❖ Identification of all offsets that would be used by Woodside in meeting abatement goals and commitments, including the type, method, provider and jurisdiction where the offsets would occur, what registry would be used, what standards of accountability and accreditation would be applied and, how the offsets would be retired and what measures would be put in place to ensure that offsets would be guaranteed in the event of unplanned events.
- ❖ What ongoing public reporting and verification would be provided by Woodside of emissions and abatement from the project, including direct and indirect emissions from all sources (including unplanned emissions).
- **(10)** Independent modelling to support Woodside's claims of gas from the Scarborough Project displacing other more carbon intensive energy sources. At a minimum, this should include:
 - ❖ Evidence of what other energy sources were expected to be displaced, both in current market and for those forecast over the life of the project, including any displacement of renewable energy, fossil fuels, or other energy sources that will result from the Scarborough Project and the net effect of such displacement on global emissions.
 - ❖ Evidence of where this displacement was expected to occur, when and how.
 - ❖ Evidence of contractual or other arrangements that were, or would be in place, to ensure that this displacement occurred as predicted by Woodside.
 - ❖ Independently verifiable evidence to demonstrate that any displacement of more emissions intensive fuels resulting from the Scarborough project, and any resulting absolute and net emissions abatement would be additional to what would otherwise had occurred if the Scarborough Project did not proceed.
 - ❖ Evidence of third party verification (such as internationally recognised or domestic carbon credits) that would be provided by Woodside or other parties to verify claims of abatement achieved through net fuel displacement, including additionality and verifiability of such claims.
- **(11)** Independent assessment of how the Scarborough Project and associated mitigation efforts met the requirements of the UN High Level Expert Group on Net Zero emissions for non-state entities, and the ISO Net Zero Guidelines. At a minimum, this should include:
 - ❖ How Woodside's corporate emissions reduction targets and those for the Scarborough Project were science-based, and covered all-scopes of emissions, and took into consideration Woodside's historical emissions.
 - ❖ How the mitigation efforts for the Scarborough Project would deliver an immediate an absolute reduction in emissions from current levels.
 - ❖ How the Scarborough Project supported a global and local phase out of fossil fuels.
 - ❖ How the abatement efforts proposed by Woodside included targets for methane-specific emissions, including what these targets were and how they would be achieved.
 - ❖ Evidence of Woodside's lobbying and advocacy efforts and how these were aligned with global temperature scenarios.
- **(12)** Evidence of how the requirements of the approved Scarborough OPP relating to mitigation and avoidance of direct and indirect GHG emissions from the project would be achieved. At a minimum, this should include:
 - ❖ Details of contractual, regulatory, or other measures that demonstrate that both Woodside and third-party emissions reduction through fuel displacement, offsets or other abatement would be delivered according to international standards for carbon accounting, and for all scopes of direct and indirect emissions.
- **(13)** Other documents, including documents relied upon by Woodside, and the draft of this EP. At a minimum, this should include:
 - ❖ All studies, information and other material commissioned or relied upon by Woodside in assessing the GHG emissions and climate impacts from the project, including mitigation options, climate impacts, alignment with global temperature goals, and any other issues mentioned above.
 - ❖ A copy of the draft of this EP.

Ongoing engagement:

- On 27 December 2023, Woodside responded to 350A's 20 December 2023 letter (SI Report, reference 22.6), as follows:
 - (4, 5) Based on Woodside's provision of the Consultation Information Sheet on 9 August 2023, which provided a summary of the activity description, the receiving environment, impacts and risks associated with Petroleum Activities Program and proposed mitigation and management measures, and Woodside's substantive feedback to 350A's requests on 6 December 2023, 350A has been provided with sufficient information to allow it to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Additionally:
 - (4, 5) Woodside extended the consultation period from an initial four-week period ending on 11 September 2023, to 4.5 months, ending on 20 December 2023. Woodside did not receive any response from 350A until 20 December 2023, the day consultation closed. Woodside then addressed feedback, claims, objections and additional information provided by 350A in its response on 27 December 2023.
 - As requested, Woodside responded to 350A before 1 January 2024. The responses, however received out of office replies from 350A stating they would be on leave until 2 January 2024 and 15 January 2024 respectively.
 - (3) GHG emissions relevant to the Petroleum Activities Program, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008* and other industry standard database. The EP would assess Direct Emissions (Scope 1) and Indirect Emissions (Scope 3), aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*.
 - The EP would assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. Direct GHG emissions of carbon dioxide, methane and nitrous oxide and Total carbon dioxide equivalent emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
 - Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
 - An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions had been undertaken. This included development of a decarbonisation plan for the Pluto Hub.
 - (6) Woodside assesses emissions against a range of scenarios including the IEA NZE. Assessment of these could be found in Woodside's 2022 Climate Report which was publicly available on Woodside's website. Selected GHG emissions in Woodside's Climate Report were assured by GHD.
 - Woodside aims to thrive through the energy transition by building a low cost, lower carbon, profitable, resilient and diversified portfolio. For Woodside, a lower carbon portfolio was one from which the net equity Scope 1 and 2 GHG emissions, which included the use of offsets, were being reduced towards targets, and into which new energy products and lower carbon services were planned to be introduced as a complement to existing and new investments in oil and gas. Woodside's Climate Policy set out the principles that it believes would assist achieve this aim.
 - The climate strategy has two key elements: Reducing Woodside's net equity Scope 1 and 2 GHG emissions and investing in the products and services that Woodside's customers needed as they secured their energy needs and reduced their emissions.

- Woodside's net equity emissions reduction targets have an aspiration of net zero by 2050 or sooner. The target is for net equity Scope 1 and 2 GHG emissions, relative to a starting base representative of the gross annual average equity Scope 1 and 2 GHG emissions over 2016-2020 and may be adjusted (up or down) for potential equity changes in producing or sanctioned assets with a final investment decision prior to 2021.
 - Woodside has set near- and medium-term targets to reduce net equity Scope 1 and 2 GHG emissions and had three ways to achieve these targets: avoiding emissions through design; reducing them through efficient operations; and offsetting the remainder.
 - Avoiding and reducing emissions is Woodside's priority for meeting its net equity emissions reduction targets. However, offsetting emissions allows Woodside flexibility to meet these targets, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions proved to be hard-to-abate, any such residual emissions would also be offset using carbon credits to achieve net zero aspiration.
 - Woodside is developing a portfolio of carbon credits to contribute to the achievement of its net equity Scope 1 and 2 GHG emissions targets. These also have the potential to be bundled with product sales if customer demand was present, at a scale which was able to be supported.
- (7) In accordance with regulation 13(2) and 13(3) of the Environment Regulations, the EP would describe the Environment that May Be Affected (EMBA) including details of receptor sensitivities and exposure potential. This included consideration of Matters of National Environmental Significance (MNES) that may potentially occur in the EMBA.
- The Scarborough Offshore Project Proposal (OPP) – publicly available on the NOPSEMA website – defined a level of Significant Impact for receptors, informed by the MNES Significant impact guidelines. Environmental Performance Outcomes (EPO) and Controls were defined in the OPP and cascaded to subsequent EPs where relevant, to ensure maintenance of Acceptable impact levels.
- (8) Woodside consulted relevant persons in the course of preparing an EP in accordance with regulation 25 of the Environment Regulations. Consultation was designed to ensure that relevant persons were identified and given sufficient information and a reasonable period to allow them to make an informed assessment of the possible consequences of the proposed activity on them and, to ensure that Woodside could consider and adopt appropriate measures in response to the matters raised by relevant persons. Consistent with regulation 3 of the Environment Regulations, consultation also supported Woodside's objective to ensure that the environmental impacts and risks of the activity are reduced to ALARP and an acceptable level.
- Woodside's consultation with relevant persons would be summarised and included in the EP which would be made public on the NOPSEMA website.
 - The FPU Safety Case and facility design take into consideration/ assesses impacts to worker health and safety from facility operations including emissions and discharges. Woodside considers there are no credible impacts to populations onshore from planned emissions/discharges from the Scarborough FPU at the FPU location.
 - Indirect emissions from Scarborough FPU operations, such as processing through the Pluto LNG Plant, had been assessed for potential to impact on human health and remain within recognised criteria (i.e. World Health Organisation and National Environment Protection Measure limits).
- (9) Woodside would report GHG emissions as required by relevant reporting regulations including Australian National Greenhouse and Energy Reporting (NGER).
- (12) For Scarborough project-wide impacts and controls, 350A could refer to the OPP as Environmental Performance Outcomes (EPO) and Controls were defined in the OPP and cascaded to subsequent EPs where relevant, so as to maintain Acceptable levels.
- (1, 4) The Consultation Information Sheet provided to 350A on 9 August 2023 provided a summary of the activity description, the receiving environment, a comprehensive summary of impacts and risks associated with Petroleum Activities Program (PAP) and proposed mitigation and management measures.
- Woodside does not provide drafts of an EP while in development or under assessment for a number of reasons including because of the potential for content to change. Restricting access to publicly available versions enables stakeholders to access and comment on the same information and removes potential for confusion. The EP would be made publicly available on NOPSEMA's website once it has been submitted and was under assessment.

- In response, on 27 December 2023, Woodside received two out of office email replies from 350A stating 350A personnel were on leave until 2 January 2024 and 15 January 2024 (SI Report, references 22.7 and 22.8).
- On 7 March 2024, Woodside proactively sent 350A an email stating that, as 350A had shown an interest in climate-related topics and matters, they may be interested in the release of Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report which summarised Woodside's climate-related plans, activities, progress and climate-related data (SI Report, reference 22.9). The email included links to the CTAP and the ASX Announcement and:
 - **(1, 4, 5)** It re-iterated that consultation in the preparation of this EP had closed however, feedback could continue to be provided during the life of an EP, including after consultation had closed on the EP, during EP assessment, and after an EP had been accepted by NOPSEMA.
 - **(1, 4, 5)** Finally, it stated Woodside was available to meet with 350A to discuss this EP should 350A be interested.
- On 7 March 2023, Woodside received an automatic reply from 350A advising that the recipient of Woodside's email no longer worked for the organisation and provided an alternate contact address at 350A (SI Report, reference 22.10).
- On 8 March 2023, Woodside forwarded its correspondence from 7 March 2024 to the supplied 350A address from the automatic reply on the same day (SI Report, reference 22.11).
- **(4, 5)** On 28 March 2024, Woodside received a response from 350A to the Pluto Facility Operations EP consultation email (sent to 350A on 27 February 2024) stating it had not been consulted adequately on the Scarborough Operations EP (SI Report, reference 22.12).
- **(4, 5)** On 2 April 2024, Woodside responded to 350A seeking clarification on its email dated 28 March 2023 (SI Report, reference 22.13).
- **(4, 5)** On 10 May 2024, Woodside sent a second email seeking clarification on its email dated 28 March 2023 (SI Report, reference 22.14).
- On 4 July 2024, Woodside emailed 350A and provided a link to the publicly available EP on the NOPSEMA website (SI Report, reference 22.15). Woodside advised that it continued to assess and respond to feedback throughout the life of an EP, and that Woodside was available to meet with 350A over the next month. Based on 350A's previous feedback on climate topics, Woodside also included a table of specific topics which 350A might be interested in, and where to find that topic in the EP, including:
 - **(3)** Further information regarding estimates of emissions associated with the Scarborough Project could be found in Section 6.7.6.
 - **(7)** Contextual information about potential climate change impacts could be found in Section 6.7.6 and included consideration of climate science including the IPCC's Sixth Assessment Report.
 - **(9)** Further information about mitigation options could be found in Section 6.7.6 under subheading *Management and Mitigation*.
- On 8 October 2024, Woodside emailed 350A to thank it for its feedback and for engaging in consultation with Woodside on this EP (SI Report, reference 22.16). Woodside advised it would shortly resubmit the EP to NOPSEMA for further assessment and that as part of the consultation process, Woodside had further assessed the merits of a number of objections and claims raised by 350A. Woodside reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:
 - **(3)** Acknowledged provision of information pertaining to Scope 3 emissions from the Scarborough Project and confirmed that as demonstrated in Section 6.7.6 of the EP, the total estimated Scope 3 emissions associated with the project was approximately 870 MtCO₂-e. Further, Woodside noted:
 - Independent assessment of emissions sources, scopes and calculations had not been undertaken and was not warranted. As described in the EP, Woodside applied estimation techniques aligned with the National Greenhouse and Energy Reporting Determination and Federal Safeguard Mechanism.

- A breakdown of emissions sources extended over 11 pages in the EP however, by way of summary, the total estimated GHG emissions associated with the project, including Source 1 and 3, were approximately 880 MtCO₂-e over the life of the activity. Woodside had considered a range of actions to mitigate GHG emissions, which were presented in Section 6.7.6, as well as details of ongoing work through multiple project phases to design and operate out direct GHG emissions.
- (6) Woodside disagreed with 350A's position regarding independent verification including because Woodside employs internal specialists on climate matters. Woodside acknowledged climate science and that climate change was understood to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one activity or project including the Scarborough Project. Woodside noted its view that LNG could have a role in the energy transition, however advised it had used a hypothetical assumption in the EP where GHG emissions associated with the project were treated as additive. This amount was de minimis. Woodside noted emissions from the project fit within Australia's NDC and the NDC of customer nations, and that through compliance with the SGM framework, the project would be aligned with Australia's implementation of the Paris Agreement.
- (7) Acknowledged that climate change was impacting Australian and global receptors but disagreed with 350A's position regarding independent assessment including because Woodside employs internal environmental climate and science specialists. Woodside noted that human-caused climate change was a consequence of net GHG emissions that had accumulated in the atmosphere since the start of the Industrial Revolution, and that the EP included a contextual evaluation of these impacts drawing on reputable sources including the IPCC Sixth Assessment Report. The IPCC AR6-WGII concluded that one of the nine key climate risks for the Australasian region was "loss and degradation of coral reefs" due to ocean warming and marine heatwaves.
- (8) Advised that Woodside consulted relevant persons whose functions, interests or activities may be affected by the activities. Since climate change impacts were associated with net global atmospheric GHG concentrations, and not with the activity described in the EP, being potentially affected by climate change was not considered an appropriate test for inclusion of people as a relevant person. Woodside took a broad consultation approach for this EP. Woodside further noted that AR6-WGII contained information about projected impacts to health and wellbeing for the Australasian region. Woodside confirmed it did not consider that impacts on communities could be attributed to GHG emissions associated with the project.
- (9) Confirmed that Woodside agreed that GHG emissions associated with the Scarborough project should be minimised and managed to ALARP and acceptable levels but did not agree with 350A's assertion that this should be done independently. Third-party support had been used to identify potential opportunities for abatement, but it was more appropriate to leverage the understanding of the project held by internal personnel. Woodside also advised:
 - Woodside would not provide technical evaluations and studies which included commercially sensitive or confidential information and were not necessary for 350A to make an informed assessment of the possible consequences of the activity on 350A's functions, interests or activities. Access to the Pluto Hub Decarbonisation Plan was also not required by 350A.
 - Lists of emissions abatement opportunities and features implemented were included for Scope 1 and Scope 3 GHG emissions in Section 6.7.6 of the EP. The incorporation (or not) of particular abatement options were reflected in the GHG emissions estimates provided.
 - The description of emissions abatement opportunities in the EP included when aspects were applicable and which were required under regulatory frameworks.
 - Independent analysis was not required to determine whether GHG emissions were reduced to ALARP.
 - Contractual or binding agreements between Woodside and third parties were confidential and would not be shared. Avoiding and reducing GHG emissions were Woodside's priority, however offsetting emissions allowed Woodside to reduce net emissions while asset and technology carbonisation plans were matured and implemented.
 - It had established a carbon business in 2018 to develop a portfolio of carbon credits and skills and expertise in managing carbon credit integrity.
 - It would report domestic GHG emissions associated with the project as required under NGERS.

- **(10)** Disagreed with 350A’s position on independent modelling. Woodside’s view was that LNG could have a role in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes, however, to facilitate a comparison against carbon budgets, a hypothetical assumption where GHG emissions associated with the Scarborough project were treated as hypothetically additive was considered in the latest version of the EP. The acceptability assessment of the activity did not rely on displacement of higher carbon fuels. Compliance with Australian carbon frameworks including the Federal SGM was consistent with Australia’s implementation of the Paris Agreement, as set out in section 6.7.6.
- **(11)** Disagreed with 350A’s position and noted it was aware of the UN High Level Expert Group on Net Zero Integrity Matters and the ISO Net Zero Guidelines as well as a range of forums, public dialogues and reports regarding greenwashing. Woodside recently participated in a Senate inquiry into greenwashing and its Hansard transcript was available. Woodside takes care with statements, especially in regards to climate change, so that they are accurate. Woodside further noted:
 - Its corporate emission reduction targets were included in the EP as relevant to Scope 3 emissions only.
 - The Scarborough Project was not required to deliver an immediate absolute reduction in emissions from current levels, nor was it required to support global and local phase out of fossil fuels. As such, neither were proposed in the EP.
 - It had incorporated methane-specific GHG abatement measures.
 - Its advocacy aimed to support the goals of the Paris Agreement. Woodside provided a link to its Climate Policy and a list of government submissions and reports made by Woodside.
- **(12)** Confirmed the Scarborough OPP was approved by NOPSEMA in March 2020. The Operations EP demonstrated how these OPP requirements were implemented for the specific activity. The EPOs in the EP demonstrated an equal or better environment outcome than those in the OPP. Further, Woodside noted it would not share contractual detail due to confidentiality obligations, and that regulatory and other measures which managed GHG emissions associated with the project were comprehensively described in Section 6.7.6 of the EP.
- **(13)** Advised there were no requirements for Woodside to make studies and internal information publicly available. It was not reasonable for Woodside to provide studies, information or other material including because this was not necessary for 350A to assess the possible consequences of the activity on its functions, interests or activities. The Operations EP was publicly available on NOPSEMA’s website.
- **(2)** Noted that based on modelling of sound propagation loss under the worst-case noise scenario during FPU hook-up and installation, predicted noise levels would drop below behavioural response thresholds within 43.4km. Temporary and permanent threshold shifts might occur much closer to the noise source but it was highly unlikely cetaceans would stay within these ranges of the FPU facility for 24 hours. It was possible pygmy blue whales may deviate slightly from their migration route but could continue without any likely biologically significant impacts. Noise emissions from FPU installation, operation and IMMR activities along the Trunkline route were all rated as having No Lasting Effect to Marine Mammals with a Slight Impact Significance Level.
- On 8 October 2024, Woodside received an Out of Office reply advising one of the email recipients no longer worked at 350A (SI Report, reference 22.17).
- On 9 October 2024, Woodside forwarded its 8 October 2024 correspondence to an additional 350A email address as recommended in the Out of Office reply (SI Report, reference 22.18).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
(1) 350A is a relevant person.	(1)	(1) Woodside’s assessment of 350A as a relevant person is set out in Appendix F, Table 1.

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	<p>Woodside assessment: In accordance with regulation 25 of the Environment Regulations, Woodside assessed 350A as a relevant person for this EP based on its functions, interests or activities.</p> <p>Woodside response: Woodside confirmed it complied with regulation 25 of the Environment Regulations and had provided 350A with sufficient information and a reasonable period to allow it to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.</p>	
<p>(2) Requested further information on routine acoustic emissions from the FPU and project vessels, and likely impacts on whales.</p>	<p>(2) Woodside assessment: Woodside has provided 350A with sufficient information regarding routine acoustic emissions, via the Consultation Information Sheet, publicly available EP, and direct responses to 350A, for 350A to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.</p> <p>Woodside response: Woodside advised that under a worst-case noise scenario during FPU hook-up and installation, predicted noise levels would drop below behavioural response thresholds within 43.4km. Temporary and permanent threshold shifts might occur much closer to the noise source but it was highly unlikely cetaceans would stay within these ranges of the FPU facility for 24 hours. Noise emissions from FPU installation, operation and IMMR activities along the Trunkline route were all rated as having No Lasting Effect to Marine Mammals with a Slight Impact Significance Level.</p>	<p>(2) Routine acoustic emissions are assessed in Sections 6.7.4 and 6.7.5 of the EP.</p>
<p>(3) Requested estimates of GHG emissions and other emissions, including Scope 3 GHG emissions from the Scarborough Project, including independent assessment of all emissions, and a breakdown of each emissions source and abatement measures.</p>	<p>(3) Woodside assessment: Woodside has provided 350A with sufficient information regarding sources and volumes of emissions associated with the EP as well as abatement measures, via the Consultation Information Sheet, publicly available EP and responses directly to 350A, for 350A to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.</p> <p>Woodside response: Woodside provided estimates of GHG emissions associated with the project, including Scope 3 emissions, which were further set out in the EP, but noted independent assessment had not been undertaken and was not warranted as Woodside applied estimation techniques aligned with the National Greenhouse and Energy Reporting Determination and Federal SGM. Woodside noted it had considered a range of actions to mitigate GHG emissions and</p>	<p>(3) Routine and non-routine atmospheric and GHG emissions associated with the activities are assessed in Sections 6.7.6 and 6.7.7 of the EP.</p>

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	provided some examples while advising where further details were available in the EP.	
(4) Woodside has not provided sufficient information, either in its Consultation Information Sheet or its responses.	(4) Woodside assessment: Woodside has provided 350A with sufficient information, via the Consultation Information Sheet, Scarborough OPP, publicly available EP, and direct responses to 350A, to allow it to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Woodside response: Woodside summarised its correspondence with 350A regarding this EP, which started with an initial email including a Consultation Information Sheet on 9 August 2023. The sheet provided a summary of impacts and risks associated with the PAP and proposed mitigation and management measures. Woodside extended the consultation period from an initial four-week period to 4.5 months and provided substantive responses to 350A's feedback, claims and objections on 6 December 2023 and 27 December 2023. Woodside provided further information to 350A regarding this EP on 7 March 2024, 4 July 2024 and 8 October 2024.	(4) 350A has been provided sufficient information and a reasonable period for consultation, as described in Section 5.4 of the EP. Woodside engages in ongoing consultation as described in Section 7.10.5 of the EP.
(5) The EP should not be finalised, submitted to NOPSEMA or assessed until regulation 25 has been met.	(5) Woodside assessment: Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations for this EP. Woodside response: Woodside advised it complied with regulation 25 of the Environment Regulations in relation to the consultation process for this EP. Woodside also noted it engaged in ongoing consultation throughout the life of an EP and was open to receiving feedback and discussing issues raised in the relation to the EP.	(5) Woodside's consultation methodology is described in Section 5 of the EP.
(6) Independent assessment of the compatibility of the project with internationally agreed temperature and decarbonisation goals.	(6) Woodside assessment: Woodside does not agree with 350A's position regarding independent verification. Woodside employs internal specialists who stay abreast of developments in the evolving science of climate change and support assessment of projects against climate frameworks. In the latest version of the EP, a hypothetical assumption where GHG emissions associated with the Scarborough project are treated as additive is considered. This scenario is not expected to eventuate.	(6) Section 6.7.6 of the EP discusses the Scarborough Project in the context of gas demand in climate-related scenarios.

	<p>Woodside response: Woodside acknowledged that climate science understood climate change to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one project or activity including the Scarborough Project. However, to facilitate a comparison against carbon budgets, Woodside confirmed it had used a hypothetical assumption in the EP where GHG emissions associated with the project were hypothetically treated as additive, and the amount was de minimis. Woodside noted emissions fit within Australia's NDC and would comply with the Federal SGM.</p>	
<p>(7) Independent assessment of the climate change impacts of the Scarborough Project on the Australian environment.</p>	<p>(7) Woodside assessment: Woodside acknowledges that climate science suggests that climate change, caused by the net cumulative global concentration of GHG in the atmosphere, is impacting Australian receptors. It does not agree with 350A's position regarding independent assessment.</p> <p>Woodside response: Woodside noted that climate science suggests that human-caused climate change was a consequence of net GHG emissions that had accumulated in the atmosphere since the start of the industrial revolution. Woodside included in the EP a contextual evaluation of climate change impacts which encompassed environmental receptors including coral reefs.</p>	<p>(7) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>.</p>
<p>(8) Assessment of the climate change impacts of the Scarborough Project on communities that are impacted by climate change.</p>	<p>(8) Woodside assessment: Woodside consults relevant persons whose functions, interests or activities may be affected by the activities to be carried out under the EP. Since climate science suggests that climate change impacts are associated with net global atmospheric GHG concentrations, being affected by climate change is not considered an appropriate test for inclusion as a relevant person.</p> <p>Woodside response: Woodside advised it took a broad and proactive approach to consultation for this EP to raise public awareness of the activity and the opportunity for consultation. Woodside noted the AR6-WGII contained information about projected impacts to health and wellbeing for the Australasian region. Woodside does not consider that impacts on communities could be attributed to GHG emissions associated with the project.</p>	<p>(8) Woodside's record of consultation with relevant persons is described in Appendix F, Table 2 of the EP.</p>
(9)	(9)	(9)

<p>Independent analysis of mitigation options and commitments.</p>	<p>Woodside assessment: Woodside acknowledges the legislative regime which requires emissions associated with the Scarborough Project to be minimised and managed to ALARP and acceptable levels but does not agree with 350A's assertion that this should be done independently.</p> <p>Woodside response: Woodside advised that 350A does not require technical evaluations, studies or access to the Pluto Decarbonisation Plan to assess the possible consequences of the activity on its functions, interests or activities. Lists of emissions abatement opportunities and features implemented were included in the EP, including whether they were required under regulatory frameworks or voluntary. Woodside also noted contractual or binding agreements between Woodside and third parties would not be shared, and avoiding and reducing GHG emissions were Woodside's priorities, however offsetting emissions allowed Woodside to, amongst other things, reduce net emissions while asset and technology decarbonisation plans were matured and implemented. Woodside also provided details on its carbon business, established in 2018, and confirmed it would report domestic GHG emissions as required under NGERs.</p>	<p>Routine and non-routine atmospheric and GHG emissions associated with the activities, and options analysis of reduction/abatement measures (in the form of ALARP demonstration) are assessed in 6.7.6 and 6.7.7 of the EP.</p>
<p>(10) Independent modelling to support Woodside's claims of gas from the Scarborough Project displacing other more carbon intensive energy sources.</p>	<p>(10) Woodside assessment: Woodside does not agree with 350A's position on independent modelling. Woodside has used a hypothetical assumption in the EP where GHG emissions associated with the project are hypothetically treated as additive. This scenario is not expected to eventuate.</p> <p>Woodside response: Woodside confirmed its view was that LNG could have a role in the energy transition and in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes. However, to facilitate a comparison against carbon budgets, Woodside advised it had used a hypothetical assumption in the EP where GHG emissions associated with the project were hypothetically treated as additive. The acceptability assessment of the activity did not rely on displacement of higher carbon fuels.</p>	<p>(10) Gas demand in climate-related scenarios is set out in Section 6.7.6 of the EP.</p>
<p>(11) Independent assessment of how the Scarborough project and associated mitigation efforts meets the requirements of the UN High Level Expert Group on</p>	<p>(11) Woodside assessment: Woodside does not agree with 350A's position. Woodside takes care with its statements, especially in relation</p>	<p>(11) Not required.</p>

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<p>Net Zero emissions for non-state entities, and the ISO Net Zero Guidelines.</p>	<p>to climate change, to ensure statements are accurate and not misleading.</p> <p>Woodside response: Woodside confirmed it was aware of a range of forums, public dialogues and reports regarding greenwashing. Woodside advised it had recently participated in the Australian Senate Inquiry into greenwashing and as per its statement at the Inquiry, took care so that statements were accurate and not misleading. Woodside further noted its corporate emissions reduction targets were included in the EP. The Scarborough Project was not required to deliver an immediate absolute reduction in emissions from current levels, nor was it required to support global or local phase out of fossil fuels, thus neither was proposed in the EP. Woodside noted it had incorporated methane-specific GHG abatement measures, and its advocacy aimed to support the goals of the Paris Agreement.</p>	
<p>(12) Evidence of how the requirements of the approved Scarborough OPP relating to mitigation and avoidance of direct and indirect GHG emissions from the project would be achieved</p>	<p>(12) Woodside assessment: The Operations EP demonstrates how OPP requirements are implemented for the specific activity. Woodside response: Woodside confirmed the Scarborough OPP was approved by NOPSEMA in 2020. EPOs for the EP were mapped against those from the OPP in Table 6-2 of the EP. Woodside noted it would not share contractual detail of third-party emissions reduction measures due to confidentiality obligations, but that regulatory and other measures to manage GHG emissions were described in Section 6.7.6 of the EP. Woodside also applied GHG accounting frameworks from NGERs as applicable to Scope 1 emissions in Australia and the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Standard for Scope 3 emissions.</p>	<p>(12) A comparison of Environmental Protection Outcomes (EPOs) between the OPP and the EP is provided in the EP Section 6.3.</p>
<p>(13) Other documents relied upon by Woodside, including studies, information, and a draft EP.</p>	<p>(13) Woodside assessment: There are no requirements for Woodside to make studies and internal information publicly available. Woodside response: Woodside noted it was not reasonable for Woodside to provide all studies or other material as this was not necessary for 350A to make an informed assessment of the possible consequences of the activity. The GHG estimates provided were a more appropriate metric for 350A. Woodside also noted the EP was publicly available on NOPSEMA's website.</p>	<p>(13) Not required.</p>

<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>The measures and controls described within this EP address the potential impact from the proposed activities on 350A's functions, interests or activities.</p>
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with 350A for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given 350A sufficient information to allow 350A to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to 350A on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the information provided in the Consultation Information Sheet for this EP, information about this activity is contained in the OPP which has been publicly available since 2018 and information relevant to this EP was provided to 350A on previous consultations. Woodside also gave 350A further detailed information which addressed 350A's specific topics of interest and feedback, objections or claims related to this EP (see information given on 6 December 2023, 27 December 2023, 7 March 2024, 4 July 2024, 8 October 2024).
- Given 350A's interest in climate-related matters, Woodside also proactively gave 350A information on Woodside's Climate Transition Action Plan and 2023 Progress report (email of 7 March 2024). Woodside also proactively reminded 350A about the ability to provide feedback on this EP.
- In addition, Woodside proactively provided 350A with a link to the full EP when it was published on NOPSEMA's website (email of 4 July 2024). In its email to 350A, Woodside also provided specific references within the EP that pointed to climate-related topics and interests that 350A had previously sought information on. Woodside also reminded 350A again that it could provide feedback on this EP.
- On 8 October 2024, Woodside also emailed 350A to confirm it would shortly resubmit the EP for assessment and reminded 350A that Woodside remained open to receiving feedback.

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- In total, excluding the Consultation Information Sheet and publicly available EP, Woodside had provided 350A with sufficient information and responses providing information on topics of interest to 350A as well as addressing 350A's feedback, claims and objections in relation to this EP.
- On 20 December 2023, 350A claimed it had not been provided with sufficient information. Woodside disagrees with this assertion including because of the volume of information provided to 350A and because 350A responded to Woodside's consultation information with questions specific to the activity indicating the information provided was sufficient to enable 350A to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. 350A shared its feedback, claims and objections based on its understanding of the project, which Woodside assessed and responded to as demonstrated in the summary of consultation above.

Reasonable Period

Woodside allowed 350A a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to 350A advising of consultation as well as when consultation closed for purposes of the preparation of the EP (email dated 9 August 2023). This provided 350A with a reasonable period in which to consult and enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed 350A over 4.5 months for consultation.
- During the consultation period and following it, Woodside proactively sent follow-up emails to 350A to remind 350A of consultation and timeframes on numerous occasions (6 December 2023, 27 December 2023, 7 March 2024, 4 July 2024, 8 October 2024).
- In this context, Woodside allowed 350A a reasonable period for consultation in preparation of the EP.
- On 20 December 2023, 350A claimed it had not been provided with a reasonable period of time to provide feedback. Woodside disagrees with this assertion as Woodside commenced consultation on 9 August 2023 and 350A responded with feedback. On 6 December provided additional information to 350A and advised it had extended the consultation period to 20 December 2023. The consultation requirement under Regulation 25 cannot be one that is incapable of being complied with within a reasonable time (Tipakalippa Full Court para 136).
- As has been made clear during consultation, Woodside is open to receiving feedback after EP submission and throughout the life of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with 350A is appropriate and adapted to the nature of interests of 350A:

- Woodside published 8 advertisements in national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to 350A because Woodside notes 350A regularly uses social media as a means to share its views. It also allowed for broad awareness of the activity and consultation.
- Woodside also provided 350A with a link to NOPSEMA's various information sheets and brochures assisting to provide 350A with context around the consultation process (9 August 2023).
- As per previous consultation methods, Woodside emailed 350A to engage in consultation and also provided an alternative method for 350A to provide feedback by offering meetings. Woodside followed 350A's instructions when the contact person from 350A changed. Woodside's offer to meet with 350A was not taken up by 350A. Consultation was therefore engaged in via email which aligns with 350A's style of consultation.
- Following publication of the EP on NOPSEMA's website, Woodside proactively provided 350A with correspondence on climate-related matters and directed it to sections of the EP which contain additional information relevant to what Woodside understands to be topics of interest to 350A.

- Woodside considers a reasonable opportunity was provided to 350A because Woodside engaged in consultation in the style 350A has historically engaged in (via email) and also as evidenced in its exchanges with 350A and in particular as evidenced in 350A's responses on 11 September 2023 and 20 December 2023 where it provided feedback, claims and objections.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- 350A provided feedback or claims or objections regarding the adverse impact of the proposed activities to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from 350A and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
 - Made no changes or inclusions to the EP as a result of consultation with 350A because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

The Wilderness Society (TWS)

Context

TWS' states that it 'believes in protecting, promoting and restoring wilderness and natural processes across Australia for the survival and ongoing evolution of life on Earth and from the corridors of Canberra to the streets of your town, we're taking on transnational corporations, rogue operators, and the armies of lobbyists and politicians who defend them'.^{xxx}

In mid-2021, TWS called on the Government to make it clear to the market that it will not accept transfer of BHP to Woodside based on Woodside's decommissioning record.^{xxxi}

In 2018, TWS was invited but did not participate in consultation on the Scarborough Energy Project OPP.

In late 2022, Woodside met with TWS and briefed it on the broader Scarborough Energy Project and Scarborough-related EPs.

Woodside reached out to TWS three times in relation to this EP, including a proactive letter outlining past issues raised by TWS, and has continued to offer to meet, however TWS has not responded over the past 13 months.

This and the historic consultation effort is important because it provides context to demonstrate that Woodside's consultation is appropriate and adapted to the nature of interests of TWS.

Historical Engagement

2018 - 2020

- TWS has been aware of the Scarborough Project (including operations) for around 6 years. In 2018, TWS was invited to consult on the Scarborough Offshore Project Proposal (OPP) during the three phases of consultation for the Scarborough Project (preliminary, formal and ongoing). Preliminary consultation commenced in 2018. An eight-week formal consultation period ran from 5 July to 30 August 2019. Ongoing consultation continued on acceptance of the OPP in March 2020.
- The activities under this EP were described in the OPP. TWS chose not to take up the opportunity to participate in consultation.

2022- 2023

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- In October 2022, Woodside provided a face-to-face and online briefing to TWS on the on the Scarborough D&C, SITI, Subsea and Seismic EPs as well as the broader Scarborough Project. During the briefing and in follow-up correspondence, TWS raised several issues and topics which are also relevant to this EP including:
 - Impacts and risks to marine fauna populations and their migration patterns and controls in place to mitigate impacts from acoustic surveillance and marine fauna observers.
 - Details regarding the Scarborough trunkline.
 - Environmental impacts and risks.
 - How Woodside engaged with Traditional Owners on its EPs.
 - Carbon offsets, biodiversity and native vegetation.
 - An assertion that Woodside employees being financially incentivised to achieve acceptance of EPs.
 - Continuous consideration of cumulative impacts occurred for the proposed activities under each of the Scarborough EPs and the pipeline and subsea infrastructure was designed to be removed from the seabed (the subject of a future decommissioning EP and approval).
 - How has Woodside addressed the risk of real or perceived bias in relation to funding, support or influence of scientific studies, for example those cited as undertaken by the AIMS and UWA?

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed TWS advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, because it had not received a response from TWS, Woodside sent a follow-up email (Record of Consultation, reference 2.1).
- On 5 December 2023, in the absence of specific feedback from TWS, Woodside sent a letter via email to TWS (Record of Consultation, reference 2.19) which stated:
 - Woodside met with TWS in October 2022 and briefed it on the Scarborough Project and related EPs. Since then, TWS and Woodside have engaged in correspondence on all four EPs.
 - In a letter sent on 17 October 2022, Woodside noted TWS's more general interest in carbon offsets, biodiversity and native vegetation, and although outside the scope of the Scarborough Project consultation, Woodside welcomed the opportunity to meet with TWS to discuss the work Woodside was undertaking in this space. TWS did not take up this offer.
 - Woodside had provided TWS with Consultation Information Sheets on 9 August 2023 and 30 August 2023 and provided a link to this.
 - Woodside advised that consultation in the course of preparing this EP would close on 20 December 2023 and asked if TWS had feedback and/or would like to meet.
 - In the absence of specific feedback from TWS on this EP, Woodside had reviewed feedback from TWS on the D&C, Subsea, SITI and Seismic EPs which may be relevant to this EP as follows:
 - **(1)** Work undertaken to understand marine fauna populations and their migration patterns in relation to Woodside's proposed activities and controls in place to mitigate potential impacts.
 - ❖ **(1)** Woodside engaged environmental consultants to provide information related to the existing environment including migratory patterns and behaviours associated with marine mammals to inform assessment of potential risks and impacts on marine fauna as a result of activities described in the EP. Woodside demonstrated reduction of all impacts to ALARP and acceptable levels and implements controls to achieve this.
 - ❖ **(1)** Woodside undertook research with scientific partners to understand impacts on migratory species including Woodside's partnership with AIMS.
 - **(2)** The route of the Scarborough trunkline, including the position, depth and length.
 - ❖ **(2)** The route for the Scarborough trunkline could be found in the publicly available SITI EP (on NOPSEMA's website).
 - **(3)** Woodside's engagement with Traditional Owners on relevant EPs.
 - ❖ **(3)** To identify Traditional Custodian groups or individuals, Woodside:

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- Used existing systems of recognition to identify First Nations groups who overlapped or were coastally adjacent to the EMBA.
- Notified and invited consultation with First Nations people through their nominated representative corporation or the Native Title representative body.
- Requested the nominated representative body forward notifications and invitations to consult to their members (individual communal rights holders).
- Requested advice around which other First Nations groups or individuals should be consulted.
- Advertised widely to invite self-identification and consultation by First Nations groups and/or individuals.
- **(4)** Woodside's current methodology and application regarding offsets (carbon and biodiversity), in response to proposed activities.
 - ❖ **(4)** Woodside's Climate Strategy, an integral part of the company strategy, had two key elements: Reducing Woodside's net equity Scope 1 and 2 GHG emissions and investing in products and services Woodside's customers needed as it secured its energy needs and reduced its emissions.
 - ❖ **(4)** Woodside's net equity reduction targets had an aspiration of net zero by 2050 or sooner. In 2022, Woodside achieved 11% reduction compared to starting base. Woodside planned to achieve net equity Scope 1 and 2 GHG emissions reduction targets by avoiding GHG emissions through the way it designed its assets; reduced GHG emissions through the way it operated its assets; originated and acquired carbon credits to use as offsets for the remainder.
 - ❖ **(4)** Avoiding and reducing emissions were Woodside's first priorities for meeting the net equity emissions reduction targets. However, offsetting emissions would allow Woodside more flexibility to meet these targets, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions proved to be hard-to-abate, any such residual emissions would also likely be offset using carbon credits in order to achieve net zero aspiration.
- **(5)** Were direct financial incentives (e.g. bonuses) provided to employees following EP acceptance? Does Woodside link corporate KPIs regarding EPs to employee or contractor remuneration?
 - ❖ **(5)** Direct financial incentives (e.g. bonuses) were not provided to employees following EP acceptance. There were no linkage to remuneration or bonus schemes for achievement of EP acceptance and no corporate or business KPI suite linked the progress/finalisation of EPs to employee or contractor remuneration.
- **(6)** Confirmation that the development of a cumulative/holistic impact assessment covered the full breadth of development, production and decommissioning activities.
 - ❖ **(6)** The PAP for this EP covered the hook-up, commissioning and ongoing operations of the Scarborough FPU and Trunkline. TWS had previously been consulted on the other Scarborough EPs which covered the construction of the Scarborough infrastructure and which included assessment of risks associated with concurrent operations and cumulative impact.
 - ❖ **(6)** Decommissioning activities were not expected to be required within the life of this EP and would be subject to a future EP.
- **(7)** Outline of how dissenting scientific or technical expertise to the proposal was identified, actively sought and considered.
 - ❖ **(7)** Woodside previously advised the importance of scientific understanding and knowledge to its environmental management approach and confirmed that input from internal and external experts was part of the established EP process. This included consideration of recently published peer-reviewed data and studies to inform understanding of risk and impact assessment, and consideration of current best practice controls within the ALARP framework.
- With still no response or feedback received from TWS, on 8 October 2024, Woodside emailed TWS advising it would shortly resubmit the EP to NOPSEMA for further assessment and that as part of the consultation process, Woodside had further assessed the merits of a number of objections and claims raised by TWS in regards to the Scarborough Project (SI Report, reference 66.1). Woodside demonstrated an openness to consult with TWS when it reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:
 - **(1)** Advised it presented information on protected species in Section 4.6 of the EP, and the data was gathered from government databases and publicly available peer-reviewed journal articles and reputable research papers. Sections 6.7 and 6.8 of the EP contained impact assessments for marine fauna as well as the controls in place to limit impacts.
 - **(3)** Confirmed that avoiding and reducing GHG emissions were Woodside's priorities, and this was principally achieved through pursuing opportunities in the design and operation of its assets. Offsetting emissions allowed Woodside flexibility to reduce net emissions while asset and technology decarbonisation plans were matured and implemented. With

regards to biodiversity offset, the activity would not have any planned impacts at a population or species level and therefore would not impact biodiversity, nor require biodiversity offsets.		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Information on marine fauna populations and their migration patterns in relation to Woodside's proposed activities and controls in place to mitigate potential impacts.	(1) Woodside assessment: Woodside has completed work to understand marine fauna migration patterns, using data gathered from government databases and peer reviewed journal articles. TWS has been provided sufficient information regarding marine fauna populations and mitigation measures via the Consultation Information Sheet, publicly available EP and direct responses to TWS, for TWS to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Woodside response: Woodside engaged qualified environmental consultants to provide information related to the existing environment and used data from government and other peer reviewed sources to inform its assessment of potential risks and impacts on marine fauna as a result of activities described in the Scarborough EPs. Woodside also undertook research with scientific partners to understand impacts on migratory species including Woodside's partnership with AIMS.	(1) Risk assessments related to marine fauna are set out in sections 6.7 and 6.8 of the EP.
(2) Route of the Scarborough trunkline, including the position, depth and length.	(2) Woodside assessment: Sufficient information regarding the Scarborough trunkline has been provided to TWS via the publicly available SITI EP and in direct response to TWS during a consultation meeting on the Scarborough Project. Woodside response: Woodside previously provided information to TWS regarding the route of the Scarborough trunkline, including the position, depth and length, and also advised that this information could be found in the publicly available SITI EP on NOPSEMA's website.	(2) Not required.
(3) Woodside's engagement with Traditional Owners.	(3) Woodside assessment: Woodside has consulted with relevant Traditional Owners and their representative groups on relevant EPs. Woodside consults with relevant First Nations groups guided by its consultation assessment of relevance methodology for all activities.	(3) Woodside's approach to consultation with Traditional Owners is described in Section 5 of the EP. A summary of consultation with First Nations groups is provided in Appendix F, Table 2 of the EP.

	Woodside response: Woodside confirmed it had consulted with relevant Traditional Owners and their representative groups including archaeological and ethnographic surveys. Woodside detailed its consultation process to identify and engage with Traditional Owners groups or individuals.	
(4) Woodside's methodology and application regarding offsets (carbon and biodiversity).	(4) Woodside assessment: Avoiding and reducing GHG emissions are Woodside's priority, however offsetting emissions allows Woodside flexibility to reduce net emissions while asset and technology decarbonisation plans are matured and implemented. Woodside response: Woodside confirmed avoiding and reducing GHG emissions were its priority and this was principally achieved through pursuing opportunities in the design and operation of assets. Offsetting emissions allowed Woodside to reduce net emissions while asset and technology decarbonisation plans were matured and implemented, and in the longer term, where emissions were hard-to-abate, residual emissions would likely be offset using carbon credits. Woodside recognised that assessing integrity of carbon credits and managing a diverse portfolio was important and further information was available in Woodside's Climate Transition Action Plan and 2023 Progress Report. Woodside advised the activity would not have any planned impacts at a population or species level and therefore would not impact biodiversity.	(4) GHG emissions and indirect emissions associated with the activity are considered in Section 6.7.6 and 6.7.7 of the EP.
(5) Linkage of any remuneration or business unit KPIs to the progression of the EP or the commencement of related activities.	(5) Woodside assessment: Financial incentives (e.g. bonuses) are not provided to employees in order to incentivise EP acceptance at all costs. No corporate or business KPIs are linked to the progress/finalisation of EPs. Woodside response: Woodside confirmed there was no linkage to remuneration or bonus schemes for achievement of EP acceptance and also confirmed no corporate or business unit KPI suite links the progress/finalisation of EPs to employee or contractor remuneration.	(5) Not required.
(6) Does development of a cumulative/holistic impact assessment cover the full breadth of development, production and decommissioning activities.	(6) Woodside assessment: Cumulative impact from the Scarborough Energy Project as a whole is assessed and approved in the Scarborough OPP. Woodside has assessed the potential impacts and risks associated with the PAP for this EP. While decommissioning	(6) Woodside has assessed the potential impacts and risks associated with the PAP in Section 6 of the EP. Planning for decommissioning is described in Section 7.3 of the EP.

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	<p>activities are not within the 5-year period covered by this EP, planning and management for decommissioning is covered in the EP.</p> <p>Woodside response: Woodside noted that per its previous responses, the Scarborough OPP considered cumulative impact from the project. For this EP, the PAP covered the hook-up, commissioning and ongoing operations of the Scarborough FPU and Trunkline. TWS has previously been consulted on the other Scarborough EPs which covered the construction of the Scarborough infrastructure. The EPs included assessment of risks associated with concurrent operations and cumulative impact. Decommissioning activities were not expected to be required within the life of this EP and would be subject to a future EP.</p>	
<p>(7) How is dissenting scientific or technical expertise to the proposal identified, actively sought and considered?</p>	<p>(7) Woodside assessment: Woodside has an established process to inform and guide its environmental management process that includes consideration of published data and best practice controls within the ALARP framework.</p> <p>Woodside response: Woodside noted the importance of scientific understanding and knowledge to its environmental management approach and confirmed that input from internal and external experts was an integral part of Woodside's established EP process. This included consideration of published peer-reviewed data and studies to inform understanding of risk and impact assessment, and consideration of current best practice controls within the ALARP framework.</p>	<p>(7) Not required.</p>
<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside has assessed the merits of any objection or claim about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>The measures and controls described within this EP address the potential impact from the proposed activities on TWS's functions, interests or activities.</p>
<p>Summary Report – Consultation Complete</p>		

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with TWS for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given TWS sufficient information to allow TWS to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of TWS because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to TWS on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity and receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure: Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the information about this activity contained in the OPP and the initial EP consultation information provided to TWS on 9 August 2023, Woodside proactively provided TWS with further detailed information which addressed feedback, objections or claims previously raised by TWS in relation to the Scarborough Project that were relevant to this EP (see information given on 5 December 2023 and 8 October 2024).
- Woodside also emailed TWS to confirm it would shortly resubmit the EP for assessment and reminded TWS that Woodside remained open to receiving feedback (email of 8 October 2024).

Reasonable Period

Woodside has allowed TWS a reasonable period for consultation in the preparation of this EP because:

- A consultation process and period were advised in the initial correspondence to TWS including when consultation would close for purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside ultimately allowed TWS over 4.5 months for consultation.
- During the consultation period and following it, Woodside proactively sent follow-up emails to TWS to remind TWS of consultation and timeframes on numerous occasions (30 August 2023, 5 December 2023, 8 October 2024).
- TWS has not responded or replied to Woodside's correspondence.
- In this context, Woodside allowed TWS a reasonable period for consultation in preparation of the EP.
- As has been made clear during consultation, Woodside is open to receiving feedback after EP submission and throughout the life of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with TWS is appropriate and adapted to the nature of interests of TWS:

- Woodside published 8 advertisements in national, state and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to TWS because Woodside notes TWS regularly uses social media as a means to share its views. It also allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside also provided TWS with a link to NOPSEMA's various information sheets and brochures assisting to provide TWS with context around the consultation process (email of 9 August 2023).
- Woodside consulted TWS in the same way that TWS corresponded with Woodside, ie by email. Woodside has also provided an alternative method for TWS to provide feedback by offering meetings. This offer to meet for this EP was not taken up by TWS.
- In the absence of feedback, Woodside sent a follow-up consultation email on 30 August 2023, followed by a proactive letter on 5 December 2023 which addressed previous feedback received from TWS on other EPs that were relevant to this EP.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were required as TWS did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in the EP address the potential impact from the proposed activity on TWS's functions, interests or activities.

Say No to Scarborough Gas (SNTSG)

Context

SNTSG is the name of a campaign established by the Conservation Council of Western Australia to protest against Woodside's Scarborough Project and Pluto LNG expansion.^{xxxii}

SNTSG's last social post on Facebook was in August 2022 and we understand that campaign is either no longer active or is paused.^{xxxiii} CCWA's newer campaign is entitled Go Beyond Gas (see CCWA for further information).

Woodside has previously consulted SNTSG in relation to previous Woodside Scarborough EPs. Woodside used the same method of consultation and contact details for consultation with SNTSG and emailed the same contact addresses three times in relation to this EP. This included providing a proactive letter outlining past topics of interest issues raised by SNTSG and responses and an offer to meet, however SNTSG has not engaged or responded over the past 13 months.

This background is important as it provides context confirming that consultation attempts with SNTSG have been appropriate and adapted to the nature of interests of SNTSG and while it engaged in consultation on previous EPs, it has elected not to consult on this EP.

Historical Engagement:

2022- 2023

- In October 2022, Woodside provided a face-to-face briefing to SNTSG on the Scarborough D&C, SITI, Subsea and Seismic EPs as well as the broader Scarborough Project. During the briefing and in follow-up correspondence, SNTSG expressed an interest in topics which are relevant to this EP including:

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- Information on which communities and groups would be consulted and the process for incorporating feedback and re-releasing the EPs. SNTSG asked if Woodside would publish its redrafted EPs and how local groups had been made aware of consultation.
- Consistency of EPs with existing conservation plans or ecological principles including the intergenerational principle and the Blue Whale Conservation Management Plan/threatened species recovery plans.
- The independence of participants in the environmental risk and impact identification workshop mentioned in the EP and the meaning / determinants of ALARP.
- Emissions from the Scarborough Project and Scope 1, 2 and 3 emissions. SNTSG requested further information and figures on lifetime emissions of the project, emissions forecasting, consistency with conservation management plans and species recovery plans, Woodside's response to various external reports and sources, carbon capture storage (CCS) and carbon offset planning, emissions projections and Scope 3 emissions.
- The introduction of artificial lights which had an effect on ecological processes and asked about the impacts of these lights on ecological processes, seabirds, why routine light emissions were only estimated to have an impact for a year and whether Woodside would commit to the National Light Pollutions Guidelines for Wildlife.
- In terms of post-extraction, the methods for long-term monitoring of environmental health, including post-production and decommissioning.
- Ecosystem impacts and whether climate change would affect the interactions between marine life and the disturbance and pollution caused by the project and asked where the effects of this had been considered. What ecological parameters are used to assess impacts on species, populations, assemblages and ecosystems? And what grounds do Woodside propose for not suspending work during pygmy blue whale migration season?

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed SNTSG advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, given Woodside had not received any response from SNTSG, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 5 December 2023, in the absence of specific feedback from SNTSG, Woodside proactively sent another letter via email (Record of Consultation, reference 2.16) which stated the following:
 - Woodside met with SNTSG in October 2022 and briefed it on the Scarborough Project and related EPs. Since then, SNTSG and Woodside had engaged in correspondence on four EPs.
 - Woodside had provided SNTSG with Consultation Information Sheets on 9 and 30 August 2023 and once again sent a link to the Consultation Information Sheet.
 - Woodside advised that consultation for this EP closed on 20 December 2023 and asked if SNTSG had feedback and/or would like to meet.
 - The 5 December 2023, letter also reviewed past feedback from SNTSG and topics of interest on the Scarborough D&C, SITI, Seismic and Subsea EPs and provided assessment and response as follows:
 - **(1)** As to SNTSG's questions on the nature and process of Woodside's community consultation, its thoroughness in nature, and whether it was genuine in intent, or purely a box-ticking exercise.
 - ❖ **(1)** Consultation requirements set out in regulation 11A (now regulation 25) of the Environment Regulations had been complied with in relation to the consultation process for the EPs which Woodside detailed during its consultation meeting with SNTSG on 13 October 2022. Woodside's consultation process had continued to evolve based on ongoing Regulator feedback and feedback received during consultation.

- ❖ (1) Where feedback was received which informed Woodside of measures that it may take to mitigate potential environmental impacts from the PAP, Woodside incorporated this feedback into its EP, and where appropriate, introduced additional controls to ensure risks were managed to ALARP and an acceptable level.
- (2) As to SNTSG's query regarding consistency with existing conservation plans and ecological principles. The EPs are consistent with the principles of ecologically sustainable development (ESD). And the Blue Whale Conservation Management Plan and threatened species recovery plans.
 - ❖ (2) The activities would be carried out in a manner consistent with the principles of ESD (as defined in Section 3A of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)).
 - ❖ (2) The activities were not inconsistent with recovery plans or threat abatement plans. Woodside confirmed that the EP would include demonstration of acceptability and provide assessment of relevant activities against the Blue Whale Conservation Management Plan, including relevant EPOs and Controls.
- (3) As to SNTSG's query around the independence of participants in environmental risk and impact identification workshop (ENVID).
 - ❖ (3) An ENVID was undertaken to identify potential risks and impacts to inform the EP. Participants were from varied backgrounds, knowledgeable and experienced, and included external environmental consultants with understanding of all topics relevant to the PAP.
- (4, 5, 6, 7, 8, 9) As to SNTSG's queries regarding emissions and whether the EP considered the large-scale Scope 1, 2 and 3 emissions and global warming, gas leakage, flaring, GHG emissions, UN stating 'investing in new fossil fuels infrastructure is moral and economic madness', IEA comments that no new oil and natural gas fields were required, CCS project inadequacies, credibility issues around carbon offset programs, protection of coral reefs, and catastrophic climate outcomes.
 - ❖ (4) GHG emissions, including sources and volumes, would be presented and assessed in the EP and estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008*. The EP would assess direct emissions (Scope 1) and indirect emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the National Greenhouse and Energy Reporting Regulations 2008 (Cth).
 - ❖ (5) The EP would assess both direct and indirect impacts and risks associated with the activities, having regard to the nature and scale of the proposed activities. GHG emissions of carbon dioxide, methane and nitrous oxide and total carbon dioxide equivalent emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
 - ❖ (6) Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
 - ❖ (7) An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions had been undertaken and included development of a decarbonisation plan for the Pluto Hub.
 - ❖ (8, 9) Woodside had in place a Climate Strategy which was an integral part of the company strategy. The strategy had two key elements: Reducing Woodside's net equity Scope 1 and 2 GHG emissions and investing in the products and services that Woodside's customers needed as they secured their energy needs and reduced their emissions.
 - ❖ (8, 9) Woodside's net equity reduction targets had an aspiration of net zero by 2050 or sooner and in 2022, Woodside achieved 11% reduction compared to starting base. Woodside planned to achieve net equity Scope 1 and 2 GHG emissions reduction targets in three ways: 1. Avoiding GHG emissions through the way it designs its assets; 2. Reducing GHG emissions through the way it operates its assets; 3. Originating and acquiring carbon credits to use as offsets for the remainder.
 - ❖ (8, 9) Avoiding and reducing emissions were Woodside's priorities for meeting the net equity emissions reduction targets, however, offsetting emissions would allow Woodside more flexibility to meet targets, while asset and technology decarbonisation plans were matured and implemented.
- (10) SNTSG's query around lighting impacts on ecological processes in the upper ocean such as vertical migration of plankton, seabirds and marine turtle hatchlings.

- ❖ (10) Routine light emissions associated with the activity would be considered in the EP and would include assessment of lighting on marine ecosystem receptors and species including seabirds and marine turtles. The EP would demonstrate impacts from lighting would be reduced to ALARP and provided demonstration of acceptability.
- (11) SNTSG's query around post extraction, what methods for long-term monitoring of environmental health in the area were in place; what potential existed for the re-introduction of contaminants into the environment; would a good practice measure of conducting environmental monitoring of the seabed before and after the activities be implemented; what was the likelihood of disturbed species recolonising affected areas.
 - ❖ (11) The EP would provide an assessment of discharges from the Floating Production Unit (FPU) including wastewater streams. Woodside would implement controls which demonstrated that impacts and risks from potential contaminants entering the marine environment were ALARP and acceptable.
 - ❖ (11) Woodside proactively planned for decommissioning including the development of the Scarborough Decommissioning Strategy. Decommissioning activity was not part of this activity and would be subject to future EPs.
- (12) SNTSG questions as to climate change and interactions between marine life and the disturbance and pollution caused by the project including where the effects of climate change and subsequent ocean changes such as higher water temperatures increased the toxicity of petroleum hydrocarbons, expansion of oxygen minimum zones and further oxygen depletion, and ocean acidification. Also, which ecological parameters were used to assess impacts on species, populations, assemblages and ecosystems and which ecological baselines were used for these assessments. The process behind the deep-water environment survey and from this, which species were most likely to suffer losses. What assessments were done on microbial communities and processes and on what grounds does Woodside propose for not suspending work during pygmy blue whale migration season.
 - ❖ (12) Emissions and discharges including from atmospheric and greenhouse gases, as well as discharges of commingled produced water and cooling water streams would be assessed in the EP. This included an evaluation of all receptors that may be impacted from these.
 - ❖ (12) Potential impacts on pygmy blue whales would be assessed throughout the EP and impacts and risks controlled and reduced to ALARP and acceptable levels.
 - ❖ (12) In the course of preparing an EP, Woodside engaged suitably qualified environmental consultants and experts to inform what ecological parameters were required to be considered to inform potential risks and impacts from activities. Additionally, Woodside had extensive experience working in the offshore environment and had developed a comprehensive database of information related to the existing environment. Woodside drew on this experience when evaluating aspects relating to the risks and impacts of the activity and in developing appropriate control measures to mitigate impacts to environmental receptors.
- With still no response or feedback received from SNTSG, on 8 October 2024, Woodside once again proactively emailed SNTSG advising it would shortly resubmit the EP to NOPSEMA for further assessment and that as part of the consultation process, Woodside had further assessed the merits of a number of objections and claims raised by SNTSG in regard to the Scarborough Project (SI Report, reference 64.1). Woodside demonstrated an openness to consult with SNTSG when it reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:
 - (1) Advised it took a broad and proactive tiered consultation approach over an extended period of at least four and a half months for this EP. The consultation approach was advertised widely to raise public awareness of the consultation opportunity and to enable self-identification. It included two social media campaigns and advertising in national, state, regional and Indigenous newspapers. Consultation was also extended at the request of some relevant and non-relevant persons.
 - (2) Acknowledged SNTSG's interest in conservation plans and ecological principles, specifically the intergenerational principle which was used, along with other principles of Ecological Sustainable Development (ESD), to define Acceptable limits for identified impacts and risks in the OPP. The principles of ESD are reflected in the EPOs set in the OPP which were then cascaded to the Scarborough EPs. In the Operations EP, this is summarised in section 6.3 and Table 6-2. Consistency with the principles of ESD, MNES and Recovery Plans and Threat Abatement Plans is assessed in section 6.9 of the EP (publicly available), including the Blue Whale Conservation Management Plan (ref. Table 6-46 and Table 6-48).

- (4) Acknowledged that emissions associated with the Scarborough project should be assessed in the EP. A breakdown of emissions sources extended over 11 pages in the EP however the total estimated GHG emissions associated with the project, including Source 1 and 3, were approximately 880 MtCO₂-e over the life of the activity. Woodside further advised:
 - (5) 'Gas leakage' and flaring - the Scarborough FPU was designed to have no continuous operational flaring. In the unlikely event flares were extinguished or unavailable, hydrocarbon gas discharged via the flare system may initially not be combusted during the period required to purge the flare and re-establish flare ignition which could result in short term low-rate release of methane.
 - (6) Climate related scenarios and fossil fuel investment – the EP discussed the Scarborough Project in the context of gas demand in climate related scenarios. A range of pathways which limit global warming to either 1.5°C or 2°C have been published. Woodside noted that even in the Net Zero Emissions Scenario, investment in oil and gas development does not cease. The IEA estimates the need for an average \$365 billion of upstream oil and gas investment every year until 2030, and \$171 billion every year thereafter to 2050 is required in the NZE Scenario. There are a range of climate related scenarios which limit global warming to 1.5°C or 2°C with predicted gas supply that will not be met with current supply, or even with investment in existing and approved projects. These are set out in Section 4.2 and Section 4.3 in Woodside's Climate Transition Action Plan and 2023 Progress Report (CTAP).
 - (7) Carbon Capture and Storage (CCS) – is not currently in place for offshore activities or onshore facilities processing Scarborough through Scarborough gas processing such as leveraging the Angel CCS project.
 - (8) Carbon offsets - Avoiding and reducing GHG emissions are Woodside's priority and offsetting emissions allows Woodside to reduce net emissions while asset and technology carbonisation plans are matured and implemented. Where emissions are hard-to-abate, residual emissions would be offset using carbon credits in order to achieve our emission reduction requirements, supported by the Australian Government's Nationally Determined Contribution (NDC) and National Greenhouse and Energy Reporting Scheme (NGERS) framework.
 - (9) Potential impacts of climate change – Woodside acknowledged that climate change is understood to be caused by the net (cumulative) global concentration of GHG in the atmosphere however, changes in global atmospheric GHG concentration cannot be attributed to any one activity or one project, including the Scarborough Project, as they are the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution. Woodside noted its view that LNG could have a role in the energy transition and advised it had used a hypothetical assumption in the EP where GHG emissions associated with the project were hypothetically treated as additive. This amount was de minimis. Woodside noted emissions from the project fitted within Australia's NDC and the NDC of customer nations, and that through compliance with the SGM framework, the project would be aligned with Australia's implementation of the Paris Agreement.
- (10) Impacts from Routine Light emissions associated with the activity are assessed in the EP and included seabirds, turtles, fish, sharks and rays as well as krill and plankton, which may aggregate around light sources and result in temporary behavioural changes of whale sharks. Impact to fish from artificial light emissions would be negligible. For turtles, seabirds and migratory shorebirds, impact from light emissions was determined as slight.
- (11) The EP provided an assessment of discharges from the FPU including wastewater streams and relating to comingled produced water and seawater return discharges and the monitoring framework associated with these. Woodside' has controls in place and risks from potential contaminants entering the marine environment were managed to ALARP and acceptable.
 - The EP detailed Woodside's Decommissioning Framework. Decommissioning activities were not covered under this EP and would be subject to future approvals.
 - Regarding recolonisation of benthic communities post activity, Woodside explained that at ~900-1000m deep, the offshore Operational Area is characterised by a soft-bottom seafloor with sparse marine life due to the lack of light. Woodside recognises the positive impact that artificial habitat such as the Trunkline can have on benthic communities.
- (12) Woodside reiterated that changes in global atmospheric GHG concentration cannot be attributed to any one activity or project.

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<ul style="list-style-type: none"> ▪ Regarding work during pygmy blue whale migration season(s), impact assessments relating to noise had determined this to be ALARP and acceptable due to the distance of the Offshore Operational Area from the pygmy blue whale Migration BIA, infrequent and short duration of IMMR activities along the Trunkline Operational Area, the noise profile of the FPU minimised by it being moored and not dynamically positioned, and the short duration of FPU installation activities. • On 16 October 2024, after receiving advice that Woodside's email to SNTSG of 8 October 2024 was undeliverable, Woodside resent the email and attachment to an alternative email address for SNTSG (SI Report, 64.2). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Questions related to the nature and process of Woodside's community consultation.</p>	<p>(1) Woodside assessment: Woodside has complied with regulation 25 of the Environment Regulations for this EP in terms of community consultation. Woodside response: Woodside took a broad and proactive tiered consultation approach over an extended period of at least four and a half months for this EP. The consultation approach was advertised widely to raise awareness and enable self-identification. It included two social media campaigns and advertising in national, state, regional and Indigenous newspapers. Consultation was also extended at the request of some relevant and non-relevant persons.</p>	<p>(1) Woodside's consultation process is outlined in Section 5 of the EP and is in accordance with regulation 25 of the Environment Regulations. Please also refer to 'Consultation Approach' in Appendix F of the EP.</p>
<p>(2) The previous EPs are not consistent with the principles of ecologically sustainable development (ESD), specifically the 'intergenerational principle'. How do these plans meet these principles? How is the plan consistent with the Blue Whale Conservation Management Plan and threatened species recovery plans?</p>	<p>(2) Woodside assessment: The activity is not inconsistent with relevant recovery plans or threat abatement plans. Woodside response: The intergenerational principle, along with the other principles of ESD, were used to define Acceptable limits for identified impacts and risks in the OPP. Consistency with the principles of ESD, MNES and Recovery Plans and Threat Abatement Plans is assessed in the EP (publicly available), including the Blue Whale Conservation Management Plan.</p>	<p>(2) Woodside's assessment with the relevant principles of ESD is described in Section 2.3.6 of the EP. A comparison of EPOs in the EP and the OPP are summarised in section 6.3. Consistency with the principles of ESD, MNES and Recovery Plans and Threat Abatement Plans is assessed in section 6.9 of the EP, including the Blue Whale Conservation Management Plan (Table 6-47 and Table 6-49).</p>
<p>(3) Question relating to the independence of participants in environmental risk and impact identification workshop (ENVID).</p>	<p>(3) Woodside assessment: Woodside does not agree - the ENVID workshop was undertaken with independent subject matter experts from various backgrounds.</p>	<p>(3) Not required.</p>

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	<p>Woodside response: The participants at the ENVID workshop (undertaken to identify potential risks and impacts to inform preparation of this EP) were from a multi-disciplinary background with relevant knowledge and experience and included external environmental consultants supporting the EP development with experience across the topics relevant to the activity for this EP.</p>	
<p>(4) Question related to GHG emissions caused by the Scarborough Project, including Scope 1, 2 and 3. Emissions cannot be ignored. Further questions related to emissions included:</p> <ul style="list-style-type: none"> • global warming, 	<p>(4) Woodside assessment: GHG emissions are assessed in the EP. Woodside does not accept that the Scarborough project will contribute to the exacerbation of climate change impacts in Western Australia. Woodside has provided SNTSG with sufficient information regarding sources and volumes of emissions associated with the EP as well as abatement measures, via the Consultation Information Sheet, publicly available EP and responses directly to SNTSG, for SNTSG to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Woodside response: Woodside advised the EP assessed both direct and indirect impacts and risks associated with the activity and a breakdown of emissions sources associated with the project, including Scope 3 emissions, are set out in the EP. The total estimated GHG emissions associated with the project, including Source 1 and 3, were approximately 880 MtCO₂-e over the life of the activity.</p>	<p>(4) GHG emissions and indirect emissions are considered in Section 6.7.6 and 6.7.7 of the EP. Section 6.7.6 discusses the Scarborough Project in the context of gas demand in climate related scenarios.</p>
<p>(5)</p> <ul style="list-style-type: none"> • gas leakage, flaring, 	<p>(5) Woodside assessment: Woodside flares hydrocarbons as required, to maintain the safe and efficient operation of facilities. Woodside response: Woodside advised the Scarborough FPU was designed to have no continuous operational flaring. In the unlikely event flares were extinguished or unavailable, hydrocarbon gas discharged via the flare system may initially not be combusted during the period required to purge the flare and re-establish flare ignition which could result in short term low-rate release of methane.</p>	<p>(5) Flaring is discussed in the EP in Section 6 Routine Atmospheric Emissions: Offshore, and Indirect Emissions from Gas Processing Onshore</p>
<p>(6)</p> <ul style="list-style-type: none"> • greenhouse gas emissions, UN stating 'investing in new fossil fuels infrastructure is moral and economic madness', IEA comment 	<p>(6) Woodside assessment: The EP discusses the Scarborough Project in the context of gas demand in climate related scenarios. Woodside response: Woodside advised the EP considers the Scarborough project in the context of gas demand in climate related scenarios. A range of</p>	<p>(6) Section 6.7.6 of the EP considers Routine and Non-Routine Greenhouse Gas Emissions and discusses the Scarborough Project in the context of gas demand in climate related scenarios.</p>

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<p>that no new oil and natural gas fields are required,</p>	<p>pathways which limit global warming to either 1.5°C or 2°C have been published. Even in the Net Zero Emissions Scenario, investment in oil and gas development does not cease.</p> <p>The IEA estimates the need for an average \$365 billion of upstream oil and gas investment every year until 2030, and \$171 billion every year thereafter to 2050 is required in the NZE Scenario.</p> <p>Figure 6-7 in the EP depicts a range of climate related scenarios which limit global warming to 1.5°C or 2°C with predicted gas supply that will not be met with current supply, or even with investment in existing and approved projects.</p> <p>Sections 4.2 and 4.3 of Woodside’s Climate Transition Action Plan and 2023 Progress Report also sets these out.</p>	
<p>(7)</p> <ul style="list-style-type: none"> CCS project inadequacies, credibility issues around carbon offset programs, protection of coral reefs, and catastrophic climate outcomes. 	<p>(7)</p> <p>Woodside assessment: CCS is not currently in place for offshore activities or onshore facilities processing Scarborough gas.</p> <p>Woodside response: Woodside advised CCS technology is not currently in place for offshore activities or onshore facilities processing Scarborough gas, however Woodside is conducting CCS feasibility studies to address onshore emissions generated through Scarborough gas processing.</p> <p>Woodside assessed the feasibility of CCS in the EP.</p>	<p>(7)</p> <p>Based on feedback, Woodside has included assessment of CCS in Section 6.7.6 of the EP.</p>
<p>(8)</p> <ul style="list-style-type: none"> credibility issues around carbon offset programs, 	<p>(8)</p> <p>Woodside assessment: Avoiding and reducing GHG emissions are Woodside’s priority. Offsetting emissions allows a reduction of net emissions, while asset and technology decarbonisation plans are matured and implemented.</p> <p>Woodside response: Woodside advised avoiding and reducing GHG emissions were Woodside’s priority, however offsetting emissions allowed Woodside to reduce net emissions while asset and technology carbonisation plans were matured and implemented. Where emissions are hard-to-abate, residual emissions would be offset using carbon credits in order to achieve our emission reduction requirements, supported by the Australian Government’s Nationally Determined Contribution (NDC) and National Greenhouse and Energy Reporting Scheme (NGERS) framework.</p>	<p>(8)</p> <p>Information regarding carbon offsets is described in Section 6.7.6 under subheading <i>Management and Abatement</i> of the EP.</p>
<p>(9)</p>	<p>(9)</p>	<p>(9)</p>

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<ul style="list-style-type: none"> protection of coral reefs, and catastrophic climate outcomes (potential impacts of climate change). 	<p>Woodside assessment: Woodside acknowledges climate change was understood to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one project or activity including the Scarborough Project.</p> <p>Woodside response: Woodside acknowledged that climate change is understood to be caused by the net (cumulative) global concentration of GHG in the atmosphere however, changes in global atmospheric GHG concentration cannot be attributed to any one activity or one project, including the Scarborough Project.</p> <p>Woodside noted its view that LNG could have a role in the energy transition, however advised it had used a hypothetical assumption in the EP where GHG emissions associated with the project were treated as hypothetically additive. This amount was de minimis. Woodside noted emissions from the project fit within Australia's NDC and the NDC of customer nations, and that through compliance with the SGM framework, the project would be aligned with Australia's implementation of the Paris Agreement.</p>	<p>GHG emissions and indirect emissions are considered in Section 6.7.6 and 6.7.7 of the EP.</p>
<p>(10) Lighting: Impact on ecological processes in the upper ocean such as vertical migration of plankton, seabirds, and marine turtle hatchlings.</p>	<p>(10) Woodside assessment: Woodside has assessed impacts of lighting in the EP. Woodside response: Routine light emissions associated with the PAP are considered in the EP and include assessment of lighting on marine ecosystem receptors and species including seabirds and marine turtles. The EP demonstrates impacts from lighting will be reduced to ALARP and will provide demonstration of acceptability.</p>	<p>(10) Woodside has assessed the potential impacts and risks associated with routine light emissions in Section 6.7.3 of the EP.</p>
<p>(11) Post extraction: What methods for long-term monitoring of environmental health in the area are in place, including post-production and decommissioning? What potential exists for the re-introduction of contaminants into the environment? Will a good practice measure of conducting environmental monitoring of the seabed before and after the activities be implemented?</p>	<p>(11) Woodside assessment: Management of decommissioning is a step in the project life cycle and is addressed in the EP. Decommissioning activities would be subject to future approvals. Woodside response: Woodside advised the EP provides an assessment of discharges from the FPU including wastewater streams and controls will be implemented so that impacts and risks from potential contaminants entering the marine environment are managed to ALARP and acceptable levels. The EP details Woodside's Decommissioning Framework. While equipment will be designed, installed and maintained to enable decommissioning at the end of field life, actual decommissioning activities are not covered under this EP and will be subject to future approvals.</p>	<p>(11) See Sections 6.7.9 – 6.13 in relation to Routine and Non-routine Discharges: Planning for decommissioning is described in Section 7.3 of the EP.</p>

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<p>What are the likelihoods of disturbed species recolonising affected areas, particularly around the base of the cuttings pile?</p>		
<p>(12) Ecosystem impacts:</p> <ul style="list-style-type: none"> • Would climate change affect interactions between marine life and the disturbance and pollution caused by the project and have the effects of this been considered? • What ecological parameters are used to assess impacts on species, populations, assemblages and ecosystems? • What grounds does Woodside propose for not suspending work during pygmy blue whale migration season? 	<p>(12) Woodside assessment: Woodside has assessed ecosystem impacts and risks in the EP. Woodside has engaged experts and consultants and draws on its own expertise and experience to inform the required ecological parameters. Woodside response: Climate change cannot be attributed to any one activity or project. GHGs are assessed in the EP including an evaluation of receptors that may be impacted from these. Impacts on pygmy blue whales have been assessed throughout the EP and controls are in place to manage impacts and risks to ALARP and acceptable levels. Woodside engages suitably qualified experts to assist with an assessment of what ecological parameters are required to be considered to inform potential risks and impacts. Woodside draws on experience when assessing risks and impacts and develops appropriate control measures to mitigate impacts to environmental receptors.</p>	<p>(12) GHG emissions and indirect emissions associated with the activity are considered in Section 6.7.6 and 6.7.7 of the EP. The approach used to assess potential impacts is described in Section 2.3 of the EP. Potential impacts to marine fauna are assessed in Section 6 of the EP. Acoustic impacts (including on pygmy blue whales) are assessed in Section 6.7.4 and Section 6.7.5.</p>
<p>No feedback, objections or claims received for this EP despite follow-up.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>The measures described within this EP address SNTSG's claims or objections about the adverse impact of the activity. No additional measures or controls have been included from consultation with SNTSG.</p>

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with SNTSG for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given SNTSG sufficient information to allow SNTSG to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of SNTSG because:

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- Consultation Information Sheet has been publicly available on the Woodside website since August 2023. Woodside provided this information to SNTSG on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity and receiving environment, impacts and risks associated with the activity, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure: Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the initial EP consultation information provided SNTSG on 9 August 2023, in the absence of feedback from SNTSG, Woodside proactively provided information which summarised SNTSG's past feedback on related Scarborough project EPs and provided assessment and response in relation to this EP (see information given on 5 December 2023 and 8 October 2024).
- Woodside also emailed SNTSG to confirm it would shortly resubmit the EP for assessment and reminded SNTSG that Woodside remained open to receiving feedback (email of 8 October 2024).

Reasonable Period

A Woodside has allowed SNTSG a reasonable period for consultation in the preparation of this EP because:

- A consultation process and period were advised in the initial correspondence to SNTSG including when consultation would close for purposes of the preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside ultimately allowed SNTSG over 4.5 months for consultation.
- During the consultation period and following it, Woodside proactively sent follow-up emails to SNTSG confirming Woodside was open to consulting with SNTSG and to remind SNTSG of consultation and timeframes on numerous occasions (on 30 August 2023, 5 December 2023 and 8 October 2024).
- In this context, Woodside allowed SNTSG a reasonable period for consultation in preparation of the EP.
- As has been made clear during consultation, Woodside is open to receiving feedback after EP submission and throughout the life of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with SNTSG is appropriate and adapted to the nature of interests of SNTSG:

- Woodside published 8 advertisements in national, state and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 30 August 2023, followed by a proactive letter on 5 December 2023 which addressed previous topics of interests and feedback received from SNTSG on other EPs that were relevant to this EP. Based on this additional information, Woodside sought further feedback from SNTSG and offered to meet to consult.

- When no response was received from SNTSG, Woodside sent another proactive letter on 8 October 2024 advising it had further assessed the merits of a number of objections and claims raised by SNTSG and reiterated that feedback could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA.
- Woodside engaged in consultation in the manner used by SNTSG in previous consultations, that is by email. In the letter of 5 December 2023, Woodside also provided an alternative method for SNTSG to provide feedback by offering a meeting. The offer to meet was not taken up by SNTSG. No responses were received by Woodside from SNTSG on this EP.

Outcome of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- The measures and controls described in the EP address feedback, claims or objections by SNTSG and are appropriate.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Australian Marine Conservation Society (AMCS)

Context

AMCS' website states it is 'Australia's peak marine conservation organisation and Australia's leading national charity dedicated solely to protecting ocean wildlife' and that it is 'An independent charity, staffed by a scientists, educators and advocates'.^{xxxiv} AMCS has been running a petition campaign encouraging people to write to Woodside Board members and investors and urge them to 'recognise the immense dangers of the Scarborough proposal and transition its operations to renewable energy to maintain a safe climate'.^{xxxv} In May 2024, AMCS released a media statement criticising the Federal Government's Future Gas Strategy and claiming it would 'help bring cataclysmic climate change as dirty fossil fuels could not be a transition fuel for a clean energy economy'.^{xxxvi} AMCS launched another petition against Woodside in 2024 asking people to email WA and Federal Ministers to Save Scott Reef, linking it to operations on the Burrup, urging them to reject the proposals.^{xxxvii} The information on AMCS's website suggests AMCS has a fundamental objection to the Scarborough project and actively protests against Woodside's environmental approvals.

Woodside has provided information to AMCS about Scarborough-related EPs, including this EP, since 2023. AMCS has not engaged other than by email asking to be recognised as a Relevant Person, provide details of its role and ensure Woodside has the correct contact details. Woodside gave AMCS consultation information in August 2023 and offered to meet with AMCS around 12 months ago (November 2023), however this offer has not been taken-up.

Historical Engagement:

2022- 2023

- From 2022 to 2023, Woodside sent consultation material to AMCS on the Scarborough D&C, SIT1 and Subsea EPs as Woodside had identified that AMCS had referred to the Scarborough Project in an online public campaign.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed AMCS advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

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<ul style="list-style-type: none"> On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1). On 16 November 2023, in the absence of specific feedback from AMCS, Woodside sent a letter via email to AMCS (Record of Consultation, reference 2.13) which stated the following: <ul style="list-style-type: none"> Woodside consulted AMCS on the Scarborough D&C, SITI and Seismic EPs and was advised AMCS was involved in a large number of consultations and needed to prioritise resources but requested it still be sent notifications and reminders of future consultation. Woodside had provided AMCS with Consultation Information Sheets on 9 and 30 August 2023 and once again sent a link to the Information Sheet. Advised that Woodside was reaching out one final time and requested AMCS provide feedback by 8 December 2023. Woodside also asked AMCS to advise by 8 December 2023 if AMCS wished to meet with Woodside. On 20 December 2023, AMCS sent an email to Woodside (SI Report, reference 51.1), passing on personal details to ensure: <ul style="list-style-type: none"> (1) AMCS was recognised as a relevant person, and That Woodside had correct contact details, as well as outlining AMCS's role. (1) On 20 December 2023, Woodside responded to AMCS confirming it had been assessed as a relevant person, and as such, had already been sent the Consultation Information Sheet on 9 August 2023 and a follow-up email on 30 August 2023 to the general enquiries email address (SI Report, reference 51.2). It had also been sent a proactive follow-up letter on 16 November 2023. Woodside again attached a copy of the Consultation Information Sheet. <ul style="list-style-type: none"> Woodside updated its database to include the additional email address. No response has been received from AMCS. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) AMCS is a relevant person.	(1) Woodside assessment: Woodside followed the requirements of regulation 25 of the Environment Regulations and assessed AMCS as a relevant person for this EP based on its functions, interests or activities. Woodside response: Woodside confirmed AMCS had been assessed as a relevant person for this EP and had been provided with consultation information.	(1) Woodside's assessment of AMCS as a relevant person is described in Appendix F, Table 1.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its	The measures and controls described within this EP address the potential impact from the proposed activities on AMCS functions, interests or activities. No additional measures or controls are required.

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	Management of Change and Revision process (see Section 7.2.7.2 of this EP).	
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AMCS for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AMCS sufficient information to allow AMCS to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to AMCS on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed AMCS a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to AMCS advising of consultation as well as when consultation closed for purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago.
- Woodside’s methodology allows a 30-day consultation period and Woodside allowed AMCS with 4 months for consultation.
- Woodside is open to receiving feedback after EP submission and throughout the life of the EP. AMCS has demonstrated it understands this and it continues to provide feedback to Woodside, irrespective of consultation timeframes, as demonstrated in AMCS’s email received on 20 December 2023.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with AMCS is appropriate and adapted to the nature of interests of AMCS:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

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- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to AMCS because Woodside notes AMCS regularly uses social media as a means to share its views. It also allowed for broad awareness of the activity under the EP and of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 30 August 2023, followed by a proactive letter on 16 November 2023, reminding AMCS of the opportunity to provide feedback.
- Woodside consulted with AMCS in the way that AMCS had engaged in (via email) and also provided an alternative method for AMCS to provide feedback by offering a meeting. The offer to meet was not taken up by AMCS.
- Woodside also consulted the Protect Ningaloo conservation program, which is hosted by AMCS, providing AMCS with another opportunity to provide feedback.
- Woodside considers a reasonable opportunity was provided to AMCS as evidenced by AMCS's response on 20 December 2023 when it provided a response, but no feedback, claims or objections about the proposed activity.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- AMCS provided feedback but no objections or claims about the adverse impact of the proposed activities to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulation 24, Woodside has:
 - Responded to feedback from AMCS and, as it made no objections or claims, has not made further assessments for this EP.
 - Made no changes or inclusions to the EP as a result of consultation with AMCS because no objections or claims about the adverse impact of the activity were made and appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable

Doctors for the Environment Australia (DEA)

Context

DEA states on its website that they are 'medical doctors who call for climate action in recognition of the health harms caused by global heating and climate change'.^{xxxviii} DEA (WA) is a member group of the Conservation Council WA. DEA (WA) website links transfer to DEA as an umbrella organisation.^{xxxix}

DEA (WA) Facebook page directs people to join at the DEA website. The DEA (WA) Facebook page administrator^{xl} is also the Deputy Chair of DEA and President of CCWA.^{xli}

On its website, DEA claims 'fossil fuels kill and harm our health' and states that '...similar to addressing the health impacts of tobacco by first quitting smoking, to address the health impacts on fossil fuels we must first quit coal, oil and gas'. DEA encourages people to email their Member for Parliament and sign the petition calling on government to ban all new coal, oil and gas projects.^{xlii} In June 2024, DEA published an open letter in The Australian newspaper claiming 'coal, oil and gas were hazardous to health and wellbeing and calling on the government to ban all new coal, oil and gas projects'.^{xliii}

In August 2024, DEA launched its Smoke Kills campaign with the tagline 'Burning fossil fuels causes more deaths than tobacco' including a petition to the Federal Government in which it states 'Coal, oil and gas are health hazards. They cause dangerous air pollution which is responsible for a staggering 8 million deaths per year across the globe.'^{xliv} Woodside understands that DEA is fundamentally opposed to fossil fuels.

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DEA requested to be consulted on the Scarborough Energy Project EPs about potential global and local impacts of climate change and industrial emissions on human health. DEA did not respond to any of the three pieces of consultation correspondence on this EP however on 19 December 2023, DEA (WA) requested to be consulted as a relevant person.

Woodside has responded to DEA's consultation correspondence and has offered to meet with DEA. DEA has subsequently engaged on a non-Scarborough related EP, raising similar issues to those raised with this EP, and Woodside has continued to respond to claims in both its correspondence and the EP.

The background is important as it provides context that confirms consultation has been appropriate and adapted to the nature of the interests of DEA.

Historical Engagement

2022- 2023

- From 2022 to 2023 Woodside consulted and responded to feedback from DEA on the Scarborough D&C, SIT1, Subsea and Seismic EPs. A number of topics raised by DEA during consultation on those EPs have been addressed and raised again as part of consultation on this EP. These include:
 - DEA requested to be consulted on the proposed activity due to its membership comprising of medical professionals who dealt with people impacted directly and indirectly by climate change e.g. youth, elderly, First Nations people, people from low socioeconomic backgrounds, disabled people, those with disabilities, pre-existing medical conditions and people who lived in remote and rural communities.
 - Climate change was being called the greatest global health threat of the 21st century and in Australia, the Australian Medical Association and the Australian College of Nursing had said climate change was a health emergency and health impacts of climate change threatened to undermine the last centuries progress in public and global health.
 - Gas was also recognised as a health threat e.g. gas in domestic premises has been shown to contribute to childhood asthma.
 - Gas processing on the Burrup Peninsula would also increase existing levels of nitrogen dioxide, sulphur dioxide, ozone, mercury, other heavy metals and many thousands of tonnes of volatile organic compounds. Air pollutants of this type could cause serious health impacts, including heart disease, stroke, lung cancer, asthma and diabetes, even at low levels of exposure.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed DEA advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 5 December 2023, in the absence of specific feedback from DEA on this EP, Woodside proactively sent a letter via email to DEA (Record of Consultation, reference 2.17) which stated the following:
 - **(1)** DEA self-identified for the Scarborough D&C, SIT1 and Seismic EPs and provided feedback to Woodside which was addressed.
 - Woodside had provided DEA with a Consultation Information Sheet on this EP on 9 and 30 August 2023.
 - Woodside advised that consultation in the course of preparing this EP closed on 20 December 2023 and asked if DEA had feedback and/or would like to meet.
- The 5 December 2023 letter also reviewed past feedback and topics raised by DEA on the Scarborough D&C, SIT1 and Seismic EPs and provided an assessment and response as it relates to this EP. Woodside assessed DEA's feedback as follows:
 - **(2)** DEA members would be affected by the Scarborough Project because climate change and the use of gas as an energy source for domestic and commercial use produces both direct and indirect health impacts.

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- (2) Climate change had impacted on health directly, indirectly, and via social mechanisms and world-wide, including in Western Australia, these impacts had been seen including extreme heat, increasingly severe extreme weather events, drought, changing infectious disease patterns, and resource scarcity, among others.
- (2) In addition to the contribution to climate change, gas itself had also been recognised as a health threat.
- (2) The processing of the gas at facilities on the Burrup Peninsula would also increase existing levels of nitrogen dioxide, sulphur dioxide, ozone, mercury, other heavy metals and many thousands of tonnes of volatile organic compounds. Air pollutants of this type could cause serious health impacts, including heart disease, stroke, lung cancer, asthma and diabetes, even at low levels of exposure.
- Woodside responded to the feedback as follows:
 - (2) GHG emissions relevant to the activity, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008*. The EP would assess direct emissions (Scope 1) and indirect emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*.
 - (2) The EP would assess both direct and indirect impacts and risks associated with the activity, having regard to the nature and scale of the proposed activity. Direct GHG emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
 - (2) Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
 - (2) An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions had been undertaken and included development of a decarbonisation plan for the Pluto Hub.
 - (2) Woodside had a Climate Strategy which was an integral part of the company strategy and had two key elements: Reducing Woodside's net equity Scope 1 and 2 GHG emissions and investing in the products and services that Woodside's customers needed as they secure their energy needs and reduced their emissions.
 - (2) Woodside's net equity reduction targets had an aspiration of net zero by 2050 or sooner and in 2022, Woodside achieved 11% reduction compared to starting base. Woodside planned to achieve net equity Scope 1 and 2 GHG emissions reduction targets in three ways:
 - ❖ Avoiding GHG emissions through the way it designs its assets.
 - ❖ Reducing GHG emissions through the way it operates its assets.
 - ❖ Originating and acquiring carbon credits to use as offsets for the remainder.
 - (2) Avoiding and reducing emissions were Woodside's first priorities for meeting the net equity emissions reduction targets however, offsetting emissions would allow Woodside flexibility to meet these targets, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions proved to be hard-to-abate, any such residual emissions would also need to be offset using carbon credits to achieve net zero aspiration.
- On 19 December 2023, DEA sent an email and letter to Woodside, copying in NOPSEMA, stating it was, on behalf of the Western Australia Committee for Doctors for the Environment Australia, requesting that it be consulted as a relevant person (SI Report, reference 52.1). It also stated the following which include a number of repeated topics already addressed by Woodside:
 - (1) DEA, WA considered itself a relevant person and DEA, WA had not been contacted by Woodside in relation to the EP. DEA, WA was concerned Woodside did not understand its interests, functions and activities affected by the project and outlined these in detail. DEA, WA also invited Woodside to reflect on the purpose of the consultation regime and outlined regulation 25 of the Environment Regulations requirements.

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- **(3)** DEA, WA stated it understood the EP had been submitted to NOPSEMA for consideration and asked that the project not be accepted until regulation 25 of the Environment Regulations was met.
- DEA required a response to its letter within two weeks, no later than 2 January 2024.
- In addition, DEA requested reports, analyses, assessments, modelling and/or other documents around the following:
 - **(4)** A description of the environment that may be affected by the activities, including the potential extent and area of a hydrocarbon release/loss of containment from planned and unplanned activities.
 - **(5)** The potential environmental impacts and risks of the activities, including in relation to a Worst Case Oil Spill.
 - **(6)** The potential impacts and risks on any species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), including in relation to a Worst-Case Oil Spill.
 - **(7)** The potential impacts and risks on the Scott Reef Marine Park, and any other significant marine ecosystem, including in relation to a Worst Case Oil Spill.
 - **(8)** The potential impacts and risks in relation to Sea Country and other areas of marine or terrestrial Aboriginal cultural significance and/or heritage, including in relation to a Worst Case Oil Spill.
 - **(9)** The total GHG emissions associated with the activities and where these GHG emissions would occur, including any flaring/venting of GHG emissions both offshore and onshore.
 - **(10)** The potential impacts and risks of the activities' GHG emissions in relation to global warming and climate change, including whether and how those emissions would fit within a carbon budget and emissions reduction scenarios aligned with the temperature goals of the Paris Agreement, and specifically whether the Project could be accommodated within a carbon budget for a 1.5 degree, well below 2 degree, or 2 degree warming scenario.
 - **(11)** The proposed GHG emissions control measures, including details of any proposed offsets and any proposal for carbon capture and storage (CCS).
 - **(12)** The potential cumulative impacts of the above listed impacts or risks considered in the context of existing and proposed developments and/or activities in the vicinity of the area that may be affected by the activities and/or the Project, including in relation to a Worst Case Oil Spill.
 - **(13)** The potential cumulative impacts of upstream and downstream activities associated with the Project as a whole, including transport of gas via undersea pipeline and onshore processing of gas.
 - **(2)** The potential impacts on human health of the Project's GHG emissions, air and water pollution, including in the event of a Worst Case Oil Spill.
 - **(14)** The Proponent should provide information explaining whether reasonably available options had been explored for resolving or minimising the degree to which DEA, WA and the environment generally, may be affected by the activities, particularly through control measures. Accordingly, DEA also requested the following information, including any reports, analyses, assessments and/or other documents, that:
 - ❖ Demonstrated that the environmental impacts and risks of the activities would be reduced to as low as reasonably practicable.
 - ❖ Demonstrated that the environmental impacts and risks of the activities would be of an acceptable level.
 - ❖ Details of the environmental performance outcomes, environmental performance standards and measurement criteria to be adopted in relation to the activities.
 - ❖ Details of the implementation strategy and monitoring, recording and reporting arrangements in relation to the environmental impacts and risks of the activities.
 - **(15)** DEA, WA noted that a copy of any draft EP would assist an informed assessment.
- On 20 December 2023, Woodside sent a letter via email to DEA, DEAWA and NOPSEMA (SI Report, reference 52.2), and addressed the following:

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- (1, 3) Woodside confirmed DEA had been assessed as a relevant person, and as such, had already been sent the Consultation Information Sheet on 9 August 2023 and a follow-up email on 30 August 2023 to the email address used for previous correspondence in relation to other EPs. It had also been sent a proactive follow-up letter on 5 December 2023 outlining responses to previous claims, objections and requests for information and advising consultation closed on 20 December 2023 for this EP.
 - (3) As well as directly corresponding with DEA, Woodside advertised the EP and consultation opportunities in The Australian, The West Australian, regional newspapers and Indigenous newspapers and ran two social media campaigns across Facebook and Instagram. Woodside also had experts and information available at a number of community events in the Pilbara, Gascoyne and Murchison, as well as a tailored community roadshow in these regions throughout September and October 2023.
 - (3) The provision of consultation information, an extended period over and above a reasonable period for consultation, numerous attempts to engage DEA, and proactively considering information previously provided by DEA on other Scarborough Project EPs, meant that sufficient information, a reasonable period of time and reasonable opportunity for consultation had been provided.
 - (3) The EP had not yet been submitted to NOPSEMA.
- Woodside responded the next day (well before the requested response date of 2 January 2024).
- (4) Woodside advised the EP would describe the EMBA including details of receptor sensitivities and exposure potential.
 - The EMBA was defined as the largest spatial extent where unplanned events could have an impact on the surrounding environment and for this EP, was the potential spatial extent of surface and in-water hydrocarbons at concentrations above ecological impact thresholds, in the highly unlikely event of a loss of marine diesel from vessel collision.
 - The EMBA also included any areas that were predicted to experience shoreline contact with hydrocarbons above threshold concentrations.
- (5) The potential environmental impacts and risks of activities, including from a worst-case credible loss of containment event, had been explained in the Consultation Information Sheet sent on 9 and 30 August 2023.
- (6) The EP would describe details of the particular relevant values and sensitivities of the environment including identification of EPBC Act listed species considered to be Matters of National Environmental Significance (MNES) that may potentially occur in the EMBA.
 - The EP would include an evaluation of potential impacts to EPBC Act listed species including unplanned impacts resulting from a highly unlikely hydrocarbon spill as a result of a vessel collision. The impact assessment in the EP would provide a suite of controls that would be implemented during the activity to avoid or minimise potential impacts to relevant EPBC listed species.
- (7) Woodside does not consider that there would be any credible impact on Scott Reef Marine Park as a result of the activity described in the EP including unplanned impacts resulting from a highly unlikely hydrocarbon spill as a result of vessel collision.
- (8) The EP would assess potential impacts and risks in relation to cultural heritage on both land and sea including from unplanned impacts resulting from a highly unlikely hydrocarbon spill as a result of vessel collision.
 - Woodside had consulted with relevant Traditional Custodian(s)/groups in development of all Scarborough EPs to identify any cultural values, interests, activities and functions as well as respond to claims and feedback prior to submission. Examples of Sea Country considerations, including controls to reduce impacts to ALARP and acceptable levels, could be seen in the accepted Scarborough EPs publicly available on the NOPSEMA website.
- (9) GHG emissions relevant to the activity, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008* and other industry standard database. The EP would assess direct emissions (Scope 1) and indirect emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*.

- The EP would assess both direct and indirect impacts and risks associated with the activity, having regard to the nature and scale of the proposed activity. Direct GHG emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
- Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
- An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions had been undertaken including the development of a decarbonisation plan for the Pluto Hub.
- **(10)** Woodside had a Climate Strategy which had two key elements: Reducing Woodside's net equity Scope 1 and 2 GHG emissions and investing in the products and services that Woodside's customers needed as they secured their energy needs and reduced their emissions.
 - Woodside's net equity reduction targets had an aspiration of net zero by 2050 or sooner and in 2022, Woodside achieved 11% reduction compared to starting base. Woodside planned to achieve net equity Scope 1 and 2 GHG emissions reduction targets in three ways:
 - ❖ Avoiding GHG emissions through the way it designed its assets.
 - ❖ Reducing GHG emissions through the way it operates its assets.
 - ❖ Originating and acquiring carbon credits to use as offsets for the remainder.
 - Avoiding and reducing emissions were Woodside's first priorities for meeting the net equity emissions reduction targets, however, offsetting emissions would allow Woodside more flexibility to meet these targets, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions proved to be hard-to-abate, any such residual emissions would be offset using carbon credits to achieve its net zero aspiration.
- **(11)** Woodside would include control measures in the EP to reduce potential impacts resulting from GHG emissions to ALARP and acceptable levels and these would be made publicly available in the EP on NOPSEMA's website once it had been submitted and was under assessment by NOPSEMA.
 - Relevant controls and Environmental Performance Objectives (EPOs) would cascade from the Scarborough Offshore Project Proposal (OPP) which was publicly available on the NOPSEMA website.
- **(12, 13)** The Scarborough OPP assessed the potential cumulative impact of the Scarborough Project and other activities/developments. In addition, Woodside had considered other Scarborough activities that could result in overlapping temporal and spatial extents. While concurrent operations were currently not anticipated to occur between activities included in these activities and Scarborough activities covered by other EPs (i.e., D&C, SITI, Seismic and Subsea); where they did occur, this would be assessed.
- The FPU safety case and facility design took into consideration/assessed impacts to worker health and safety from facility operations including emissions and discharges. Woodside considered there were no credible impacts to populations onshore from planned emissions/discharges from the Scarborough FPU at the FPU location.
 - **(2)** Indirect emissions from Scarborough FPU operations, such as processing through the Pluto LNG Plant, had been assessed for potential to impact on human health and remained within recognised criteria.
- **(14)** Woodside confirmed the EP would demonstrate that environmental impacts and risks would be reduced to ALARP and acceptable levels. The EP would outline the implementation strategy, which would include systems, practices and procedures to direct, review and manage the activities so environmental risks and impacts were continually being reduced to ALARP and acceptable levels, and so that EPOs and Standards outlined in this EP were achieved.
 - In addition to the above, DEA may wish to access the following publicly available documents which provided additional detail on the project:
 - ❖ Acceptance of Scarborough Offshore Project Proposal – Statement of Reasons (link included)

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- ❖ Scarborough OPP Formal Consultation Report (pages 1073-1081) (link included)
- ❖ Pluto LNG Facility Greenhouse Gas Abatement Program Factsheet (link included).

- (3, 14, 15) The Consultation Information Sheet provided to DEA on 9 August 2023 provided a summary of the activity, the receiving environment, a summary of impacts and risks and proposed mitigation and management measures. Woodside confirmed it did not provide EP drafts during EP development due to the potential for content to change and in addition, restricting access to publicly available versions enabled stakeholders to access and comment on the same information, removing potential for confusion. The EP would be publicly available on NOPSEMA's website once it had been submitted and was under assessment.
- On 20 December 2023, Woodside received an out of office notification from DEA (SI Report, reference 52.3).

Ongoing engagement:

- (2) On 7 March 2024, Woodside proactively sent DEA an email stating that as it had shown an interest in climate-related matters, it may be interested in the release of Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report which summarised Woodside's climate-related plans, activities, progress and climate-related data (SI Report, reference 52.4) The email included links to the CTAP and the ASX Announcement.
 - It also re-iterated that consultation in the preparation of the EP had closed however, feedback could continue to be provided during the life of an EP, including after consultation had closed on the EP, during EP assessment, and after an EP had been accepted by NOPSEMA.
 - Finally, it stated Woodside was available to meet with DEA to discuss the EP should they be interested.
- On 24 April 2024, during the course of preparing the Pluto Facility EP, DEA self-identified by emailing NOPSEMA and included a feedback letter addressed to Woodside regarding this EP and the Pluto Facility EP (SI Report, reference 52.5). That letter included a number of repeated topics (already addressed by Woodside) and stated that DEA:
 - Understood Woodside was undertaking consultation with relevant persons for both EPs under the Regulations) prior to NOPSEMA assessment.
 - (1) Considered itself to be a relevant person and Woodside was required to consult.
 - (3, 16) Noted that Woodside was required by regulations 11A(2) and (3) of the Regulations to provide relevant persons with "sufficient information" to assess the possible consequences of the activities on its functions, interests or activities and provide "reasonable period" for consultation.
 - (1) Provided statements related to its interests, functions, activities and resources including:
 - background on DEA as an independent, non-government organisation of medical doctors and students in Australian States and Territories that had a voice in the sphere of environmental health.
 - reference to annual reports that articulated its strategy and impact goals to reduce fossil fuel combustion and cut global greenhouse gas emissions this decade.
 - resources including health reports, fact sheets and submissions.
 - consultation-relevant fact sheets "How Climate Change Affects Your Health: The Facts, How Climate Change Affects Mental Health in Australia" and "Asthma and Indoor Gas Appliances."
 - submissions including the Senate Inquiry Duty of Care Intergenerational Equity Bill and Protecting the Spirit of Sea Country Bill 2023.
 - support of phasing-out gas in households and policies and programs to phase out use of Gas in Australia.
 - Support of global emissions reduction aligned with the Paris Agreement with DEA arguments found in its Future Gas Strategy consultation paper.

- **(2)** Understood a range of different pathways and energy scenarios may be considered to align with globally agreed temperature goals and each had different levels of certainty, risk profiles and public health outcomes, so DEA supported the position of the United Nations, IEA and other authorities that there should be no new fossil fuel resource developments that were not already under production. It considered that Woodside projects were not consistent with findings and wanted more information to understand and evaluate health implications.
- **(3)** Noted the consultation helped the proponent and environment in improving an EPs content and it looked forward to receiving more information and opportunity to comment.
- **(3, 16)** Noted that consultation required under regulation 11A of the Regulations, required a proponent to provide DEA with “sufficient information” to make an informed assessment and provide a “reasonable period” for consultation.
- **(3)** Referenced NOPSEMA’s “Guidance Note: Environment Plan content requirements” dated September 2020 (EP Content Guidance) and “Guideline: Consultation in the course of preparing an environment plan” dated 12 May 2023 (Consultation Guideline) and stated that consultation in relation to any EP for development activities should assist the proponent to understand the external context, define “acceptable levels” of environmental impact and risk, and inform appropriate control measures.
- **(2, 3, 9, 10, 11, 12, 13)** Did not feel that Woodside’s published consultation material for this EP or another EP provided “sufficient information” as it did not address indirect impacts related to greenhouse gas emissions, climate change impacts and health impacts associated with gas usage. Nor did it sufficiently address local air pollution impacts from Woodside’s gas processing facilities.
- **(2, 9, 10)** Cited Woodside’s estimate of total lifecycle emissions from the development – 878m tonnes – and that indirect consequences on climate change and health impacts of air pollution from fuel combustion were significant.
- **(1, 2)** Believed its interests and objective would be impacted by the Operations EP in at least the following ways:
 - health impacts in Australia and elsewhere as a consequence of climate change
 - health impacts for workers and the local community as a result of Woodside’s LNG processing operations
 - health and wellbeing impacts for Aboriginal peoples who experience impacts to cultural heritage and Sea Country as a result of Woodside’s gas processing operations and climate change and ocean acidification more generally
 - health and wellbeing impacts associated with the use of gas in domestic and commercial settings, both in Western Australia and elsewhere where the gas is exported
 - health considerations arising from carbon pollution mitigation options such as the use of offsets, carbon capture and storage, direct mitigation, or other abatement methods
 - impacts and implications for healthcare professionals and health care systems arising from the health impacts mentioned above.
- **(10)** Noted indirect impacts from GHG emissions from this activity and climate change and air pollution from burning fossil fuels were not considered or provided.
- **(10)** Noted that climate change impacts, including from Scope 3 emissions that would result from another activity, fell under the scope of indirect consequences which must be assessed in accord with the approved NOPSEMA Program under the EPBC Act, and separately, as part of the broader environment that must be considered by NOPSEMA in accordance with the Environment Regulations.
- **(3)** Considered that Woodside had not provided DEA with sufficient information to make an informed assessment of consequences on its functions, interests and activities.
- **(3)** Provided examples of information DEA required to make an assessment including:
 - Woodside’s analysis of impacts
 - Woodside’s analysis of impacts including independent health impact assessments, baseline health studies or other analysis including:
 - health impacts from use of gas produced by Australian and overseas projects

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- health impacts arising from climate impacts that were attributable to emissions from these projects
 - health impacts from climate change and other effects
 - identification of groups or communities disproportionately affected by impacts
 - health and wellbeing effects of both direct and indirect impacts of the projects to Sea Country and cultural heritage
 - health and wellbeing impacts for the local community and others who may be exposed to, or impacted by airborne emissions and other effects of Woodside's gas processing and export facilities, or other infrastructure associated with the projects
 - health impact on workers involved in the construction and production phase of the projects and the gas processing facilities over the period they would be utilised for these projects
 - information regarding mitigation measures
 - information about what mitigation measures were proposed (if any) by Woodside to address impacts that have been identified, including what effects these mitigation measures are likely to have, how they will be implemented
 - details of the implementation strategy and monitoring, recording and reporting arrangements in relation to the described indirect and direct environmental impacts and risks of the activities, including how they would be reviewed and evaluated
 - details on how the proposed mitigation measures and implementation strategy would be subject to enforceable regulatory requirements or otherwise regulated
 - information about what other mitigation options had been considered by Woodside (if any) but were not proposed for implementation
 - information regarding Woodside's evaluation and selection process for mitigation measures, including how decisions had been made and what criteria had been applied to the consideration by Woodside of what mitigation measures would be implemented
 - information to demonstrate how the chosen mitigation measures would achieve the required outcome of 'as low as reasonably practicable and acceptable' residual impacts
 - information on residual impacts and risks
 - information to specify what residual health risks, impacts and outcomes Woodside believed would occur as a result of the projects after the application of proposed mitigation measures
 - details of what residual impacts Woodside considered to be acceptable, in the context of the regulatory requirement for 'as low as reasonably practicable and acceptable'
 - information on relevant person consultation in relation to health impacts and effects
 - what efforts Woodside had made to identify and consult with persons or organisations who may be impacted by health effects of the activities as relevant persons under the regulations
 - what relevant persons Woodside had consulted with who may be impacted by health effects of the activities and what concerns or issues had been raised in the process of such consultation to date.
- **(3)** Shared why the above information was needed for DEA to make an informed assessment as it wanted to respond in an evidenced-based manner and direct its activities to better protect the health of communities from such impacts and prepare the health sector for climate change impacts.
 - **(3)** Requested the above information as part of consultation and it should include reports, analyses, assessments, modelling and/or other documents used by Woodside.

- **(2)** Noted that Woodside had made general statements related to its Climate Transition Action Plan and 2023 Progress Report and given majority of this project's emissions would be from Scope 3 emissions which the report set only a 5 Mtpa abatement target it did not describe the health outcomes or impacts from its proposed activities.
- **(16)** Noted regulation 11A of the Environment Regulations requires a "reasonable period" for consultation.
- **(16)** Referenced the EP Content Guidance note that specified consultation time should be based on complexity and volume of information provided and practicalities of DEA's available personnel and resources. After receiving requested information, it can determine the length of time needed for consultation. It noted that the 30 day period for public exhibition of certain EPs specified under regulation 11B(1)(a) of the Environment Regulations is unlikely to be sufficient for the purposes of consultation under Regulation 11A. This is because the consultation envisaged by Regulation 11A is required to be more rigorous than public exhibitions.
- **(16)** Noted the EP Content Guidance and Consultation Guidelines stated that under Regulation 11A, consultation should demonstrate two-way communication, transparency, collaboration and inclusiveness. It continued that Regulation 16(b) requires proponents to provide feedback to DEA on its comments.
- **(3, 16)** Reiterated that any EP for the project should not be accepted until the requirements of Regulation 11A were met, including consultation requirements with DEA identified in this document.
- **(3)** Noted it looked forward to receiving more information so consultation could commence in accordance with regulation 11A of the Environment Regulations.
- On 14 May 2024, Woodside responded to DEA's email from 24 April 2024 (SI Report, reference 52.6) and:
 - Noted receipt of DEA's letter which related to this EP and another EP.
 - **(1)** Woodside consulted DEA for this EP starting in August 2023. Woodside outlined its EP feedback process and Management of Change and Review process. Based on feedback for the Pluto Operations EP, DEA had been assessed as being a relevant person for the Pluto Operations EP.
 - **(1)** Confirmed it consulted relevant persons during EP preparation in accordance with regulation 25 of the Regulations.
 - **(1)** Noted DEA's statements and document references but made no comment as to the factual accuracy or otherwise of these documents.
 - **(2, 9, 10)** Referred DEA to Section 4.2 Global demand for oil and gas (on pages 44 and 45) of Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report. Woodside referred DEA to publicly available information and noted that more granular detail relating to GHG emissions would be set out and assessed in the respective EPs. GHG emissions would be estimated using the National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008 and other industry standard database. The EP would assess Direct Emissions (Scope 1) and Indirect Emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the National Greenhouse and Energy Reporting Regulations 2008 (Cth).
 - **(3, 16)** Confirmed it referred to NOPSEMA's guidance materials when undertaking consultation.
 - **(2, 9, 10, 11, 12, 13, 14)** Noted that GHG information for this EP is already publicly published. The statutory regime relating to onshore emissions includes various State and Commonwealth legislation which manages potential impacts and risks to environment and cultural features, and legislation is applied to the relevant proponents for the onshore processing facilities.
 - **(2, 9, 10)** Recommended review of Section 3.1 Climate strategy (on page 14), Section 3.5 Scope 3 emissions (on page 32 and 33) and Section 3.6 Scope 3 targets (on pages 34 – 40) of Woodside's CTAP and 2023 Progress Report. The EPs would assess both direct and indirect impacts and risks associated with the Petroleum Activities Program (PAP), having regard to the nature and scale of the proposed PAP. Direct and indirect emissions with the potential to result in climate change impacts will be considered.
 - **(2, 3)** Noted that emissions associated with onshore gas processing were subject to a range of legislative requirements including those which considered and managed potential to impact on human health (for example Part IV environmental impact assessment and associated air quality monitoring management, as well as broader World Health Organisation requirements and National Environment Protection Measure limits and specific health and safety related regulations.).

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- **(15)** Confirmed that Woodside does not provide drafts of EPs while in development or under assessment for a number of reasons, including the potential for content to change. Allowing access to publicly available versions enables stakeholders to access and comment on the same information, assists with version control and removes potential for confusion. The EP would be made publicly available on NOPSEMA's website once it had been submitted and was under assessment.
- **(10)** Noted that climate change impacts couldn't be attributed to any one activity or one project, as they were instead the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution started. Although the direct and indirect GHG emissions associated with Scarborough and Pluto couldn't be linked to climate change impacts to the environment, a contextual evaluation of climate change impacts will be provided in the EPs. Encouraged DEA to read Woodside's suite of climate disclosures including Woodside's Climate Report 2021, Climate Report 2022 and CTAP and 2023 Progress Report.
- **(1, 3, 16)** Woodside disagreed with the assertion that the Project should not be accepted as Woodside had engaged in consultation with DEA in accordance with Regulation 25.
- On 12 June 2024, DEA emailed Woodside (SI Report, reference 52.7) in response to Woodside's letter dated 14 May 2024. DEA once again repeated a number of topics already addressed by Woodside:
 - **(1)** Welcomed Woodside's acknowledgement that DEA is a relevant person for this EP and another Woodside EP.
 - **(2, 3, 16)** Did not consider that information provided to date was sufficient in terms of consultation, in particular regarding climate and health impacts. DEA stated that consultation requirements of the Regulations have not been met.
 - **(3, 17)** Further stated that given the limited information provided by Woodside, and DEA's voluntary capacity, the information in the letter should not be taken to reflect DEA's complete position or complete submissions on the proposal and that DEA reserved the right to make further submissions as capacity and information became available.
 - **(18)** Stated that limited additional information Woodside had provided were past assessments that could not be relied upon i.e. NOPSEMA's Acceptance of Scarborough OPP – Statement of Reasons; OPP Formal Consultation Report; Pluto LNG Facility Greenhouse Gas Abatement Program (GGAP), and Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report.
 - **(19)** Asserted that there were no references to or consideration of health impacts in the Acceptance of Scarborough OPP – Statement of Reasons demonstrating that health impacts were not considered by Woodside or NOPSEMA at the time and therefore must be considered now.
 - **(3)** Claimed there was no evidence in information provided to DEA that Woodside has considered the following:
 - Health and wellbeing impacts arising in vulnerable communities impacted by climate change in Australia and elsewhere
 - Indirect health impacts resulting from exposure compounds arising from the combustion of gas in households (especially by children) and workplaces
 - Health and wellbeing impacts of Traditional Custodians related impacts to cultural heritage on the Burrup Peninsula, where gas processing is proposed to take place.
 - **(20)** Stated that the Formal Consultation Report on the Scarborough OPP did not appear to be publicly available and the link provided to this document in Woodside's previous response was incorrect.
 - **(21)** Claimed that climate change impacts outlined in the Scarborough OPP were no longer relevant to this assessment because the Statement of Reasons shows that the OPP was assessed against outdated criteria no longer accurate or relevant to the current assessment. Reasons given are:
 - **(22)** The NDC test is no longer relevant as Australia's NDC has been updated and strengthened considerably.
 - Other legislation and approvals have not been updated e.g. the EPA recommended that further changes to Ministerial Statement 757 are necessary to protect the environment however no action has been taken to update the Ministerial Statement.
 - Since the acceptance of the Scarborough OPP the IEA SDS scenario has been revised to significantly reduce the amount of gas in the global energy mix.

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- Even the IEA's STEPS scenario shows a significant reduction in the role of gas in the global energy mix since the Scarborough OPP was assessed in 2020 and that the relevant scenario that should be adopted for the purposes of assessing the impact of this project on global temperature goals is the IEA Net Zero Emissions (NZE) Scenario which shows that gas production and use must decline significantly from current levels.
- Asserted that the relevant scenario that should be adopted for the project is the NZE and that under this, no additional gas projects are possible.
- **(23)** Noted that since the 2020 assessment of the Scarborough OPP, both the UN and ISO have published guidelines for the NZE which assist the identification of net zero plans that are greenwash from genuinely aligned global temperature and decarbonisation goals.
 - The Pluto LNG Facility GGAP does not meet the requirements of these guidelines,
 - Is an example of greenwash and therefore cannot be relied upon by regulators in the assessment of the acceptability of the climate impacts of the proposed project.
 - Also, the EPA has advised the WA Minister for the Environment that the plan is no longer adequate and needs updating.
- **(24)** Claimed that as well as climate change harming human health:
 - Oil and gas developments result in direct health harms from pollution including cancer, reproductive harms, impairment of normal human growth and development, birth defects, respiratory and cardiovascular disease and deaths as well as interference with the body's communication system of hormones regulating growth, behaviour, metabolism and reproductive function; and
 - The destruction of sites of spiritual significance to First Nations people by fossil fuel developments compounds psychosocial harms.
- **(25)** Advised that any emissions produced from now will need to be removed from the atmosphere at a later date. At a minimum:
 - Woodside's assessment of climate impacts associated with these projects should consider impact on global emissions over at least a 100 year period and preferably longer;
 - Woodside must show how it will cause carbon drawdown (CDR) to remove all emissions that will be produced by the projects from the atmosphere in the long term, and enforceable measures must be imposed by the regulator to ensure this takes place.
- **(26)** Claimed Woodside's CTAP and 2023 Progress Report (and climate plans in general) could not be relied upon as a basis for assessment of the acceptability of carbon pollution or climate change impacts of the proposed activities because:
 - The plans and targets are unenforceable;
 - The CTAP and 2023 Progress Report amounts to greenwash because it does not address numerous requirements of the UN standards and ISO Guidelines for Net Zero;
 - The plans have repeatedly been rejected as insufficient by a majority of Woodside's shareholders.
- **(27)** Asserted that reliance on the Federal safeguarding mechanism as a means to align with Australian national emissions goals is inappropriate because of:
 - Australia's national emission reduction goals and legislated carbon emissions budget are not aligned with the temperature goals of the Paris Agreement;
 - Ongoing project emissions beyond 2030 reduction targets;
 - Emissions that will result from these projects in other countries outside of Australia;
 - Potential use of low integrity undisclosed offsets.
- **(27)** Claimed that if comparisons to Australia's emissions reduction targets and budget are to be used, then the total emissions from the proposed activities (not just domestic emissions) should be compared with Australia's abatement efforts and policies.

- **(28)** Stated it did not accept the argument that the total emissions from the proposals are an insignificant contribution to the global carbon budget and therefore should not be considered unacceptable as if this were true, Australia's entire national abatement efforts to 2030, including abatement from all sources, is also insignificant.
- **(29)** Stated that Woodside must adhere to the UN and ISO's guidelines in relation to its proposed activities as part of any assessment on the impacts on the climate and on DEA's activities and interests under the Regulations.
- **(3, 29)** Further stated that Woodside has not provided information to DEA to show that its net zero plans for the proposed operations, or its activities in general, comply with the requirements. From the information that has been provided to DEA, it was evident that Woodside's abatement activities and net zero plans amount to dangerous greenwash.
- **(3)** Stated that it looked forward to Woodside providing further information to address DEA's concerns and demonstrating that the impacts of the proposed activities will be managed to a level that is acceptable to DEA.
- **(2, 9, 10, 11, 12, 13)** On 4 July 2024, Woodside proactively emailed DEA and provided a link to the publicly available EP on the NOPSEMA website (SI Report, reference 52.8). Based on DEA's previous feedback, Woodside also included a table of specific topics which DEA might be interested in, and where to find that topic in the EP. Woodside advised that it continued to assess and respond to feedback throughout the life of an EP, and that Woodside was available to meet with DEA over the next month. Woodside also acknowledged receipt of DEA's letter dated 12 June 2024 and advised it would be responding shortly.
- On 9 July 2024, Woodside responded (SI Report, reference 52.9) to DEA's letter dated 12 June 2024. Woodside reiterated a number of previous responses and:
 - **(1)** Noted DEA's comments regarding relevant person status.
 - **(3)** Directed DEA to the Scarborough Operations EP (Rev 1 publicly available) for further information on emissions and reiterated that in accordance with regulation 25 of the Environment Regulations, Woodside's consultation process provided relevant persons with sufficient information to allow them to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities. Woodside assessed any objections or claims received and adopted appropriate measures so that the activity would be carried out in a manner whereby environmental impacts and risks were reduced to ALARP.
 - Noted that DEA's public position was that all new coal, oil and gas projects should be banned, and that DEA provided public statements that indicated it was fundamentally opposed to fossil fuels. Woodside also noted connections between DEA and other NGOs who have campaigns against Woodside.
 - **(2)** Advised that in terms of climate and health impacts associated with this EP, climate change impacts are the result of global GHGs and cannot be attributed to any one activity or project. Emissions associated with the projects are negligible in the context of existing and future anticipated global GHG emissions. In addition, gas can play a role towards the energy transition.
 - Directed DEA to the IPCC's Sixth Assessment Report (AR6) in 2023 and Woodside's approach to climate change (Section 5.3 'Managing Physical Risk' and Section 6.3 'A Just Transition' of Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report) for information on GHG emissions in a global and Australian context.
 - **(17)** Noted that, based on DEA's website, DEA's members cite a significant volume of studies, scientific research and videos to inform its position on human impacts from climate change demonstrating that DEA has access to information, and capacity and understanding of that information. Woodside also noted that a number of DEA's members attended Woodside's 2024 AGM.
 - **(18)** Advised that:
 - The Scarborough OPP remained in force and current; an OPP is designed to be prepared at an early stage in project development, before detailed planning of component activities occurs. More detailed descriptions of the component activities are then described in subsequent EPs. This EP contains a table which assesses concordance of the activities with the OPP.
 - The Pluto GGAP is in force and compliant with the requirements of relevant Ministerial Statements.

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- The CTAP and 2023 Progress Report summarises Woodside's climate-related plans, activities, progress and climate-related data for the period 1 January 2023 to 31 December 2023.
- (19) Explained that the definition of *environment* in the Regulations 2023 includes *Ecosystems and their constituent parts, including people and communities*. Woodside EPs include a consideration of risks and impacts of the activity to the Ecosystem and its constituent parts. People and communities are identified under this heading, assessment is undertaken and appropriate control measures are implemented to reduce these to ALARP and an acceptable level.
 - Potential impact to people and communities is considered in Section 6.7.6 and 6.7.7 of the EP, including assessment of atmospheric emissions against the relevant National Environment Protection Measures (NEPM).
 - Noted that domestic and commercial gas appliances which combust gas provided by commercial retailers are regulated by the Western Australian government. Woodside does not consider this to be part of the petroleum activities.
- (20) Advised the link provided in Woodside's previous response was to all of the publicly available Appendices for the OPP and referred DEA to Appendix M for the Scarborough OPP Formal Consultation Report.
- (21) Responded that NOPSEMA's Statement of Reasons for the accepted Scarborough OPP outlines NOPSEMA's consideration of direct and indirect GHG emissions associated with the Scarborough Project. This consideration includes the EPOs described in the Scarborough OPP, consistent with those described in Section 6.7.6 of the EP. Further controls are included in the EP to outline how these EPOs will be achieved.
- (22) Referenced relevant climate related information in the Scarborough OPP and considered in NOPSEMA's Statement of Reasons includes the potential implications of Scarborough GHG emissions on Australia's previous NDCs and the IEA'S Sustainable Development Scenarios. Further information on Australia's updated NDC's and the IEA's NZE 2050 scenario were provided, and are in the EP.
- Described how the Federal Safeguarding Mechanism requires facilities to reduce or limit their net emissions in line with Australia's current emission reduction targets, with the baseline for Scarborough set based on "international best practice" with an annual decline rate.
- (23) Advised it is currently updating the Pluto GGAP in accordance with Ministerial Statement 1208, which will then be assessed by the Department of Water and Environment Regulation. Noted that the EPA has recommended conditions mandating relevant facilities to comply with air quality standards such as those to be derived from the Murujuga Rock Art Monitoring Strategy (MRAS), which Woodside has committed to implementing.
- Noted that section 6.7.6 of the EP *Routine and Non-Routine Greenhouse Gas Emissions* discusses the Scarborough Project in the context of gas demand in climate related scenarios. A range of pathways which limit global warming to either 1.5°C or 2°C have been published, and it is noted that even in the NZE Scenario, investment in oil and gas development does not cease.
- (22) Advised Woodside's current corporate GHG reduction targets and the sections of the Climate Transition Action Plan which described disclosures and transparency. Woodside is aware of the new Australian Accounting Standards Board (AASB) climate standards, which include additional climate-related disclosures in financial reporting in coming years.
- (23) Advised that the net zero emissions guidelines are not intended to apply as requirements of facility operator's management plans for a specific activity, and that the current Pluto GGAP was developed to meet specific requirements of Ministerial Statement 757 and the (then current) Western Australian GHG Emissions Policy for Major Projects. The current Pluto GGAP was approved by the Minister for Environment in 2021 on advice of the EPA, and is being updated to meet requirements of Ministerial Statement 1208.
- (23) Stated it did not agree with DEA's position regarding greenwashing.
- (24) Reiterated that climate change impacts are the result of global GHG emissions and cannot be attributed to any one project.
 - Gas can play a role in the energy transition.

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- Stated that the proposed petroleum activities were not anticipated to result in the destruction of sites of spiritual significance to First Nations people.
- (25, 26) Noted DEA's comments regarding the need for emissions produced from now on needing to be removed at a later date, and advised DEA that additional information was also available within Woodside's CTAP and 2023 Progress Report regarding decarbonisation technology development and the role of removal credits over time in support of our net zero aspiration (pages 28 and 29).
- (27) Stated it does not agree with DEA's position that the Federal Safeguarding Mechanism is misaligned with the goals of the Paris Agreement and that scope 3 international emissions should be considered against Australia's targets, as they are subject (where relevant) to customer nations' Paris NDCs
- (27) Advised that emissions associated with the consumption of Scarborough gas along with other feed sources in customer markets will be considered under domestic and international emissions control frameworks. Anticipated customers of gas from the Scarborough Project are in countries that have ratified the Paris Agreement. Under the Paris Agreement and global GHG accounting conventions, each country is responsible for accounting for, reporting and reducing emissions that physically occur in its jurisdiction.
- (28) Stated it did not accept the position that if the emissions associated with the project are insignificant, so too are Australia's national abatement efforts.
- (29) Stated it does not agree with DEA's position that ISO net zero guidelines must be applied to the proposed activities. Section 2.3.6 of the EP defines criteria for demonstration of acceptability.
- (3) Stated it does not agree with DEA's position that impacts of the proposed activity must be acceptable to DEA, referring to the purpose of consultation and that acceptability is determined by NOPSEMA under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations.
- (3) Advised the acceptability of the proposed activities will be determined by NOPSEMA pursuant to the OPGGS (Environment) Regulations.
- On 10 July 2024, DEA thanked Woodside for the clarification and for Woodside's complete, considered and prompt response to DEA's request (SI Report, reference 52.10).
- On 8 October 2024, Woodside thanked DEA for its feedback and for engaging in consultation with Woodside on this EP (SI Report, reference 52.11). Woodside advised it would shortly be resubmitting the EP for further assessment and that as part of consultation, it had further assessed the merits of a number of objections and claims raised by DEA. Woodside reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:
 - (6) Advised impacts and risks to species were provided in Section 4.6 of the EP and assessed in sections 6.7 and 6.8. A worst case credible spill scenario, determined to be a vessel collision resulting in diesel spill, was presented in section 6.8.2.
 - (4) Directed DEA to Section 4.1 of the EP for a description of the EMBA including the potential extent and area of a highly unlikely hydrocarbon release/loss of containment from planned and unplanned activities.
 - (8) Advised it had consulted with First Nations groups and representatives to identify cultural values, interests, activities and functions. Potential impacts on Cultural Features and Heritage Values were assessed in Section 6.10 of the EP which determined that the planned activities were unlikely to result in an impact greater than negligible and unplanned activities were assessed to have a residual risk rating of moderate (or lower).
 - (9) Directed DEA to Section 6.7.6 of the EP for a breakdown of emissions sources including Scope 1 and Scope 3 emissions.
 - Advised that the Scarborough FPU had been designed to have no continuous operational flaring but in the unlikely event the flares were extinguished or unavailable, the hydrocarbon gas discharged via the flare system might not initially be combusted during the period required to purge the flare and re-establish flare ignition which may result in the short term low-rate release of methane to atmosphere.
 - Total estimated Scope 3 emissions associated with the project, set out in Table 6-21 of the EP, were approximately 870 MtCO₂-e.

- **(10)** In response to how GHG emissions would fit within a carbon budget and scenarios aligned with the goals of the Paris Agreement and whether the Project could be accommodated within a carbon budget for a 1.5 degree, well below 2 degree or 2 degree warming scenario, Woodside acknowledged climate change is understood to be caused by the net cumulative global concentration of GHG in the atmosphere but stated changes in global atmospheric GHG concentration cannot be attributed to any one project, including Scarborough, as they are the result of global GHG emissions, minus global GHG sinks, accumulated in the atmosphere since the industrial revolution. A portion of GHG emissions associated with the project were anticipated to contribute to a consumption of carbon budgets estimated to achieve the goals of the Paris Agreement.
 - LNG could have a role in the energy transition and in displacing higher carbon intensity fuels, therefore, if the introduction of Scarborough LNG served to reduce GHG emissions elsewhere, then in Woodside's view the full volume of GHG emissions associated with the project were not expected to be additive to global GHG concentration. Woodside confirmed a hypothetical assumption where GHG emissions associated with the project were treated as additive had been considered in the EP and the amount was de minimis.
- **(11)** In response to proposed GHG emissions control measures, including details of any proposals for offsets and CCS, Woodside advised proposed GHG emissions abatement measures were described in Section 6.7.6 of the EP.
 - Work was done with third party consultants and a number of opportunities to reduce direct GHG emissions or reduce direct emissions intensity were identified. These resulted in an estimated 13% reduction of emissions compared to reference case design. Woodside advised it aimed to continue identifying and, where practicable, reducing operate-phase emissions by minor design changes and embedding GHG emissions reductions through operations readiness and planning.
 - Net direct GHG emissions from the Scarborough offshore facility would be managed in accordance with the Federal Safeguard Mechanism (SGM) baseline, aligned with international best practice emissions intensity and declining.
 - Regarding Scope 3 emissions associated with onshore processing of Scarborough gas, onshore processing facilities were subject to GHG emissions management frameworks and approvals including the publicly available Pluto Greenhouse Gas Abatement Program and the North West Shelf Project Extension Proposal Greenhouse Gas Management Plan which include monitoring and management commitments related to GHG emissions.
 - Regarding Scope 3 emissions associated with third party consumption of Scarborough gas, Woodside advised it continued to pursue a range of measures relevant to GHG emissions associated with third party consumption of gas from the Scarborough project but it did not have operational control over third party GHG emissions and measures undertaken by Woodside in this context are therefore appropriate and practicable.
 - Carbon Capture and Storage (CCS) was not currently a feasible abatement measure for the Scarborough FPU as it would require significant additional processing infrastructure not aligned with the overarching minimally attended operational concept.
- **(12)** Advised that cumulative impact from the whole Scarborough Energy Project was assessed in the OPP and subsequent EPs assessed cumulative impact potential between activities as part of the PAP, or between the PAP as a whole and other industry/stakeholder activities. In this EP, cumulative impact assessment was summarised in Section 6.2.1. Risk assessments in Section 6.7.4 and 6.7.5 and Section 7.8.10 included a cumulative impact assessment. While there was spatial overlap between the Trunkline and other third-party assets, it was highly unlikely that concurrent activities with other operators would occur and no cumulative risks or impacts would credibly occur.
- **(13)** Advised that in regard to potential cumulative impacts of upstream and downstream activities including transport of gas via undersea pipeline and onshore processing of gas, there were no credible circumstances where these would occur. For GHG emissions associated with offshore and onshore activities, Section 6.7.6 of the EP detailed emissions from each component of the Scarborough Energy Project operations.
- **(2)** Advised it did not consider that impacts on human health could be attributed to GHG emissions associated with the project.
- **(14)** Regarding DEA's claim that Woodside should provide information explaining whether options had been explored to minimise how DEA and the environment would be affected particularly through control measures and its request for information that demonstrates impacts will be reduced to ALARP and an acceptable level, Woodside advised Section 6 of

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- the EP spanned 300 pages that assessed all risks and impacts associated with the Scarborough project with control measures which managed risks and impacts to acceptable and ALARP levels.
- **(15)** A draft EP was not required as the Operations EP was publicly available on NOPSEMA's website.
 - **(2)** Confirmed that as Woodside did not consider that impacts on human health could be attributed to GHG emissions associated with the project, an independent assessment was not warranted.
 - **(2, 3)** In response to the assertion that DEA had been provided with inadequate information particularly regarding climate and health impacts, Woodside clarified it was required to provide sufficient information under the Regulations and that it had provided previous information to DEA, the comprehensive assessment of all risks and impacts associated with the Scarborough project in Section 6 of the EP, and also the information contained in this letter (which discussed human health in WR 9 in the letter) and climate change (in WR 5 in the letter) and that this was sufficient.
 - **(3, 16)** Confirmed it had given DEA sufficient information, a reasonable period for consultation, and a reasonable opportunity to provide feedback. An updated revision of the EP would shortly be resubmitted for assessment which would contain the updated information in this correspondence.
 - **(18)** In response to DEA's statement that past assessments cannot be relied upon (including NOPSEMA's Statement of Reasons, the OPP, the Pluto LNG GGAP, Woodside's Climate Transition Action Plan and 2023 Progress Report), Woodside advised the EP was publicly available on NOPSEMA's website and that a revision of the EP would shortly be resubmitted for assessment. Information in Attachment A of this letter contained updated information that would be included in the resubmitted EP.
 - **(19)** In response to DEA's note that there were no references to or consideration of health impacts in the Statement of Reasons and this demonstrated that health impacts were not considered by Woodside or NOPSEMA at that time and therefore must be considered now, Woodside advised the publicly available EP included considerations of human health in Section 6.7.7. While the EP included considerations of, and EPOs relating to, human health, Woodside did not consider that impacts on human health could be attributed to GHG emissions associated with the project.
 - **(21)** In response to the claim that climate change impacts considered in the OPP and the Statement of Reasons were no longer relevant, Woodside explained that the OPP is prepared at an early stage and the subsequent EPs include updated information. Each Scarborough EP developed under the OPP contained a table setting out concordance of activities described in the OPP with those in the EP (refer to Appendix J of this EP).
 - **(22)** In response to the statement that the NCD test is no longer relevant, Woodside advised Australia's carbon management framework has continued to develop since the OPP was accepted, and this is now reflected in the EP. Advised the SGM sets baselines on the net GHG emissions of facilities including the Scarborough offshore facility and Woodside's onshore gas processing plants. Through these limits, the Australian Government aims to help achieve Australia's emission reduction targets, as set out in Australia's Nationally Determined Contribution (NDC) to the Paris Agreement of 43% below 2005 levels by 2030 and net zero by 2050. The Scarborough Project was aligned with Australia's plan to meet its NDC as per Section 6.7.6 of the EP.
 - Disagreed with DEA's comments regarding the UN and ISO's guidelines for net zero emissions for corporations and non-state entities that assist with identifying net zero plans that are greenwash. Woodside advised it took great care with its statements in relation to climate change, to ensure they were accurate and not misleading and were tested so that there was a reasonable basis for its statements.
 - **(23)** In terms of the Pluto LNG Facility Greenhouse Gas Abatement Program, the UN and ISO guidelines for net zero emissions were not intended to apply as requirements of facility operator's management plans for a specific activity.
 - **(24)** Regarding comments in relation to the difference in human health outcomes between the different energy and temperature scenarios, Woodside advised it noted in the EP that the AR6--WGII report contained information about projected impacts to health and well-being for the Australasian region however Woodside did not consider that impacts on human health could be attributed to GHG emissions associated with the project.

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- (26) Explained its Climate Transition Action Plan and 2023 Progress Report (CTAP) was not enforceable by NOPSEMA however information and commitments required to meet the OPGGS(E)R were contained in the EP and were enforceable by NOPSEMA.
 - Disagreed with the allegation that Woodside's CTAP constituted greenwashing.
 - Is targeting a reduction of net equity Scope 1 and 2 GHG emissions of 15% by 2025 and 30% by 2030, with an aspiration of net zero by 2050 or sooner. The net equity Scope 1 and 2 emissions reduction targets were relative to a starting base of 6.32 million tonnes of CO₂-e, representative of the gross annual average equity Scope 1 and 2 GHG emissions over 2016-2020. This starting base might be adjusted (up or down) for potential equity changes in producing or sanctioned assets with a final investment decision prior to 2021.
 - The targets mean that net equity Scope 1 and 2 emissions for the 12-month period ending 31 December 2025 were targeted to be 15% lower than the starting base, and that net equity Scope 1 and 2 emissions for the 12-month period ending 31 December 2030 were targeted to be 30% lower than the starting base.
 - Advised that more information could be found at Section 3.3 in the CTAP and in Section 3.5 which described Woodside's approach to Scope 3 emissions.
- Does not agree with DEA's position on its abatement and offset plans:
 - (27) The SGM set baselines on net GHG emissions of facilities emitting over 100 ktCO₂-e per year. Emissions limits will decline gradually. Through these limits, the Government aims to help achieve Australia's emission reduction targets, as per the NDC to the Paris Agreement of 43% below 2005 levels by 2030 and net zero by 2050. Through compliance with this and related other pieces of domestic policy, the project is aligned with Australia's plan to meet its NDC.
 - Avoiding and reducing GHG emissions were Woodside's priority, achieved mainly through pursuing opportunities in the design and operation of Woodside assets that were economically viable when assessed using an internal long-term cost of carbon, currently US\$80/tCO₂e, which exceeded the current market price of Australian Carbon Credit Units (ACCUs).
 - Offsetting emissions allowed Woodside to reduce net emissions, while asset and technology decarbonisation plans matured and were implemented. In the longer term, where emissions proved to be hard-to-abate, residual emissions would be offset using carbon credits in order to achieve emission reduction requirements.
 - Carbon offset arrangements were commercially sensitive or subject to contractual confidentiality and could not be shared.
 - Woodside established a carbon business in 2018 to develop a portfolio of carbon credits and skills and expertise in managing carbon credit integrity.
 - More information on Woodside's approach and management of carbon credits could be found in Section 3.4 of Woodside's CTAP.
- (28) In response to Woodside stating that total emissions from the proposals are an insignificant contribution to the global carbon budget and therefore its proposal's should not be considered unacceptable, Woodside stated it did not agree with DEA's position and that a portion of GHG emissions associated with the project were anticipated to contribute to carbon budgets estimated to achieve the goals of the Paris Agreement.
- (29) Disagreed with DEA's position and further comments on greenwashing and that to effectively tackle greenwashing and ensure a level playing field, non-state actors needed to move from voluntary initiatives to regulated requirements for net zero. Woodside advised:
 - It was aware of the UN High Level Expert Group on Net Zero Integrity Matters – Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions, as well as a range of other forums, public dialogues and reports regarding greenwashing.
 - It had recently participated in the Australian Senate Inquiry into greenwashing. Woodside's appearance transcript was available on the Parliament of Australia's Hansard. As per Woodside's statement at the Inquiry, Woodside took great care with its statements, especially in relation to climate change, so that statements were accurate and not misleading. Woodside also took care that in forward-looking statements, there was a reasonable basis for the statements to be made.

- Disagreed with DEA's position that Woodside must apply ISO's Net Zero Guidelines to its activities as part of any assessment of impacts on climate. DEA stated that Woodside had not provided information to DEA to show that its net zero plans for its activities complied and it was evident that Woodside's abatement activities amounted to dangerous greenwash.
 - Woodside carefully considers and verifies its statements and disclosures and publishes a fact checker on its website.
 - From a corporate perspective, Woodside is targeting a reduction of net equity scope 1 and 2 GHG emissions of 15% by 2025 and 30% by 2030, with an aspiration of net zero by 2050 or sooner.
 - The targets mean that net equity Scope 1 and 2 emissions for the 12-month period ending 31 December 2025 are targeted to be 15% lower than the starting base, and that net equity Scope 1 and 2 emissions for the 12-month period ending 31 December 2030 are targeted to be 30% lower than the starting base.
 - Section 3.3 of Woodside's Climate Transition Action Plan and 2023 Progress Report explains this further. Section 3.5 on Scope 3 emissions and 3.6 on Scope 3 targets give further information.
- On 5 November 2024, DEA thanked Woodside for its detailed and considered response to DEA's concerns on this EP. DEA stated it appreciated Woodside's advice regarding the ongoing capacity feedback throughout the life of the EP and that it would respond accordingly in due course (SI Report, reference 52.12).
- On 5 November 2024, Woodside emailed DEA to confirm that consultation on this EP commenced with DEA on 9 August 2023 nearly 15 months ago (SI Report, reference 52.13). Woodside noted:
 - The volume of consultation correspondence between DEA and Woodside and Woodside's assessment of claims and objections and comprehensive responses.
 - DEA's topics of interest to date have included:
 - **(2, 9, 10, 11, 25, 28)** Climate change and greenhouse gas emissions
 - **(4, 5, 6, 7, 8)** Health and social impacts
 - **(1, 3, 16)** Consultation with relevant persons
- On 6 December 2024, DEA emailed Woodside (and copied NOPSEMA) in response to Woodside's letter dated 9 July 2024 concerning consultation on the Scarborough Operations EP and other EPs associated with the Scarborough gas project and stated (SI Report, reference 52.14):
 - **(30)** DEA rejected any implication that Woodside did not have to consult with DEA because of generalised statements made in Woodside's letter that DEA does not support the development of fossil fuels; this was inappropriate and wholly inconsistent with Woodside's obligations under the Environment Regulations.
 - **(3)** Woodside had not discharged its consultation obligations and had not provided sufficient information to DEA.
 - **(31)** Woodside had suggested DEA was not engaging in good faith and Woodside therefore ought not be required to continue consulting with DEA or providing sufficient information as requested by DEA, and that Woodside had included similar arguments in the Scarborough Operations EP regarding consultation with environmental NGOs.
 - **(1)** The purpose of consultation was not to obtain consent for an activity or to have a relevant person express support but to ensure any relevant persons' input was considered in development of EPs, and the titleholder adopted appropriate measures in response to matters raised regardless of a relevant persons' personal views on the activity.
 - **(3)** Regarding DEA's claim of insufficient information, it stated:
 - NOPSEMA guidelines state that consultation should assist the proponent to understand the external context, define "acceptable levels" of environmental impact and risk, and inform appropriate control measures and should be directed at enabling the avoidance and minimisation of impacts and risks on relevant persons and the environment.
 - There were outstanding requests from DEA for relevant information. For example:

- ❖ **(2)** Woodside's letter to DEA dated 9 July 2024 (Attachment A, item 10), stated that health and wellbeing impacts arising in vulnerable communities impacted by climate change in Australia and elsewhere were addressed in Sections 6.7.6 and 6.7.7 of the Scarborough Operations EP however Section 6.7.7 DEA could not find this information.
 - ❖ **(32)** In DEA's letter to Woodside dated 12 June 2024, DEA referred to the Commonwealth Government's updated 2030 emissions reduction target. Woodside's letter to DEA dated 9 July 2024, referred to the safeguard mechanism, and stated that its targets were "broadly aligned" with the Government's target to reduce emissions by 43% by 2030; however Woodside also stated that its target was only a 30% reduction by 2030, and only applicable to its equity emissions. As titleholder, Woodside was responsible for the entire activity. Woodside had not communicated how emissions as a whole can be consistent with the Government's 2030 target.
 - ❖ **(33)** In the same letter, DEA had also requested information on updating the conditions on Ministerial Statement 757 for the Pluto gas processing facility. Woodside's response dated 9 July 2024 referred to changes to condition 12 in Ministerial Statement 757 however that change to condition 12 was in response to an inquiry directed only to removing the aspects of the conditions which were no longer applicable. In the EPA's report on that inquiry the EPA provided additional advice that the modified conditions were still not adequate to protect the environment and a further substantive review was needed. Consequently, the changes to condition 12 do not address the EPA's concerns that further changes to Ministerial Statement 757 are necessary to protect the environment. Woodside's response made it appear that DEA's concerns arising from the EPA's identification that further action was needed to protect the environment had been addressed, when this is not the case.
 - ❖ **(26)** In the same letter, DEA raised that Woodside's 2023 "Climate Transition Action Plan" was voted against by its own shareholders. Woodside's letter dated 9 July 2024 continued to refer to that Plan; no information was provided regarding shareholders voting against the Plan.
- **(2)** DEA asserted NOPSEMA had to be satisfied that impacts and risks were acceptable in order to accept the EP; the EP did not demonstrate that greenhouse gas emissions on human health were acceptable. DEA requested a response within 2 weeks by 20 December 2024.
 - On 6 December 2024, DEA also emailed NOPSEMA (and copied Woodside) reiterating that the Scarborough Operations EP could not be accepted as impacts and risks of the activity were unacceptable. DEA stated (SI Report, reference 52.15):
 - **(2)** It wished to correct the record on a response Woodside gave to DEA in relation to a matter raised in the consultation process, and to clarify that Woodside's response was misleading and did not provide the information that DEA had requested.
 - **(14)** The EP had to demonstrate that impacts and risks would be reduced to as low as reasonably practicable and of an acceptable level.
 - **(2, 3)** 'Environment' was broadly defined and included 'people and communities', meaning impacts and risks with respect to people and communities were included within the meaning of 'environmental impacts and risks of the activity' and therefore Woodside needed to demonstrate that risks and impacts on human health caused by its activity had been reduced to as low as reasonably practicable and an acceptable level for EP acceptance.
 - **(3, 27, 28)** Woodside had not provided information to DEA demonstrating that the Scarborough Gas Project was consistent with particular net zero scenarios or that it would not have unacceptable impacts on climate.
 - **(32)** In its letter dated 12 June 2024, DEA requested information from Woodside on updating the conditions on Ministerial Statement 757 for the Pluto gas processing facility, given formal advice from the WA EPA that the greenhouse gas conditions on the WA approval for the facility were not adequate to protect the environment. Woodside responded on 9 July 2024 and referred to changes to condition 12 in Ministerial Statement 757 however, that change was in response to an inquiry directed only to removing the aspects of the conditions which were no longer applicable. In the EPA's report on that inquiry, it provided additional advice that the modified conditions were still not adequate to protect the environment and further review was needed. Consequently, changes to condition 12 did not address the EPA's concerns that further changes to Ministerial Statement 757 were necessary to protect the environment. Woodside's response made it appear that DEA's concerns arising from the EPA's identification that further action was needed to protect the environment had been addressed when this was not the case. Therefore, Woodside had not provided the information DEA requested.
 - NOPSEMA ought to be aware that the Minister had not actioned the advice from the WA EPA (i.e. that the conditions on the WA approval were not adequate to protect the environment).

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- **(3)** The EP could not be accepted in its current form and NOPSEMA must refuse or invite resubmission of the EP under reg 33(7)(b) of the Environment Regulations.
- Due to the short timeframe for a decision, DEA requested its letter be considered as a matter of urgency and a response was requested from NOPSEMA by 13 December 2024.
- On 12 December 2024, Woodside emailed DEA to advise it was working on a response to DEA's correspondence dated 6 December 2024 (SI report, reference 52.16).
- On 17 January 2025, Woodside responded to DEA (SI Report, reference 52.17). Woodside:
 - **(30)** Confirmed it had consulted with DEA as a relevant person in accordance with the Regulations and continued to review, assess and respond to DEA correspondence, including correspondence received more than a year past the consultation closing date to prepare the EP. Woodside noted DEA's stated opposition to the oil and gas industry which provides context for consultation on this EP as it demonstrated that DEA and Woodside had differing views and positions. Given these differing positions, it was likely DEA and Woodside would have differing views on Woodside's responses to DEA feedback and Woodside's assessment of the merits of DEA's objections or claims about the adverse impact of the activity to which this EP relates.
 - **(3)** Confirmed it had given DEA sufficient information to allow DEA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities, and provided a summary of consultation with DEA for this EP.
 - **(31)** Disagreed with DEA's assertion that it appeared Woodside was suggesting that Woodside ought not be required to consult with DEA. Woodside confirmed it had consulted with DEA in accordance with Regulation 25, and referred DEA to previous answers which set out a summary of consultation, and reasons why Woodside had provided context for its consultation with DEA.
 - **(1)** Agreed that NOPSEMA had published a guideline on consultation and provided a relevant paragraph from the guideline. Woodside confirmed that in line with the Regulations and the purpose of consultation, Woodside had consulted with DEA, had considered DEA's input in the development of the EP, and had given DEA sufficient information and allowed a reasonable period to allow DEA to make an informed assessment of the possible consequences of the adverse impacts of the activity on its functions, interests or activities.
 - **(3)** Confirmed it had given DEA sufficient information and provided a summary of information provided to DEA regarding this EP. Woodside further confirmed it had reviewed, assessed and responded to items and topics raised by DEA during consultation, and referred to an earlier response which set out reasons why Woodside had provided context for its consultation with DEA, including the differing views and positions of DEA and Woodside on activities, risks and mitigations proposed under this EP. Woodside further:
 - **(2)** Disagreed with DEA's assessment that Woodside has not provided DEA information that considers the health impacts of the activity and confirmed that in addition to information already provided to DEA, Woodside had included text that considered the health impacts of climate change in Section 6.7.6 of the EP. Woodside further noted, however, that since GHG emissions associated with the project constituted a de-minimis contribution to net global GHG concentrations, the potential impacts of climate change cannot be attributed to the activity.
 - **(32)** Disagreed that as operator it was responsible for the entire activity and provided the example that Woodside accounted for its net equity emissions where it was itself a joint venture partner in other assets. Woodside also confirmed the total emissions values included in the EP were calculated for the entire Scarborough project.
 - **(33)** Advised that on 15 October 2024, the WA Government released its updated GHG emissions policy for major projects and will no longer apply conditions relating to GHG emissions where GHG emissions of a major proposal are subject to other regulatory measures including the Federal SGM. Woodside confirmed the Pluto GGAP remained current until the WA Government took steps to amend the relevant Ministerial Statement in accordance with the updated policy.
 - **(26)** Advised the CTAP was put to a non-binding advisory vote and remained the relevant document setting out Woodside's corporate climate related targets.

- (2) Reaffirmed that since the GHG emissions associated with the project constituted a de-minimis contribution to net global GHG concentrations, the potential impacts of climate change cannot be attributed to the activity and noted that while health impacts were set out in the EP, assessment of impacts associated with climate change was not a requirement of the Regulations.
- (2) Confirmed that Woodside had consulted DEA and Woodside had reviewed, assessed and provided responses to DEA, including a response in October 2024 which addressed human health impacts from both air emissions and GHG emissions. Woodside noted the differing views held by DEA and Woodside may prompt DEA to re-raise items that have already been addressed by Woodside.
- (14) Advised the risks assessed in this EP aligned with those in the OPP and noted further information was set out in the Acceptability Statement at the conclusion of each risk assessment in Section 6 of the EP.
- (2,3) Noted the definition of “environment” in Regulation 5 and confirmed that, as far as was relevant, risks and impacts associated with human health were assessed in the EP.
- (3, 27, 28) Confirmed it had consulted DEA as a relevant person for this EP and provided a summary of previous responses which addressed these topics.
- (32) Confirmed Ministerial Statement 757 related to onshore approvals relevant to the Pluto Gas Plant and, as previously advised, so far as they were relevant to the EP, onshore approvals were included in the EP in Section 6.7.6. Woodside provided a summary of the WA State Government’s updated GHG emissions policy which emphasises the Federal SGM as the key piece of legislation that implements the Australian Government’s policy for managing GHG emissions at Australia’s largest industrial facilities. Further, Woodside disagreed with DEA’s assertion that Woodside had not provided the information DEA requested regarding Ministerial Statement 757. Woodside referred DEA to previous responses addressing the topic.
- (3) Confirmed it had consulted DEA in accordance with the Regulations and that consultation requirements under Regulation 25 had been met. Woodside confirmed it had reviewed and assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) DEA is a relevant person and has not been contacted by Woodside in relation to this EP.</p>	<p>(1) Woodside assessment: Woodside identified DEA as a relevant person for this EP and provided consultation information to DEA. Woodside also sent a proactive email addressing DEA’s previous feedback on other Scarborough EPs which was also relevant for this EP. Woodside response: Woodside confirmed DEA had been assessed as a relevant person for this EP. Woodside provided a Consultation Information Sheet to DEA on 9 August 2023 and 30 August 2023, and in the absence of a response, Woodside proactively reviewed, considered and addressed previous feedback provided by DEA on the Scarborough Project in a letter emailed on 5 December 2023. Woodside further confirmed that in accordance with the Regulations and the “purpose of consultation”, Woodside had consulted with DEA, had considered DEA’s input in the development of the EP, and had given DEA sufficient information and allowed a reasonable period to allow DEA to make an informed assessment</p>	<p>(1) Woodside has assessed DEA as a relevant person in Appendix F, Table 1 of the EP in accordance with regulation 25 of the Environment Regulations.</p>

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	of the possible consequences of the activity on its functions, interests or activities.	
<p>(2) Climate change is a health emergency Gas is a health threat Potential impacts on human health of the Project's GHG emissions, air and water pollution, including in the event of a Worst Case Oil Spill.</p>	<p>(2) Woodside assessment: Woodside does not consider that impacts on human health can be attributed to GHG emissions associated with the project. Woodside has conducted an impact assessment of GHG emissions from the Scarborough facility and measures to reduce emissions have been undertaken. The EP demonstrates that environmental impacts and risks will be reduced to ALARP and acceptable levels. Woodside response: Woodside advised it does not consider that impacts on human health can be attributed to GHG emissions associated with the project. It has conducted a full assessment of the impacts and risks of the activities the subject of this EP. This includes, in accordance with the definition of Environment in the OPGGS(E)R 2023 Ecosystems and their constituent parts, including people and communities. The EP demonstrates that environmental impacts and risks will be reduced to ALARP and acceptable levels. The EP assesses potential impacts to people and communities, as part of the ecosystem. An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions have been undertaken. This includes development of a decarbonisation plan for the Pluto Hub.</p>	<p>(2) GHG emissions associated with the activity, and the potential impacts of climate change are described in Section 6.7.6 of the EP, and potential impacts of atmospheric emissions are assessed in Section 6.7.7 of the EP. An Environmental Performance Outcome that considers human health can found in section 6.7.7 of the EP.</p>
<p>(3) Sufficient information not been provided (including climate and health impacts). The EP should not be accepted until regulation 25 of the Environment Regulations is met.</p>	<p>(3) Woodside assessment: Woodside has provided DEA with sufficient information via the Consultation Information Sheet, the Scarborough OPP, the publicly available EP, and direct responses to DEA, to allow it to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Woodside response: Woodside summarised its correspondence with DEA regarding this EP, which started with an initial email including a Consultation Information Sheet on 9 August 2023. The sheet provided a summary of impacts and risks associated with the activity and proposed mitigation and management measures. Woodside extended the consultation period from an initial four-week period to 4.5 months and provided substantive responses to DEA's feedback, claims and objections on 20 December 2023, 14 May 2024 and 9 July 2024. Woodside provided further information to DEA regarding this EP on 7 March 2024, 4 July 2024, 8 October 2024 and 17 January 2025</p>	<p>(3) DEA has been given sufficient information and a reasonable period in which to make an informed assessment of the possible consequences of the activity on its functions, interests or activities, as described in Section 5.4 of the EP.</p>

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	<p>which referred to sections of the publicly available EP where information relating to DEA’s topics of interest (climate and health) can be found. Woodside also advised DEA that it would continue receiving feedback throughout the life of the EP, and that Woodside was available to meet with DEA if desired.</p>	
<p>(4) DEA stated it required further information on:</p> <ul style="list-style-type: none"> A description of the EMBA, including the potential extent and area of a hydrocarbon release / loss of containment from planned and unplanned activities. 	<p>(4) Woodside assessment: DEA has been provided with sufficient information including on the EMBA. A description of the existing environment is provided in Section 4 of the EP and in the Consultation Information Sheet. Woodside response: Woodside advised that in accordance with the Environment Regulations, Section 4.1 of the EP describes the EMBA with the extent shown in Figure 4-1. This is also depicted in the Information Sheet provided to DEA in August 2023.</p>	<p>(4) A description of the existing environment is provided in Section 4 of the EP.</p>
<p>(5)</p> <ul style="list-style-type: none"> The potential environmental impacts and risks of the activities, including in relation to a Worst Case Oil Spill. 	<p>(5) Woodside assessment: Woodside has provided sufficient information in relation to oil spill in the Consultation Information Sheet Woodside response: The potential environmental impacts and risks of activities, including from a worst-case credible loss of containment event, have been described in the publicly available EP and in the Consultation Information Sheet.</p>	<p>(5) An assessment of impacts and risks from planned and unplanned activities is described in Section 6 of the EP.</p>
<p>(6)</p> <ul style="list-style-type: none"> The potential impacts and risks on any species listed under the <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>, including in relation to a Worst-Case Oil Spill. 	<p>(6) Woodside assessment: The EP includes an evaluation of potential impacts and risks on species listed under the <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> including unplanned impacts resulting from a highly unlikely hydrocarbon spill as a result of a vessel collision. Woodside response: Woodside advised the EP includes an evaluation of potential impacts to EPBC Act listed species including unplanned impacts resulting from a highly unlikely hydrocarbon spill as a result of a vessel collision. The impact assessment provides a suite of controls that will be implemented during the activity to avoid or minimise potential impacts. Information on species relevant to the PAP is provided in various places in the EP.</p>	<p>(6) Sections 4.5 and 4.6 consider species, habitats and communities in the EMBA and Operational Areas. Impact to these species is assessed in Sections 6.7 and 6.8 of the EP. Worst case credible spill scenario impact assessment is in Section 6.8.2 of the EP. Section 6.9 considers the assessed impacts in the context of Principles of ESD, MNES and Recovery / Threat Abatement Plans.</p>
<p>(7)</p>	<p>(7)</p>	<p>(7) Not required.</p>

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<ul style="list-style-type: none"> The potential impacts and risks on the Scott Reef Marine Park, and any other significant marine ecosystem, including in relation to a Worst Case Oil Spill. 	<p>Woodside assessment: Woodside does not consider there will be any credible impact on Scott Reef Marine Park as a result of the activities the subject of this EP.</p> <p>Woodside response: Woodside advised DEA it did not consider there would be any credible impact on Scott Reef Marine Park as a result of the PAP described in the EP.</p>	
<p>(8)</p> <ul style="list-style-type: none"> The potential impacts and risks in relation to Sea Country and other areas of marine or terrestrial Aboriginal cultural significance and/or heritage, including in relation to a Worse Case Oil Spill. 	<p>(8)</p> <p>Woodside assessment: Woodside has consulted with Traditional Owners and their representative groups in the development of the Scarborough EPs, including this one, and has assessed potential impacts in the EP.</p> <p>Woodside response: Woodside advised it has consulted with Traditional Custodian groups in development of the Scarborough EPs including this EP to identify any cultural values, interests, activities and functions as well as respond to any claims and feedback prior to submission.</p> <p>The impact and risk assessment for cultural features and heritage values for this EP determined that the planned activities were unlikely to result in an impact greater than negligible and unplanned activities to have a residual risk rating of moderate (or lower).</p>	<p>(8)</p> <p>Woodside recognises Traditional Custodians' connection to Sea Country in Section 4.9 of the EP. Potential impacts on Cultural Features and Heritage Values are assessed in Section 6.10 of the EP.</p>
<p>(9)</p> <ul style="list-style-type: none"> The total GHG emissions associated with the activities and where these GHG emissions will occur, including any flaring/venting of GHG emissions both offshore and onshore. 	<p>(9)</p> <p>Woodside assessment: Woodside has provided DEA with an overview of GHG emissions relevant to the activity, including sources and volumes, including from flaring, which are presented and assessed in the EP.</p> <p>Woodside response: Woodside advised GHG emissions relevant to the activity, including sources and volumes, were presented and assessed over 11 pages in the EP and include Scope 1 and Scope 3 emissions.</p> <p>The EP assesses both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. An impact assessment of GHG emissions from the Scarborough facility and mitigation management controls to reduce GHG emissions has been undertaken.</p> <p>Woodside flares hydrocarbons as required, to maintain the safe and efficient operation of facilities. Flaring is minimised where safe and practicable to do so, in line with facility flare targets set annually.</p> <p>Total estimated Scope 3 emissions associated with the project are estimated to be 870 MtCO₂-e.</p>	<p>(9)</p> <p>GHG emissions and indirect emissions associated with the activity are considered in Section 6.7.6 and 6.7.7 of the EP.</p> <p>Table 6-22 of the EP sets out total estimated Scope 3 emissions associated with the project.</p>

<p>(10)</p> <ul style="list-style-type: none"> The potential impacts and risks of the activities' GHG emissions in relation to global warming and climate change, including whether and how those emissions would fit within a carbon budget and emissions reduction scenarios aligned with the temperature goals of the Paris Agreement, and specifically whether the Project can be accommodated within a carbon budget for a 1.5 degree, well below 2 degree, or 2 degree warming scenario. 	<p>(10)</p> <p>Woodside assessment: Woodside acknowledges climate change is understood to be caused by the net (cumulative) global concentration of GHG in the atmosphere however, changes in global atmospheric GHG concentration cannot be attributed to any one project.</p> <p>Woodside response: Woodside advised it acknowledged climate change is understood to be caused by the net (cumulative) global concentration of GHG in the atmosphere however, changes in global atmospheric GHG concentration cannot be attributed to any one project.</p> <p>A portion of GHG emissions associated with the project were anticipated to contribute to carbon budgets estimated to achieve the goals of the Paris Agreement. Woodside advised its view was that LNG could have a role in the energy transition and in displacing higher carbon intensity fuels, therefore, if the introduction of Scarborough LNG served to reduce GHG emissions elsewhere, then in Woodside's view the full volume of GHG emissions associated with the project were not expected to be additive to global GHG concentration. Regardless, to facilitate a comparison against carbon budgets, Woodside confirmed a hypothetical assumption where GHG emissions associated with the project were treated as additive had been considered in the EP. Based on this, the estimated Scarborough GHG emissions over the expected life of the project may contribute approximately 0.3% to the budget anticipated to limit global warming to below 1.5°C, or less than 0.1% to the budget anticipated to limit global warming to below 2°C. This amount is de minimis.</p>	<p>(10)</p> <p>GHG emissions in relation to climate related scenarios are assessed in Section 6.7.6 of the EP.</p>
<p>(11)</p> <ul style="list-style-type: none"> The proposed GHG emissions control measures, including details of any proposed offsets and any proposal for carbon capture and storage (CCS). 	<p>(11)</p> <p>Woodside assessment: Woodside has considered GHG abatement and control measures and will manage net direct GHG emissions from the Scarborough offshore facility in accordance with the Federal Safeguard Mechanism (SGM) baseline. Scope 3 emissions from onshore processing facilities are subject to management frameworks and regulatory approvals. CCS is not currently a feasible abatement measure for the Scarborough FPU.</p> <p>Woodside response: Woodside advised proposed GHG emissions abatement measures were described in the EP and opportunities to reduce direct GHG emissions had been found and Woodside would continue to identify and reduce emissions where practicable.</p>	<p>(11)</p> <p>GHG emissions control measures associated with the activity are considered in Section 6.7.6 of the EP. Woodside's approach to Climate Strategy and carbon offsets is described in Section 6.7.6 of the EP. Based on feedback, Woodside has included assessment of CCS in Section 6.7.6 of the EP.</p>

	<p>Net direct GHG emissions from the Scarborough offshore facility would be managed in accordance with the SGM baseline.</p> <p>For Scope 3 emissions associated with onshore processing of gas, onshore processing facilities are subject to the publicly available Greenhouse Gas Abatement Program and the North West Shelf Project Extension Proposal Greenhouse Gas Management Plan.</p> <p>For Scope 3 emissions associated with third party consumption of Scarborough gas, Woodside pursues a range of management and mitigation measures but did not have control over third party GHG emissions.</p> <p>CCS was not feasible for the Scarborough FPU.</p>	
<p>(12)</p> <ul style="list-style-type: none"> The potential cumulative impacts of the above listed impacts or risks considered in the context of existing and proposed developments and/or activities in the vicinity of the area that may be affected by the activities and/or the Project, including in relation to a Worst Case Oil Spill. 	<p>(12)</p> <p>Woodside assessment: Cumulative impact from the Scarborough Energy Project is assessed and approved in the OPP. Subsequent EPs including this EP have assessed cumulative impact potential between activities as part of the PAP, or between the PAP as a whole and other industry / stakeholder activities.</p> <p>Woodside response: Woodside advised cumulative impact is assessed and approved in the Scarborough OPP and subsequent EPs have assessed cumulative impact potential between activities and other industry / stakeholder activities. This EP identified that cumulative impact from concurrent operations is possible in relation to acoustic emissions and physical presence (unplanned interactions with marine fauna).</p> <p>With respect to cumulative impact from the PAP and other facilities or industry, while there is spatial overlap between the Trunkline and other third-party assets, no cumulative risks or impacts will credibly occur.</p>	<p>(12)</p> <p>Concurrent operations and cumulative impacts are assessed in section 6.2.1 of the EP.</p> <p>Risk assessments in Section 6.7.4, 6.7.5 'Routine Acoustic Emissions' and Section 6.8.10 'Interactions with Marine Fauna' of the EP include a cumulative impact assessment.</p>
<p>(13)</p> <ul style="list-style-type: none"> The potential cumulative impacts of upstream and downstream activities associated with the Project as a whole, including transport of gas via undersea pipeline and onshore processing of gas. 	<p>(13)</p> <p>Woodside assessment: Woodside has considered cumulative impacts of upstream and downstream activities.</p> <p>Woodside response: Woodside advised with respect to cumulative impacts between offshore and onshore activities, there are no credible circumstances that these would occur. GHG emissions associated with offshore and onshore activities are considered in the EP which details emissions from each component of the Scarborough Energy Project operations.</p>	<p>(13)</p> <p>GHG emissions associated with offshore and onshore activities are described in section 6.7.6 of the EP.</p>
(14)	(14)	(14)

<ul style="list-style-type: none"> Proponent should provide information on whether options have been explored for minimising the degree to which DEA and the environment may be affected by the activities, particularly through control measures. DEA also requested information that: <ul style="list-style-type: none"> demonstrates impacts and risk would be reduced to ALARP and an acceptable level; details of the environmental performance outcomes, environmental performance standards and measurement criteria to be adopted in relation to the activities; details of the implementation strategy and monitoring/recording and reporting arrangements for environmental impacts and risks. 	<p>Woodside assessment: The EP comprehensively assesses all risks and impacts associated with the Scarborough project and control measures manage risks and impacts to ALARP and acceptable levels.</p> <p>Woodside response: Woodside advised the EP contains a comprehensive assessment of risks and impacts associated with the Scarborough project with control measures which manage risks and impacts associated with the project to ALARP and acceptable levels. This section is over 300 pages. DEA has been given sufficient information and a reasonable period in which to make an informed assessment of the possible consequences of the activity on its functions, interests or activities, as described in Section 5.4 of the EP.</p>	<p>Section 6 of the EP assesses all risks and impacts associated with the Scarborough project with control measures which manage risks and impacts to ALARP and acceptable levels.</p>
<p>(15)</p> <ul style="list-style-type: none"> A copy of any EP draft to assist in an informed decision. 	<p>(15)</p> <p>Woodside assessment: Woodside does not provide EP drafts during EP development. The Consultation Information Sheet provided to DEA on 9 August 2023 provided sufficient information. The Scarborough Operations EP is now publicly available on NOPSEMA's website.</p> <p>Woodside response: The Consultation Information Sheet provided to DEA on 9 August 2023 provided a summary of the PAP, the receiving environment, a summary of impacts and risks and mitigation and management measures.</p> <p>Woodside does not provide EP drafts during EP development or under assessment due to the potential for content to change. Also, restricting access to publicly available versions enables stakeholders to access and comment on the same information, removing potential for confusion.</p> <p>Since the EP has been published on NOPSEMA's website following completeness check, Woodside provided correspondence to DEA referring to sections of the EP containing information relevant to their interests.</p>	<p>(15)</p> <p>Not required.</p>
<p>(16)</p>	<p>(16)</p>	<p>(16)</p> <p>Not required</p>

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<p>Insufficient time for consultation; consultation time should be based on complexity and volume of information provided and the 30 day consultation period is likely insufficient.</p> <p>Consultation should be two-way and DEA required feedback on its comments.</p>	<p>Woodside assessment: Woodside has provided DEA with sufficient time to allow DEA to make an informed assessment of the possible consequences of the activity on DEA's functions, interests or activities and has discharged its obligations for consultation under regulation 25 of the Environment Regulations for this EP.</p> <p>Woodside response: Woodside has allowed a reasonable period for the consultation and has given DEA a reasonable opportunity to provide feedback. Woodside has also responded to DEA's feedback in detail.</p>	
<p>(17) Due to the limited information provided by Woodside, and DEA's voluntary capacity, the information in DEA's consultation responses should not be taken to reflect its complete position or complete submissions on this EP. DEA reserves the right to make further submissions as capacity and information become available.</p>	<p>(17) Woodside assessment: Woodside has provided DEA with sufficient information. Woodside does not accept DEA's comments regarding capacity as its members appear to have had at their disposal a significant amount of information and DEA members also attended Woodside's AGM.</p> <p>Woodside response: Based on DEA's website, its members cite a significant volume of studies, scientific research and videos which demonstrate that DEA has access to information, and capacity and understanding of that information. Several DEA members also attended Woodside's 2024 Annual General Meeting</p>	<p>(17) Not required</p>
<p>(18) Past assessments cannot be relied upon:</p> <ol style="list-style-type: none"> a. NOPSEMA's Acceptance of Scarborough OPP – Statement of Reasons b. OPP Formal Consultation Report c. Pluto LNG Facility Greenhouse Gas Abatement Program d. Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report. 	<p>(18) Woodside assessment: Past assessments and in-force approvals can still be relied upon for this EP.</p> <p>Woodside response: Woodside advised the Operations EP was publicly available on NOPSEMA's website and that an updated revision of the EP would be resubmitted shortly for assessment.</p>	<p>(18) Not required</p>
<p>(19) No references to or consideration of health impacts in the Acceptance of Scarborough OPP – Statement of Reasons, demonstrating that health impacts were not considered by Woodside or NOPSEMA at the time and must be considered now.</p>	<p>(19) Woodside assessment: While the EP includes considerations of, and an EPO relating to, human health, Woodside does not consider that impacts on human health can be attributed to GHG emissions associated with the project.</p> <p>Woodside response: Woodside advised that the Operations EP noted that AR6--WGII contains information about projected impacts to health and well-being for the Australasian region and the EP includes considerations of, and</p>	<p>(19) Potential impacts to people and communities are considered in Section 6.7.6 and 6.7.7 of the EP.</p>

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	an EPO relating to, human health however Woodside does not consider that impacts on human health can be attributed to GHG emissions associated with the project.	
(20) The formal Consultation Report on the Scarborough OPP did not appear to be publicly available and the link provided to this document in Woodside's previous response was incorrect.	(20) Woodside assessment: The link provided in Woodside's May 2024 correspondence was correct. Woodside response: Woodside advised the link provided in its May 2024 correspondence was correct. The link provided was to all of the publicly available Appendices for the OPP, and referred DEA to Appendix M for the Scarborough OPP Formal Consultation Report.	(20) Not required
(21) The consideration of climate change impacts outlined in the OPP including the Acceptance of Scarborough Offshore Project Proposal – Statement of Reasons are no longer relevant because the Statement Of Reasons shows that the OPP was assessed against outdated criteria which are no longer accurate or relevant to the current assessment. Evidence of this is provided below	(21) Woodside assessment: Criteria in the Scarborough OPP remains in force and is current. Woodside response: Woodside advised the OPP was based on information current at the time it was accepted in March 2020 and subsequent EPs might contain more granular and updated information and modifications. The Operations EP contained a table setting out concordance of activities described in the OPP with those in the EP.	(21) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6. Appendix J of the EP contains a table setting out concordance of activities described in the OPP with those in the EP.
(22) The Statement of Reasons states "The OPP concludes that the project will not compromise Australia's ability to meet its NDC to reduce emissions by 26-28% below 2005 levels by 2030." This test is no longer relevant as Australia's NDC has been updated and strengthened considerably, and now required a significantly greater abatement effort. The updated NDC for Australia ³ is to reduce emissions by 43% below 2005 levels by 2030, which is a 15 percentage point increase in Australia's target since (<i>missing wording</i>)	(22) Woodside assessment: Australia's carbon management framework has evolved since the OPP was accepted and this is reflected in the EP. Woodside response: Woodside advised Australia's carbon management framework had continued to develop since the OPP was accepted, which was reflected in the EP. The SGM implemented the Australian Government's policy for reducing emissions at Australian industrial facilities emitting over 100 ktCO ₂ e per year including the Scarborough offshore facility and Woodside's onshore gas processing plants. The SGM set baselines on the facilities' net GHG emissions which will gradually decline. Through these limits, the Australian Government aims to help achieve Australia's emission reduction targets, as set out in Australia's NDC to the Paris Agreement of 43% below 2005 levels by 2030 and net zero by 2050. Through compliance with this and related other pieces of domestic policy, the Scarborough project is aligned with Australia's plan to meet its NDC.	(22) Further detail on the Federal SGM is described in Section 6.7.6 of the EP, <i>Management and Abatement</i> .
(23)	(23)	(23)

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<p>As such, the Pluto LNG Facility Greenhouse Gas Abatement Program can be considered to be an example of greenwash according to these standards, and therefore cannot be relied upon by regulators in the assessment of the acceptability of the climate impacts of the proposed projects.</p>	<p>Woodside assessment: Woodside does not agree with DEA’s position regarding greenwash. The Pluto LNG Facility GGAP is required to meet the specific requirements of Ministerial Statements 757 and now 1208.</p> <p>Woodside response: Woodside advised it was aware of the UN and ISO Net Zero Guidelines as well as other forums, public dialogues and reports regarding greenwashing. Woodside stated it took care with its statements, especially in relation to climate change, to ensure they were accurate and not misleading.</p> <p>Woodside disagrees that the Pluto LNG Facility Greenhouse Gas Abatement Program is an example of greenwash as the guidelines mentioned are not intended to apply as requirements of facility operator’s management plans for a specific activity.</p>	<p>The Pluto GGAP is described in Section 6.7.6 of the EP.</p>
<p>(24)</p> <p>As well as climate change harming human health:</p> <ul style="list-style-type: none"> Oil and gas developments result in direct health harms from pollution including cancer, reproductive and human growth harms, disease and deaths etc; The destruction of sites of spiritual significance to First Nations people by fossil fuel developments compounds psychosocial harms. 	<p>(24)</p> <p>Woodside assessment: Climate change impacts cannot be attributed to any one project and proposed activities are not anticipated to result in the destruction of sites of spiritual significance to First Nations people.</p> <p>Woodside response: Woodside advised climate change impacts are the result of global GHG emissions and cannot be attributed to any one project and that gas had a role in the energy transition.</p> <p>The proposed petroleum activities for this EP were not anticipated to result in the destruction of sites of spiritual significance to First Nations people.</p>	<p>(24)</p> <p>A contextual evaluation of climate change impacts is set out in EP Section 6.7.6.</p> <p>Potential impacts of atmospheric emissions are assessed in Section 6.7.7 of the EP.</p> <p>Potential impacts on cultural features and heritage values are assessed in Section 6.10 of the EP.</p>
<p>(25)</p> <p>Any emissions produced from now will need to be removed from the atmosphere at a later date. At a minimum:</p> <ul style="list-style-type: none"> Woodside’s assessment of climate impacts associated with these projects should consider impact on global emissions over at least a 100 year period and preferably longer; Woodside must show how it will cause carbon drawdown (CDR) to remove all emissions that will be produced by the projects from the atmosphere in the long term, and enforceable 	<p>(25)</p> <p>Woodside assessment: Woodside acknowledges DEA’s comments regarding the need for emissions produced from now to be removed at a later date.</p> <p>Woodside response: Woodside advised it noted comments regarding the need for emissions produced now to be removed at a later date and advised that additional information was available in Woodside’s Climate Transition Action Plan and 2023 Progress Report regarding decarbonisation technology development and the role of removal credits over time in support of its net zero aspiration.</p>	<p>(25)</p> <p>The impact of GHG emissions associated with the project on net global GHG concentrations, and carbon budgets estimated to achieve the goals of the Paris Agreement is assessed in Section 6.7.7 of the EP. It is acknowledged in this section that global strategies to achieve the goals of the Paris Agreement may include measures such as CDR, however removal of GHG from the atmosphere at a later date is outside the scope of the PAP.</p>

<p>measures must be imposed by the regulator to ensure this takes place.</p>		
<p>(26) The CTAP and 2023 Progress Report (and climate plans in general) cannot be relied upon as a basis for assessment of the acceptability of carbon pollution or climate change impacts of the proposed activities because:</p> <ul style="list-style-type: none"> • The plans and targets are unenforceable; • The Report amounts to greenwash because it does not address numerous requirements of the UN standards and ISO Guidelines for Net Zero; <p>The plans have repeatedly been rejected by Woodside's shareholders.</p>	<p>(26) Woodside assessment: Woodside does not agree with DEA's position regarding greenwash. Woodside's Climate Transition Action Plan and 2023 Progress Report provides business context and internal plans and targets – it is not enforceable by NOPSEMA. Commitments required to meet the OPGGS(E)R are contained in the Scarborough Operations EP - enforceable by NOPSEMA. Woodside response: Woodside advised its Climate Transition Action Plan and 2023 Progress Report provides business context and internal plans and targets and is not enforceable by NOPSEMA. Its commitments required to meet the OPGGS(E)R are contained in the Scarborough Operations EP, and these are enforceable by NOPSEMA. Woodside does not agree with DEA's position regarding greenwash. Woodside is targeting a reduction of net equity Scope 1 and 2 GHG emissions of 15% by 2025 and 30% by 2030, with an aspiration of net zero by 2050 or sooner; referred DEA to section 3.3 of Woodside's CTAP and 2023 Progress Report; does not agree with DEA's claim regarding greenwash.</p>	<p>(26) Not required.</p>
<p>(27) Reliance on the Federal SGM as a means to align with Australian national emissions goals is inappropriate because of:</p> <ul style="list-style-type: none"> • Australia's national emission reduction goals and legislated carbon emissions budget are not aligned with the temperature goals of the Paris Agreement; • Ongoing project emissions beyond 2030 reduction targets; • Emissions that will result from these projects in other countries outside of Australia; 	<p>(27) Woodside assessment: Woodside does not agree with DEA's position that its plans for meeting abatement requirements rely almost entirely on uncertain and low-integrity offsets which Woodside has not identified or disclosed. Woodside response: Woodside advised it did not agree with DEA's position. The SGM implements the Australian Government's policy for reducing emissions at Australian industrial facilities emitting over 100 ktCO₂-e per year, which includes the Scarborough offshore facility and Woodside's onshore gas processing plants. The SGM sets baselines on the net GHG emissions of these facilities. These emissions limits will decline gradually. Through these limits, the Australian Government aims to help achieve Australia's emission reduction targets, as set out in Australia's NDC to the Paris Agreement of 43% below 2005 levels by 2030 and net zero by 2050.</p>	<p>(27) Further detail on the Federal SGM is described in Section 6.7.6 of the EP, <i>Management and Abatement</i>.</p>

<ul style="list-style-type: none"> Potential use of low integrity undisclosed offsets. 	<p>Through compliance with this and related other pieces of domestic policy, the project is aligned with Australia's plan to meet its NDC.</p> <p>Avoiding and reducing GHG emissions are Woodside's priority. Offsetting emissions allows Woodside to reduce net emissions, while asset and technology decarbonisation plans are matured. Where emissions prove to be hard-to-abate, residual emissions would be offset using carbon credits.</p> <p>Carbon offset arrangements are commercially sensitive or subject to contractual confidentiality and cannot be shared.</p>	
<p>(28)</p> <p>Woodside has stated that total emissions from the proposals are an insignificant contribution to the global carbon budget and therefore should not be considered unacceptable.</p> <p>If this is true, then Australia's entire national abatement efforts to 2030, including abatement from all sources, is also insignificant. DEA does not accept this argument.</p>	<p>(28)</p> <p>Woodside's assessment: Woodside does not agree with DEA's comments as while Woodside acknowledges climate change is understood to be caused by the net (cumulative) global concentration of GHG in the atmosphere, changes in global atmospheric GHG concentration cannot be attributed to any one project.</p> <p>Woodside's response: Woodside advised a portion of GHG emissions associated with the project were anticipated to contribute to carbon budgets estimated to achieve the goals of the Paris Agreement.</p> <p>Woodside advised its view was that LNG could have a role in the energy transition and in displacing higher carbon intensity fuels, therefore, if the introduction of Scarborough LNG served to reduce GHG emissions elsewhere, then in Woodside's view the full volume of GHG emissions associated with the project were not expected to be additive to global GHG concentration. Regardless, to facilitate a comparison against carbon budgets, Woodside confirmed a hypothetical assumption where GHG emissions associated with the project were treated as additive had been considered in the EP. Based on this, the estimated Scarborough GHG emissions over the expected life of the project may contribute approximately 0.3% to the budget anticipated to limit global warming to below 1.5°C, or less than 0.1% to the budget anticipated to limit global warming to below 2°C. This amount is de minimis.</p>	<p>(28)</p> <p>Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.</p>
<p>(29)</p> <p>The UN High level expert group on Net Zero Integrity Matters includes examples of what non-state actors must include in net zero policies and pledges to be considered genuine efforts and not greenwash:</p>	<p>(29)</p> <p>Woodside assessment: Woodside does not agree with DEA's statements regarding greenwashing. Woodside is aware of the UN High Level Expert Group's views on net zero integrity and carefully considers its statements and disclosures regarding climate change.</p>	<p>(29)</p> <p>Not required.</p>

<ul style="list-style-type: none"> • Non-state actors cannot claim to be net zero while continuing to build or invest in new fossil fuel supply. • Non-state actors must prioritise urgent and deep reduction of emissions across their value chain. • Non-state actors cannot buy cheap credits that often lack integrity instead of immediately cutting their own emissions across their value chain. • Non-state actors cannot focus on reducing the intensity of their emissions rather than their absolute emissions or tackling only a part of their emissions rather than their full value chain (scopes 1, 2 and 3). • Non-state actors require not only long-term pledges but also short-term science-based targets as well as detailed transition plans showing immediate emissions reductions and capital expenditures aligned with these targets and their net zero pathway. <p>To tackle greenwashing and ensure a level playing field, non-state actors need to move from voluntary initiatives to regulated requirements for net zero.</p> <p>Woodside has not provided information to DEA to show that its net zero plans for the proposed operations comply with the requirements. Woodside's abatement activities and net zero plans amount to dangerous greenwash.</p>	<p>Woodside response: Woodside acknowledged DEA's comments but does not agree with DEA's position.</p> <p>Woodside is aware of the UN High Level Expert Group as well as a range of other forums, public dialogues and reports regarding greenwashing. Woodside recently participated in the Australian Senate Inquiry into Greenwashing and takes care with its statements, especially in relation to climate change, to ensure their accuracy.</p> <p>From a corporate perspective, Woodside is targeting a reduction of net equity scope 1 and 2 GHG emissions of 15% by 2025 and 30% by 2030, with an aspiration of net zero by 2050 or sooner.</p> <p>The targets mean that net equity Scope 1 and 2 emissions for the 12-month period ending 31 December 2025 are targeted to be 15% lower than the starting base, and that net equity Scope 1 and 2 emissions for the 12-month period ending 31 December 2030 are targeted to be 30% lower than the starting base.</p> <p>Woodside's Climate Transition Action Plan and 2023 Progress Report provides context and information on its net zero plans.</p>	
<p>(30)</p> <p>Rejected any implication that Woodside did not have to consult with DEA because DEA and other environmental NGOs did not support the development of fossil fuels.</p>	<p>(30)</p> <p>Woodside assessment: Woodside disagrees with DEA's assertion and confirms it has consulted DEA as a relevant person. Woodside considers that DEA's stated opposition to the oil and gas industry provides context for consultation on this EP and confirms that DEA and Woodside have differing views and positions on matters related to environment approvals.</p>	<p>(30)</p> <p>Not required.</p>

	<p>Woodside response: Woodside confirmed it had consulted DEA as a relevant person in accordance with the Environment Regulations and continued to review, assess and respond to DEA correspondence. Woodside noted that DEA's position on the oil and gas industry and other topics like climate change, the role of LNG, the energy transition and health impacts provided context for consultation as it was likely that DEA and Woodside would have differing views on Woodside's responses to DEA's feedback and Woodside's assessment of the merit of DEA's objections and claims. Woodside noted it may be the case that, because of this, DEA may have re-raised items that had already been reviewed, assessed and addressed by Woodside.</p>	
<p>(31) Claims Woodside is suggesting DEA is not engaging in good faith.</p>	<p>(31) Woodside assessment: Woodside has consulted DEA as a relevant person in accordance with Regulation 25. Woodside has provided context to the consultation, including because it shows the differing views and positions of DEA and Woodside on activities, risks and mitigations proposed under this EP and why DEA likely continues to re-raise topics previously addressed by Woodside. Woodside response: Woodside confirmed it had consulted DEA as a relevant person in accordance with Regulation 25 and provided examples of Woodside's consultation with DEA for this EP.</p>	<p>(31) Not required.</p>
<p>(32) As titleholder, Woodside is responsible for the entire activity.</p>	<p>(32) Woodside assessment: Operators are not solely responsible for emissions associated with an activity. Woodside response: Woodside disagreed that as operator, it was responsible for the entire activity and provided the example that Woodside accounted for its net equity emissions where it was itself a joint venture participant in other assets.</p>	<p>(32) Not required.</p>
<p>(33) More information requested on EPA's concerns that further changes required to Ministerial Statement 757.</p>	<p>(33) Woodside assessment: Woodside has given DEA sufficient information on the state's oversight of GHG emissions. Further changes are anticipated to Ministerial Statement 757 due to the WA Government's updated GHG emissions policy. Woodside response: In addition to previous responses to DEA on this topic, Woodside provided an update that the WA Government had released its updated GHG emissions policy and included a summary of the policy.</p>	<p>(33) Ministerial Statement 757 and changes to the WA Government's GHG emissions policy are discussed in Section 6.7.6 of the EP under the subheading <i>Management and Abatement for Onshore Processing (Indirect) GHG Emissions</i>.</p>

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	Woodside confirmed the Pluto GGAP remained current and the condition would remain in place until the WA Government took steps to amend the relevant Ministerial Statement in accordance with the updated policy.	
Woodside has addressed objections and claims as noted above.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on DEA's functions, interests or activities. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DEA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DEA sufficient information to make an informed assessment of the possible consequences of the activity on DEA's functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to DEA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity and receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure: Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the initial EP consultation information provided to DEA, Woodside provided DEA with further detailed information which addressed DEA's specific feedback, objections or claims (see information given on 5 December 2023, 20 December 2023, 7 March 2024, 14 May 2024, 4 July 2024, 9 July 2024, 8 October 2024 and 17 January 2025).
- On 19 December 2023, DEA, WA claimed it had not been contacted or provided with sufficient information. Woodside disagrees with this assertion because it sent consultation emails and information for this EP to the same DEA email address it used for previous Scarborough EP consultation on which DEA had previously provided feedback via the same email address.
- Woodside proactively reminded DEA it could provide feedback on this EP and given DEA's interest in climate-related matters, provided DEA with information on Woodside's Climate Transition Action Plan and 2023 Progress Report (email of 7 March 2024).
- Woodside again proactively reminded DEA it could provide feedback on this EP and proactively provided DEA with a link to the full EP when it was published on NOPSEMA's website (email of 4 July 2024). Woodside also provided specific references within the EP that addresses areas of interest identified by DEA.

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- On 8 October 2024, Woodside emailed DEA addressing DEA's objections and claims and confirmed it would shortly resubmit the EP for assessment and reminded DEA that Woodside remained open to receiving feedback.
- Excluding the Consultation Information Sheet and publicly available EP, Woodside has provided DEA with volumes of additional information and responses addressing DEA's topics of interest, feedback, claims and objections in relation to this EP.
- On 19 December 2023, 24 April 2024 and 12 June 2024, DEA claimed it had not been provided with sufficient information as the information in the Consultation Information Sheet was too brief and high-level. Woodside disagrees with this assertion because DEA responded to Woodside's Consultation Information Sheet with questions and concerns regarding the specific activity, indicating the information provided was sufficient to enable DEA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- Further, DEA's feedback on the Scarborough Project, including this EP, has shown a high level of technical awareness, demonstrating a comprehensive and detailed understanding of the potential environmental risks and impacts. DEA shared its feedback, claims and objections based on its understanding of the project, which Woodside assessed and responded to as demonstrated in the summary of consultation above.

Reasonable Period

Woodside has allowed DEA a reasonable period for consultation in the preparation of this EP because:

- A consultation process and period were advised in the initial correspondence to DEA including when consultation would close for purposes of preparing the EP (email dated 9 August 2023). This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside ultimately allowed DEA over 4.5-months for consultation in preparation of the EP.
- During the consultation period and following it, Woodside sent follow-up emails to DEA to remind DEA of consultation and timeframes on numerous occasions (30 August 2023, 5 December 2023, 20 December 2023, 7 March 2024, 14 May 2024, 4 July 2024, 9 July 2024, 8 October 2024, 17 January 2025).
- In this context, Woodside allowed DEA a reasonable period for consultation in preparation of the EP.
- On 24 April 2024 and 12 June 2024, DEA claimed it had not been provided with a reasonable period of time to provide feedback. Woodside disagrees with this assertion as Woodside commenced consultation on 9 August 2023 and provided 2 follow-up emails.
- As noted in consultation emails, Woodside is open to receiving feedback after EP submission and throughout the life of the EP. DEA has demonstrated it understands this and is willing to provide feedback irrespective of consultation timeframes as demonstrated in its email received on 19 December 2023, 24 April 2024, 12 June 2024, 6 December 2024).

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DEA is appropriate and adapted to the nature of interests of DEA:

- Woodside published 8 advertisements in national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to DEA because Woodside notes DEA regularly uses social media as a means to share its views. It also allowed for broad awareness of the activity and consultation.
- From August 2023 to June 2024, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Gascoyne, Pilbara and Murchison to raise awareness of the EP. These events were promoted in local newspapers and on social media.

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- Woodside also provided DEA with a link to NOPSEMA's various information sheets and brochures assisting to provide DEA with context around the consultation process (9 August 2023).
- In the absence of feedback, Woodside sent a proactive letter on 5 December 2023 addressing previous feedback received from DEA on other EPs that were relevant to this EP. Based on this additional information Woodside sought further feedback from DEA and offered to meet (in addition to undertaking consultation in writing).
- As per previous consultation methods, Woodside emailed DEA to engage in consultation and also provided an alternative method for DEA to provide feedback by offering to meet with DEA in all of its correspondence. Woodside's offer to meet with DEA was not taken up by DEA. Consultation was therefore engaged in via email which aligns with DEA's style of consultation.
- Following publication of the EP on NOPSEMA's website, Woodside proactively provided DEA with correspondence on climate-related matters and directed it to the sections of the EP which contain additional information relevant to what Woodside understands to be topics of interest to DEA.
- DEA confirmed it has a fundamental objection to Woodside developing the Scarborough gas field and undertaking the activities under the EP and has an objective to phase out all fossil fuel use. On its website it states 'fossil fuels kill and harm our health' and that '...similar to addressing the health impacts of tobacco by first quitting smoking, to address the health impacts on fossil fuels we must first quit coal, oil and gas'. DEA encourages people to email their Member for Parliament and sign the petition calling on government to ban all new coal, oil and gas projects and published an open letter to The Australian in June 2024 reiterating this.' In August 2024, DEA launched its Smoke Kills campaign with the tagline 'Burning fossil fuels causes more deaths than tobacco' including a petition to the Federal Government in which it states 'Coal, oil and gas are health hazards. All of these examples inform the way Woodside's efforts to consult with DEA should be considered.
- Woodside considers a reasonable opportunity was provided to DEA as evidenced in its response on 19 December 2023, 24 April 2024, 12 June 2024 and 6 December 2024 because it provided feedback, claims and objections.

Outcomes from Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DEA provided feedback or objections or claims about the adverse impact of the proposed activities to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulation 24, Woodside has:
 - Responded to feedback from DEA and has assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - Based on DEA's feedback, assessed the feasibility of Carbon Capture and Storage (CCS) in the EP in Section 6.7.6, *Management and Mitigation*. No new measures were adopted as a result of DEA's feedback. However, as a result of consultation, Woodside has updated its EP to include an assessment of CCS.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Friends of Australian Rock Art. Inc (FARA)

Context

FARA's website says that it 'works to protect, preserve and promote Australian rock art, particularly the petroglyphs found in the Dampier Archipelago (including Murujuga/Burrup Peninsula) in the Pilbara region of Western Australia'.^{xlv}

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FARA lists and provides links on its website to its correspondence to Woodside including on the Scarborough Energy Project dating back to February 2020. This includes submissions on this EP, Pluto Operations EP and the Scarborough Trunkline Operations (State Waters) EP.^{xlvi} In March 2024, FARA sent a letter to the Minister for the Environment claiming 'assessment of impacts on Murujuga had been undertaken by Woodside and the WA Government – two parties with declared interests in the ongoing proliferation of industry on the Burrup and fresh, independent assessment of heritage impacts needed to be undertaken'. This letter was co-signed by academics, Traditional Custodians (including Save our Songlines), past and current politicians, and a variety of NGOs including Australian Conservation Foundation, Doctors for the Environment Australia, Conservation Council of WA, Lock the Gate Alliance and Cape Conservation Group.^{xlvii} This suggests that FARA is fundamentally opposed to Woodside's projects in the Pilbara in Western Australia.

In 2018, FARA was invited to participate in consultation on the Scarborough Energy Project OPP. FARA chose not to participate in that consultation process.

Throughout 2023 and 2024, FARA has supplied Woodside, either directly or via NOPSEMA, with a number of research papers. Woodside has carefully considered each of these papers in conjunction with other internal and external research papers. Since engaging in late December 2023 on this EP, FARA has also engaged in consultation on the Scarborough State EP and another Operations EP. Woodside has offered to meet with FARA four times on this EP however FARA has not taken up Woodside's offer.

The historical engagement and this context is important as it demonstrates that consultation is appropriate and adapted to the nature of interests of FARA.

Historical Engagement:

2018 – 2020

- FARA has been aware of the Scarborough Project (including operations) for around 6 years. In 2018, FARA was invited to consult on the Scarborough Offshore Project Proposal (OPP) during the 3 phases of consultation for the Scarborough Project (preliminary, formal and ongoing). Preliminary consultation commenced in 2018. An eight-week formal consultation period ran from 5 July to 30 August 2019. Ongoing consultation continued on acceptance of the OPP in March 2020.
 - The activities under this EP were described in the OPP. FARA chose not to take up the opportunity to participate in consultation.

2022- 2023

- From 2022 to 2023 Woodside consulted FARA on the Scarborough Subsea EP. Woodside has carefully considered the topics and issues raised by FARA during consultation on the Subsea EP as well as the Scarborough D&C, Seismic and SITI EPs. A number of topics and issues raised by FARA during consultation on those EPs have been raised again by FARA as part of consultation on this EP. These include:
 - FARA wished to be consulted by Woodside on all EPs pertaining to developments which would cause or lead to damage (both direct and indirect impacts) to Murujuga's rock art.
 - The broader impacts of the Scarborough Project including climate change impacts.
 - The damage to the cultural landscape and rock art and impacts on Traditional Custodians of Murujuga and the Dampier Archipelago who would be directly impacted (emissions, facilities) and indirectly impacted (noise, view, dust).
 - Endorsing and supporting the request made by Murujuga custodians [Individual 4] and [Individual 3] that they were relevant persons to be consulted by Woodside on the Scarborough gas project.
 - Increased industrial emissions on the Burrup Peninsula would almost certainly compromise the application to have the site added as a World Heritage place.
 - Its members (local workers in the gas industry and community members) would be affected by atmospheric emissions from offshore drilling, along associated pipelines, during processing, production, transport of the Scarborough gas, and gas used by Perdaman and others on the Burrup Peninsula.
 - The marine environment and endangered species would be damaged from the impacts from all pollution sources on all potential receptors.
 - Whether there was a robust decommissioning plan with funds set aside.

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- Acidic emissions from Woodside's Joint Venture site at the Karratha Gas Plant had been impacting on the fragile patina of the adjoining petroglyphs and emissions from Scarborough activities would further increase this impact. It was extremely urgent that Woodside's emissions-control technology, and that of the two Pluto plants, were updated to world standards in order to substantially reduce its toxic NOx and SOx emissions.
- Provided Woodside with a number of research papers.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed FARA advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 5 December 2023, in the absence of specific feedback from FARA, Woodside sent a letter via email (Record of Consultation, reference 2.21) which stated the following:
 - FARA self-identified for the Scarborough D&C, SIT1 and Seismic EPs and provided feedback to Woodside which had been addressed.
 - (1) Woodside assessed FARA as a relevant person for this EP and Woodside had provided FARA with the Consultation Information Sheet on 9 and 30 August 2023. Woodside once again included a link to the Information Sheet.
 - Advised that consultation in the course of preparing this EP closed on 20 December 2023 and asked if FARA had feedback and/or would like to meet to consult.
 - Woodside had reviewed past feedback from FARA on the Scarborough D&C, SIT1 and Seismic EPs and provided assessment and response as follows:
 - (2) Preservation and conservation of Murujuga rock art and cultural landscape.
 - ❖ (2) Woodside noted research to date on the impacts of emissions on rock art was inconclusive. Woodside recognised the need for further research and supported the Murujuga Rock Art Monitoring Program (MRAMP). In the absence of scientific certainty on the level of emissions which theoretically may affect rock art, Woodside was taking reasonable and practicable measures to minimise emissions. Pluto LNG's Air Quality Management Plan had been approved by the Western Australian EPA as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant. A number of technologies had been assessed by Woodside and it understood that FARA had previously advocated for the use of "scrubber technology", which Woodside interpreted to refer to some form of selective catalytic reduction (SCR) technology. The installation of SCR systems would introduce new hazards, including significant importation and handling of ammonia or urea, may introduce risks associated with ammonia emissions when operating SCR, and had adverse impacts on greenhouse efficiency.
 - (3) Impact of Scarborough development on Traditional Custodians of Murujuga and Dampier Archipelago.
 - ❖ (3) Woodside advised it had consulted with the Traditional Custodians of Murujuga through their nominated representatives for Scarborough EPs. This consultation had included the appropriate management of cultural heritage on Murujuga, and matters raised were addressed in the EPs. Woodside had addressed the potential impacts which Traditional Custodian representatives had themselves identified, and would not comment on the content of consultation undertaken with Traditional Custodians or their representatives, which may include confidential or culturally sensitive material.
 - (4) The Scarborough gas field development would lead carbon emissions over coming decades, adding to WA's emissions and the planet's burden of climate change impacts.
 - ❖ (4) Woodside advised GHG emissions relevant to the activity, including sources and volumes, would be presented and assessed in the EP. Woodside also provided information on Woodside's climate strategy and confirmed avoiding and reducing emissions were Woodside's first priorities for meeting the net equity emissions reduction targets. However, offsetting emissions would allow Woodside flexibility to meet these targets, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions proved to be hard-to-abate, any such residual emissions would likely be offset using carbon credits in order to achieve its net zero aspiration.

- **(5)** The climate impacts of the project would cause increasing severity in heatwaves, bushfires, floods, storms, etc., and socio-economic pressures that would arise from these environmental changes and would be particularly acute for indigenous communities in the Pilbara.
 - ❖ **(5)** GHG emissions relevant to the activity, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008* and other industry standard database. The EP would assess Direct Emissions (Scope 1) and Indirect Emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*. The EP would assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions had been undertaken. This included development of a decarbonisation plan for the Pluto Hub.
- **(6)** Compromise of the Murujuga World Heritage consideration.
 - ❖ **(6)** Woodside had operated on Murujuga in the Pilbara region of Western Australia for more than 35 years. Woodside understood that the World Heritage nomination had been progressed with full awareness of existing and future industry on the peninsula and reflected the ongoing co-existence of cultural heritage and industry. Woodside's support for the World Heritage listing of the Burrup Peninsula reflected the successful co-existence of cultural heritage and industry.
- **(7)** Impacts from pollution sources on all potential receptors, specifically to the marine environment and biodiversity from catastrophic marine pollution events.
 - ❖ **(7)** While impacts to potential receptors were possible in the event of an unplanned diesel release from vessel collision (the worst case credible spill scenario for this activity), Woodside considered it adopted appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of occurrence.
- **(8)** Robust decommissioning plans with funds set aside to ensure all infrastructure is properly decommissioned.
 - ❖ **(8)** Woodside plans for decommissioning and has developed a Scarborough Decommissioning Strategy which would be used to plan for infrastructure decommissioning at the end of field life. Decommissioning activities would be subject to future EP approvals.
- **(9)** Endorse and support the requests made by Murujuga custodians [Individual 4] and [Individual 3] that they were relevant persons to be consulted on all potential impacts at each stage of the Scarborough Project.
 - ❖ **(9)** Woodside confirmed it consulted with First Nations communities and stakeholders for EPs.
- On 20 December 2023, FARA sent an email and letter to Woodside, copying in NOPSEMA (SI Report, reference 57.1), stating the following:
 - **(1)** FARA considered itself a relevant person and outlined its interests, functions and activities affected by the project.
 - **(10)** FARA received the copy of this EP Consultation Information Sheet and a letter on 5 December 2023 setting out responses to various issues raised by FARA in the past. FARA claimed Woodside had not provided sufficient information and therefore not allowed a reasonable period of time for consultation and asked that this EP not be accepted until Regulation 25 was met.
 - In addition to objections/claims/information raised in the letter, FARA also sent an Attachment A on 20 December 2023, which included the following which are a number of topics repeated from previous consultation correspondence as well as other objections/claims/information:
 - **(11)** Increased levels of direct disturbance and displacement of petroglyphs and other heritage sites and values that would result from the utilisation of Scarborough gas on the Burrup Peninsula, in particular by the proposed Perdaman urea facility.
 - **(2)** Increased intensity and duration of exposure of petroglyphs to acid gas which dissolved the outer rock patina and degraded the petroglyphs, and other emissions resulting from the processing and use of Scarborough gas on the Burrup, including in the NWS and Pluto LNG facilities and Proposed Perdaman urea plant.

- **(12)** Increased intensity and duration of other industrial impacts on the Murujuga cultural landscape, including noise, light, visual amenity, disruption of views, restrictions of access, and other social and physical impacts resulting from the processing and utilisation of Scarborough gas on the Burrup Peninsula.
- **(13)** Increased disruption to the ongoing cultural practises connected with the Murujuga landscape.
- **(14)** Impacts on the opportunity for visitors, researchers and custodians to use and enjoy the cultural landscape and to appreciate, and benefit from the World Heritage values.
- **(15)** Impacts on the economic, social and other opportunities that existed for local communities and custodians in connection with the protection and maintenance of the outstanding World Heritage values of the area.
- **(5)** Impacts connected with climate change, including impacts of extreme temperature, sea level rise, extreme weather events, wildfires, and other climate-related impacts that would be exacerbated by the Scarborough project.
- **(16)** Impacts on the ability to remediate and restore the Murujuga cultural landscape in the future.
- **(17)** A number of peer-reviewed scientific studies which demonstrated and provided evidence for impacts of industrial emissions, including LNG processing emissions on Murujuga Petroglyphs.
- **(18)** Murujuga Rock Art Monitoring Program: Summary Monitoring Studies Report 2023 provided information to support the findings of the above mentioned studies, by showing that the pH of rock surfaces within the industrial area was 4.6 or less in October/November 2022, when it was known that the outer rock patina, essential for preservation of the petroglyphs, was dissolved when rock surface pH is 6 or less.
- **(19)** FARA was aware of several options for controlling and mitigating industrial emissions, including from LNG processing and utilisation of natural gas in urea manufacturing. These included, but were not limited to:
 - ❖ Wet scrubber technology, such as commonly used in industrial applications for the removal of NO_x and SO_x from waste gas streams;
 - ❖ Catalytic and electrostatic pollution control equipment commonly used on industrial exhaust gas streams;
 - ❖ Underground disposal and sequestration of compounds such as those removed from feed gas streams in acid gas removal units, for example as currently operational but faulty at the Gorgon LNG facility on Barrow Island.
- **(2)** Impacts on Murujuga petroglyphs:
 - ❖ Estimates of volumes of emissions to air.
 - ❖ Air dispersion modelling and analysis.
 - ❖ Disclosure of what levels of industrial air emissions and what level of impact on Murujuga petroglyphs Woodside considered to be acceptable.
 - ❖ What action would be taken by Woodside if the levels of emissions and impacts considered to be acceptable were exceeded.
 - ❖ Evidence of legal authority for any and all impacts on Murujuga petroglyphs.
 - ❖ Evidence to demonstrate that the regulatory controls on emissions from Pluto LNG were adequate.
 - ❖ Independent analysis of any and all available equipment and technology for controlling atmospheric pollution on the Burrup.
 - ❖ Evidence of when and how technologies would be evaluated in the future.
 - ❖ Any other evidence, studies, engineering reports to demonstrate emissions to air would be ALARP/acceptable.
 - ❖ Evidence that there was no scientific evidence demonstrating impacts and effects on petroglyphs as a result of emissions.
 - ❖ Woodside's response and reasons for dismissing the peer-reviewed scientific literature demonstrating ongoing impact of emissions on petroglyphs.

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- **(20)** Other impacts on Murujuga cultural heritage landscape and values:
 - ❖ A description of the heritage values of the Burrup Peninsula that may be affected by the activities.
 - ❖ Independent studies and analysis of the potential impact of industrial operations connected with the processing/use of Scarborough gas on the Burrup Peninsula on the heritage values.
 - ❖ Independent assessment of impact of industrial operations connected with the processing/utilisation of Scarborough gas i.e. on economic, social and cultural benefits from World Heritage Listing.
 - ❖ Range and nature of mitigation options considered.
 - ❖ Levels of industrial air emissions and what level of impact on Murujuga heritage values Woodside considered to be acceptable (repeat question).
 - ❖ What action would be taken if levels of impacts were exceeded (repeat question).
 - ❖ Decommissioning and rehabilitation of sites used for processing and utilisation of Scarborough gas.
- **(21)** Health and social impacts to communities and visitors:
 - ❖ Health impact studies and exposure studies to identify health impacts from industrial operations.
 - ❖ Social impact studies, including access by local custodians for cultural practice.
 - ❖ Baseline social and health data for surrounding communities.
 - ❖ Disclosure of what levels of social and health impacts Woodside considered to be acceptable.
 - ❖ What action would be taken if these were exceeded.
- **(22)** Impacts and effects related to climate change and GHG emissions:
 - ❖ Sensitive environmental receptors that would be impacted by climate change inc. MNES, World Heritage Values etc.
 - ❖ Effects of Scarborough Project on these receptors (emissions from the project and from international energy scenario that the Scarborough Project is compatible with)
 - ❖ Modelling on the following parameters and effect in the landscape – temperature, extreme weather events, fire patterns etc.
 - ❖ Assessment of mitigation options for impacts at a landscape level.
 - ❖ Evidence of consultation with local Pilbara communities affected by climate change.
 - ❖ Evidence of Woodsides analysis of impacts of the Scarborough Project on local Pilbara communities that were affected by climate change.
 - ❖ Assessment of impact on local Pilbara communities including social, economic, and other costs and impacts affected by climate change.
 - ❖ Mitigation options for impacts to local Pilbara communities.
- **(23)** Requests by FARA for other documents and information included:
 - ❖ All studies, information and other material relied upon in assessing the impact of chemical emissions on the surface of rock art, mitigation strategies / options to reduce emissions etc.
 - ❖ All studies, information and other material relied upon in assessing GHG emissions and climate impacts.
 - ❖ A draft copy of this EP.

Ongoing engagement:

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- On 12 January 2024, Woodside responded to FARA (SI Report, reference 57.2), as follows:
 - **(9)** Woodside provided information and a Consultation Information Sheet, including a link to NOPSEMA's *Consultation on offshore petroleum environment plans: Information for the community* which encourages relevant persons to engage with titleholders as early as possible, to FARA on 9 and 30 August 2023.
 - As well as directly consulting FARA, Woodside advertised this EP and consultation opportunities in The Australian, The West Australian, regional newspapers and Indigenous newspapers, and ran two social media campaigns across Facebook and Instagram. Woodside also had experts and information available at a number of community events in the Pilbara, Gascoyne and Murchison, as well as a tailored community roadshow in these regions throughout September and October 2023.
 - In the absence of a response, Woodside proactively addressed topics previously of interest to FARA (see 5 December 2023 summary).
 - Woodside had extended the consultation period from four weeks to 4.5 months.
 - Woodside reattached the responses sent proactively on 5 December 2023.
 - Sufficient information and a reasonable period of time had been provided.
 - Ongoing consultation could continue during the life of an EP.
 - FARA had been provided with sufficient information to allow it to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
 - In addition, Woodside sent the following responses to FARA:
 - **(2, 17)** Research to date on the impacts of emissions on rock art had not been conclusive. Woodside recognised the need for further research and supported the Murujuga Rock Art Monitoring Program (MRAMP), run by the Murujuga Aboriginal Corporation and Western Australian Department of Water and Environmental Regulation. In the absence of scientific certainty on the level of emissions which theoretically may affect rock art, Woodside was taking reasonable and practicable measures across its operations and growth projects to minimise emissions.
 - **(11)** No disturbance or displacement of petroglyphs or other heritage sites was planned or anticipated in the development of the Scarborough Project. The processing of Scarborough gas would occur within the footprint of existing Woodside LNG processing facilities. Woodside could not comment on the activities and impacts of other proponents such as Perdaman.
 - **(11, 12, 13, 14, 15)** There would be no additional impact associated with the processing of Scarborough gas, which occurred within the footprint of existing Woodside LNG processing facilities. Woodside had consulted extensively with Traditional Custodians of Murujuga to understand their functions, interests or activities, which were not anticipated to be impacted by the processing of Scarborough gas.
 - **(5, 8, 16, 18, 19, 21)** Pluto LNG's Air Quality Management Plan (AQMP) had been reviewed and approved by the Western Australian Environment Protection Authority as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant. This included independent peer review assessment which concluded that the design of Pluto Train 2 was consistent with best practice in the context of air emissions control for LNG plants. Modelling investigations focussed on human health and vegetation impacts as well as potential emission deposition impacts on rock art across the Burrup Peninsula. Further refinements of the modelling supporting the AQMP showed that Pluto Train 2 air emissions and impacts remain within the existing MS 757 approval. The modelling shows there is minimal difference between existing NO₂ deposition rates and the modelled future state with Pluto Train 2 in operation, both of which were within the Pluto Public Environment Review deposition monitoring projections.

- **(18)** The Summary Monitoring Studies Report explicitly cautioned against drawing these sorts of conclusions, noting that data collected in the first year of observation does not permit any firm conclusions to be drawn about trends in rock surface condition and any relationship to air quality over time. The document was a summary of the more detailed Murujuga Rock Art Monitoring Program: Monitoring Studies Report 2023, which reported on the first year of monitoring studies completed from March 2022 to March 2023.
- **(19)** A number of technologies had been assessed by Woodside for emissions control at the Pluto LNG Plant. Pluto LNG's Air Quality Management Plan had been reviewed and approved by the Western Australian Environment Protection Authority (EPA) as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant. This included independent peer review assessment which concluded that the design of Pluto Train 2 is consistent with best practice in the context of air emissions control for LNG plants.
- **(19)** Woodside had undertaken work to estimate the direct and indirect emissions from the Scarborough Project that may impact the Murujuga Petroglyphs. There were no credible impacts to Murujuga cultural landscape including impacts on rock art in relation to air emissions produced at the Floating Production Unit (FPU). Gas would be processed and exported onshore. Pluto LNG's Air Quality Management Plan had been reviewed and approved by the EPA as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plan. Also see (10).
- **(19)** Woodside would implement relevant feasible recommendations of the Murujuga Rock Art Monitoring Program (MRAMP).
- **(19)** Woodside would assess and implement Design Out and Operate Out opportunities to reduce emissions on the Scarborough FPU and emissions related to onshore processing of Scarborough gas.
- **(20)** The EP would include a description of cultural features and heritage values that occurred within the Environment that May be Affected (EMBA), as described in the Consultation Information Sheet. This included consideration of cultural features and heritage values identified during consultation with relevant persons. Cultural heritage on the Burrup Peninsula with respect to Pluto Train 2 were managed under existing Pluto LNG Plant approvals.
- **(7)** Woodside proactively planned for decommissioning and had developed a Scarborough Decommissioning Strategy which would be used to plan for infrastructure decommissioning at the end of field life. All decommissioning activities would be subject to future EP approvals.
- **(5, 8, 18, 19)** Woodside monitored air quality around the Pluto LNG Plant as per the AQMP which was publicly available on the Woodside website. The AQMP identified no substance exceedances of National Environment Protection Measures (NEPM) standards in the most recent reporting period in 2022. Also see (10).
- **(20, 22)** The EP would provide a full description of the existing environment that may occur within the EMBA. This included a description of Matters of National Environmental Significance (MNES) and World Heritage Values which occurred within the EMBA and whether these would be affected.
- **(2, 22)** Woodside assessed emissions against a range of scenarios including the IEA NZE. Assessment of these could be found in Woodside's 2022 Climate Report which was publicly available on Woodside's website. Selected GHG emissions in Woodside's Climate Report are assured by GHD.
- **(1)** Woodside consulted relevant persons in the course of preparing an EP in accordance with regulation 11A (now regulation 25) under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009*.
- **(10)** The Consultation Information Sheet provided to FARA on 9 August 2023 provided a summary of the PAP, the receiving environment, a summary of impacts and risks associated with the PAP and proposed mitigation and management measures.
- **(23)** Woodside does not provide drafts of an EP while in development due to the potential for content to change. Restricting access to publicly available versions enables stakeholders to access and comment on the same information and removes potential for any confusion. The EP would be made publicly available on NOPSEMA's website once it has been submitted and was under assessment.

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 460 of 919

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- On 1 February 2024, FARA sent an email and letter to Woodside, copying in NOPSEMA and [Individual 33], [Individual 34] and [Individual 32] (SI Report, reference 57.3). In the email, FARA repeated a number of its topics, feedback, claims and objections and also included the following attachments:
 - EPA response to the Appeals Convenor in relation to public appeals received against EPA Report 1727 North West Shelf Project Extension Proposal – Woodside Energy Ltd Supplementary Appeal by [Individual 33] against the EPA response.
 - *The impact of industrial pollution on the rock art of Murujuga, Western Australia*. Benjamin W. Smith, John L. Black, Stéphane Hœrlé, Marie A. Ferland, Simon M. Diffey, Jolam T. Neumann and Thorsten Geisler
 - *Surface chemistry of Burrup Rock art at the Yara monitoring sites*, October 2020, Report for Yara Pilbara Nitrates by CBG Solutions. Prepared by Dr Ian D MacLeod, Heritage Conservation Solutions. Draft report. Version 1.6. 18 December 2020
 - FARA stated the following in their letter:
 - **(10)** Woodside had not provided sufficient information and requests for detailed information, had ignored a request for a draft copy of this EP and the Fox Report, and that it make this report public.
 - **(10)** Questioned the quality of information used for responses stating:
 - ❖ Woodside had ignored advice of the WA EPA to Minister for the Environment that controls on Pluto LNG facility emissions were inadequate in relation to GHG and rock protection.
 - ❖ Woodside had ignored ‘relevant test’ under the Regulations.
 - ❖ Comparisons with international best practise were irrelevant because of the uniqueness of the situation on the Burrup.
 - ❖ Woodside had a lack of understanding around relevant scientific information (some provided by FARA).
 - **(2)** FARA supported research by MRAMP but questioned if it was influenced by the fact it was funded by industry located on Murujuga and the results would not be available until 2025-2026, after plans for Scarborough were finalised.
 - **(19)** For preservation of the world unique rock art on Murujuga, Woodside must either adopt the SCR technology at all nitrogen dioxide outlets or replace gas with renewable energy-generated electricity for all heat sources used within its operations. Woodside should stop all gas flaring and recycle excess gas back through the LNG process.
 - **(11)** Woodside claimed it could not comment on Perdaman’s activities, but as they were directly dependent on Woodside’s supply of gas, sealed with an official contract, FARA believed Woodside held some responsibility for their actions.
 - **(24)** Requested specific reference to the EPA’s approval statement that Woodside’s AQMP met the requirement for ‘best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant’.
 - ❖ The EPA had subsequently recommended in public advice that Ministerial Statement 757 and amendment MS 850 should be reviewed, as current controls on GHG emissions and measures for the protection of cultural heritage are inadequate. These recommendations had not been addressed by the WA Minister for the Environment and ignored in Woodside’s response.
 - **(3, 9)** Besides the Murujuga Aboriginal Corporation, had Woodside consulted with any other Custodians concerned with the desecration of their rock art heritage such as [Individual 28], [Individual 29], [Individual 30], [Individual 27], [Individual 3], [Individual 4], [Individual 31] and several others FARA could name.
 - **(25)** Had Woodside consulted with any independent archaeologists, anthropologists about the outstanding significance of the ancient art gallery which would be eventually destroyed by Woodside’s industrial development.

- **(4)** Woodside should provide evidence as previously requested that the proposed developments and their impacts would not compromise or otherwise affect the proposed Murujuga for World Heritage listing.
- On 7 February 2024, Woodside responded to FARA thanking them for their correspondence and advising Woodside was working on a response (SI Report, reference 57.4).
- On 22 February 2024, Woodside sent an email and letter to FARA (SI Report, reference 57.5), as follows:
 - **(9)** Woodside confirmed that it provided consultation information and a Consultation Information Sheet on this EP to FARA on 9 August 2023 and 30 August 2023. In the absence of a response to Woodside’s correspondence and requests for feedback on the EP, Woodside proactively reviewed, considered and addressed previous feedback provided by FARA on the Scarborough Project and related EPs, and assessed that feedback in the context of the EP.
 - **(9)** Woodside provided this to FARA on 5 December 2023 and advised that the consultation period, which had been extended, would close on 20 December 2023. Woodside did not receive any response from FARA until 20 December 2023, the day consultation closed, in which FARA acknowledged it received both the Consultation Information Sheet and the letter on 5 December 2023. FARA’s 20 December 2023 letter included a list of claims, objections and additional information which Woodside responded to on 12 January 2024.
 - **(9)** FARA responded to this letter on 1 February 2024, copying in NOPSEMA, [Individual 32] (Climate Safe Consultant), [Individual 33] and [Individual 34], and attaching three documents in the form of reports and papers. Woodside acknowledged receipt of the reports and papers provided by FARA, and confirmed it was already aware of these reports and papers and had considered them in its assessments for the EP.
 - **(9)** FARA sought information as to who Woodside consulted during preparation of the EP and Woodside confirmed that, as well as directly contacting persons and organisations including FARA, Woodside advertised the EP in The Australian, The West Australian, regional newspapers and Indigenous newspapers and ran two social media campaigns across Facebook and Instagram. Woodside also had subject matter experts and consultation information available at a number of community events held in the Pilbara, Gascoyne and Murchison, as well as a tailored community roadshow in these regions throughout September and October 2023.
 - **(3)** In relation to FARA’s enquiry around consultation regarding cultural features and heritage claims, Woodside confirmed it had consulted extensively with First Nations relevant persons. Woodside also noted that under the United Nations Declaration on the Rights of Indigenous Persons that cultural heritage and other communal rights of Indigenous people must be managed through consultation with representative institutions. Direct consultation with individual First Nations persons outside of this process had the potential to undermine the cultural authority of recognised elders and democratically elected representatives. This process of understanding communally held beliefs had recently been confirmed by the Federal Court in the Munkara v Santos matter.
 - **(23)** Woodside noted that FARA provided references to various articles and academics who FARA copied to the correspondence. Woodside confirmed that it engaged with independent experts in the assessment of its projects where appropriate, including to understand the cultural significance of Murujuga. However, Woodside considered Traditional Custodians to be the primary authority on the significance of the Murujuga Cultural Landscape.
 - **(9)** Woodside confirmed that it engaged in ongoing consultation with stakeholders throughout the life of an EP and that feedback and comments received continued to be assessed and responded to, as appropriate, through the life of an EP.
 - **(8)** Many comments in the FARA letter related to alleged impacts on rock art and approvals that had been granted in relation to the project:
 - Woodside confirmed that, in its capacity as operator of the Pluto LNG Facility, it developed an Assessment of Best Practice for Minimising Emission to Air from Major Plant – Pluto Train 2 (Best Practice Report). The Department of Water Environmental Regulation commissioned an independent peer review of the Best Practice Report which concluded the Best Practice Report was comprehensive and achieved the objectives to demonstrate that adopted pollution control technology was consistent with the current best practice for air emissions control for LNG plants, adopting field proven technology in the Australian regional context. The Western Australian Minister for Environment approved the document in January 2020.

- Similarly, the Pluto LNG Air Quality Management Plan (AQMP) had been updated to incorporate Pluto Train 2 which would process Scarborough gas. The AQMP was approved by the Minister for Environment in April 2020, upon receiving advice from the EPA.
- The assessment of potential impacts to rock art and cultural heritage values from air emissions (and management of them to ALARP and an acceptable level) would be set out in the Atmospheric Emissions section of the EP.
- As to the queries relating to Perdaman, Woodside was not in a position to comment authoritatively on Perdaman's activities.
- Additionally, together with the Murujuga Aboriginal Corporation (MAC), the Western Australian Department of Water and Environmental Regulation (DWER), Yara and Rio Tinto, Woodside was supporting the five-year, A\$7 million State Monitoring Program.
- Woodside, in its capacity as operator of the Pluto LNG Facility and separately as operator of the North West Shelf Karratha Gas Plant, had committed to manage potential impacts to Aboriginal rock art on the Burrup Peninsula in accordance with the Murujuga Rock Art Strategy.
- **(9)** Woodside noted FARA's requests for internal documents and assessments and confirmed it complied with regulation 25 (formerly Regulation 11A) of the Environment Regulations in relation to the consultation process for its EPs.
 - FARA had been provided a reasonable period, reasonable opportunity for consultation and sufficient information to allow FARA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities and to provide its claims or objections.
 - The information provided by Woodside included:
 - ❖ a Consultation Information Sheet, which set out a summary of the activity, the receiving environment, impacts and risks associated with the proposed activity and proposed mitigation and management measures,
 - ❖ Woodside's 5 December 2023 responses to claims or objections from FARA,
 - ❖ Woodside's 12 January 2024 responses to FARA's claims or objections in its 20 December 2023 letter.
 - ❖ Woodside had also referred FARA to the publicly available Scarborough Project Offshore Project Proposal for further detailed information and information relating to topics of interest to FARA, including GHG emissions estimates.
- Woodside advised consultation in the preparation of the EP was closed however Woodside was available to meet with FARA to discuss the EP or to receive and consider further claims or objections from FARA.
- On 7 March 2024, Woodside proactively sent FARA an email stating that as they had shown an interest in climate-related matters, they may be interested in the release of Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report which summarised Woodside's climate-related plans, activities, progress and climate-related data (SI Report, reference 57.6). The email:
 - Included links to the CTAP and the ASX Announcement.
 - Re-iterated that consultation in the preparation of this EP had closed however, feedback could continue to be provided during the life of an EP, including after consultation had closed on the EP, during EP assessment, and after an EP had been accepted by NOPSEMA.
 - Stated Woodside was available to meet with FARA to discuss this EP should they be interested.
- **(9)** On 29 March 2024, Woodside received a response from FARA to the Pluto Facility Operations EP consultation email (sent 27 February 2024) stating it had not been adequately consulted on the Operations EP and that it expects the feedback in all its letters to be included in the public section of the EP to allow for transparency (SI Report, reference 57.7).

- On 1 May 2024, Woodside received an email from FARA regarding a State EP which included three attachments, one of which related to this EP and was dated 26 March 2024 which has been summarised below. This letter was not previously received by Woodside. (SI Report, reference 57.8). FARA:
 - **(1)** Stated it was a relevant person and had a right to be consulted on this EP.
 - **(7)** Woodside was required to consider and address the indirect consequences of the activities the subject of this EP.
 - **(23)** Required an extensive list of information for it to assess the possible consequences of this EP on its functions, activities and interests and provided examples.
 - **(10)** Had not been provided with sufficient information nor a reasonable period for consultation for it to assess the possible consequences of this EP on its functions, activities and interests.
 - **(17)** Provided a number of scientific studies to Woodside setting out the basis of its concerns for the impact of this EP on the Murujuga rock art.
 - **(9)** Woodside's lack of consultation with other relevant persons.
 - **(4)** Lack of assessment and controls of greenhouse gas emissions and climate change impacts.
 - **(10)** Did not believe further meetings with Woodside would be of any value as Woodside would simply use these meetings to claim that it had met the requirements to consult with FARA, when in fact the basic information and time requirements for such consultation had not been met and could not be satisfied by meetings. FARA would seek to take up its concerns including in respect of the lack of adequate consultation directly with NOPSEMA, and through exercising other processes and mechanisms available to FARA as necessary.
 - **(17)** Claimed Woodside had dismissed the peer-reviewed, published academic articles on the impacts of emissions on Murujuga rock surfaces provided by FARA, and has stated that Woodside engages with its own independent experts on such matters. If this were true, FARA requested Woodside provide the previously requested scientific information commissioned or relied upon by Woodside, including the Fox report commissioned by Woodside in 2020, and other research provided by independent experts engaged by Woodside.
 - **(19)** Stated it had repeatedly asked exactly which pollution control technology Woodside would be adopting for the Scarborough/ Pluto 2 operations and where the independent analysis was into the potential application of scrubber (Selective Catalytic Reductive) and other technology options to minimise NOx and other emissions from LNG processing facilities on the Burrup.
 - **(12)** Was not aware of any other LNG facilities operating in proximity to a heritage site like Murujuga. 'Best practise' pollution control for LNG facilities elsewhere had little relevance to Woodside's LNG operations on the Burrup and did not satisfy the requirement for acceptability in this particular unique setting.
 - **(11)** Stated the operations of the Perdaman facility, and its impacts were indirect consequences of this EP which must be addressed by Woodside. The Perdaman facility will contribute to the overall damaging pollution load in the airshed, directly adding to the pollution load from the Pluto LNG facility. This pollution is likely to have both additional impacts and synergistic effects which do not appear to have been understood or quantified by Woodside.
 - **(3)** Stated Woodside's consultation with certain First Nations institutions it determines to be 'appropriate' or 'representative' and not with other First Nations individuals or organisations affected by Woodside's proposed operations did not satisfy the requirements of the Regulations to consult with all relevant persons.
- On 14 May 2024, Woodside sent an email to thank FARA for consulting on the Pluto Facility Operations EP and provided response to its claims, objections and additional information request (SI Report, reference 57.9).
- On 24 May 2024, Woodside received an email, letter and paper from FARA (copied to NOSPEMA), in relation to this EP and the Pluto Facility Operations EP (SI Report, reference 57.10). The letter reiterated points raised in previous letters including:

- **(1, 2)** FARA is a relevant person and has raised concerns regarding indirect impacts of these two EPs on Murujuga rock art as a result of LNG processing and gas use on the Burrup Peninsula.
- **(9)** Woodside has not yet provided sufficient information to FARA to make an informed assessment.
- **(8, 16, 17)** Attached is the April 2024 report entitled The Effects of Acidic Pollution on the Rock Art of Murujuga by [Individual 34] and the Murujuga Rock Art Conservation Project which contains an analysis of the MRAMP campaign. Combined with other reports and studies it shows that atmospheric emissions are causing conditions which are harmful to rock art and increased emissions will increase harmful levels. FARA looks forward to Woodside's response.
- **(9, 16, 17, 18)** A lack of scientific certainty should not prevent the adoption of precautionary avoidance and mitigation measures.
- **(19)** FARA's position is that no impact on the Murujuga rock art from LNG processing an industrial emissions is considered acceptable and wants to know what Woodside considers acceptable.
- **(9, 19)** FARA reiterates its opposition to the proposed activities.
- **(1, 9, 16)** On 28 May 2024, Woodside emailed FARA thanking it for the new information and stating it would assess it alongside other papers in the EP (SI Report, reference 57.11). Furthermore, it stated:
 - FARA has been assessed as being a relevant person for both the Scarborough Offshore Facility and Trunkline Operations EP and the Pluto Facility Operations EP. Woodside has consulted with FARA in accordance with section 25 of the Regulations and FARA has been provided with consultation information for both EPs.
- On 4 July 2024, Woodside proactively emailed FARA and provided a link to the publicly available EP on the NOPSEMA website (SI Report, reference 57.12). Woodside advised that it continued to assess and respond to feedback throughout the life of an EP, and that Woodside was available to meet with FARA over the following month. Based on FARA's previous feedback on climate topics, Woodside also included a table of specific topics which FARA might be interested in, and where to find that topic in the EP, including:
 - **(5)** Further information on the assessment of potential climate change impacts could be found in Section 6.7.6 of the EP.
 - **(3, 6)** Further information on the assessment of potential impacts/risks of atmospheric emissions on rock art could be found in Section 6.7.7 of the EP, and assessment of the potential impacts on cultural heritage more broadly in Section 6.10 of the EP.
 - **(21)** Further information on the assessment of potential risks/impacts on human health could be found in Section 6.7.7 of the EP.
 - **(2, 19)** Further information on atmospheric emissions requirements met by onshore processing facilities could be found in Section 6.7.7 of the EP.
- On 16 August 2024, NOPSEMA forwarded correspondence to Woodside (sent to NOPSEMA by FARA on 1 July 2024) regarding air emissions purportedly recorded over the Dampier Peninsula, that in FARA's view were an indirect consequence of Woodside's project (SI Report, 57.13).
 - **(26)** FARA presented data allegedly showing that air quality over the Burrup was damaging petroglyphs and was set to worsen as more projects were approved, including the development of the Scarborough Gas field and other projects currently under review by NOPSEMA.
 - FARA copied NOPSEMA into its correspondence to the NWS Appeal Convenor (sent on 1 July 2024) which included a series of satellite maps allegedly supporting FARA's claim.
 - FARA advised it had been monitoring the Copernicus Satellite readings for NO₂ above the Burrup over the past 4 years and these recent maps showed how emissions had risen for the 4 years since 2021. In FARA's view this demonstrated that air pollution was affecting the rock art.
 - **(19)** FARA asked again that scrubber technology be installed on the North West Shelf facility so emissions could be cut down to near zero to preserve rock art on the Dampier Peninsula.

- **(11, 12, 16, 18, 22)** FARA also included a map of Australia allegedly showing emissions of 18 sites around Australia, with the Burrup Peninsula being the highest emitted of air pollution in the country, and queried why there was even consideration of adding to this for another 50 years and to whose benefit it was apart from profits of private enterprise.
- On 8 October 2024, Woodside emailed FARA to thank it for its feedback and for engaging in consultation with Woodside on this EP (SI Report, reference 57.14). Woodside advised it would shortly resubmit the EP to NOPSEMA for further assessment and that as part of the consultation process, Woodside had further assessed the merits of a number of objections and claims raised by FARA. Woodside reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:
 - **(3, 12, 14, 15, 16)** Advised developments at onshore processing facilities were outside the scope of the activity and aside from emissions associated with Scarborough gas, were not considered indirect impacts of the activity. These developments were subject to relevant onshore regulatory frameworks.
 - **(21)** Advised the magnitude of emissions from processing Scarborough Gas were insufficient to lead to exceedance of any relevant health criteria on the Burrup Peninsula or surrounding region. Noting the absence of any current impacts to human health from industrial activity on Murujuga and presence of a comprehensive regulatory regime including monitoring, the risk of processing Scarborough Gas to human health was assessed as Negligible.
 - **(5)** Advised that it acknowledged climate science and that climate change was understood to be caused by the net (cumulative) global concentration of GHG emissions in the atmosphere. To facilitate a comparison against carbon budgets, Woodside advised a hypothetical assumption had been used in the EP where GHG emissions associated with the project were hypothetically treated as additive, and the amount was de minimis. Therefore, Woodside did not accept that the Scarborough Project would contribute to the exacerbation of climate change impacts in Western Australia. Noting that climate change was recognised as a global issue, Woodside also provided a contextual list of projections for climate change in Australia and advised further information was available in Section 6.7.6 of the EP.
 - **(17)** Confirmed the EP contained a review of published studies and literature, including information provided by FARA. Woodside provided a statement from MRAS that the data currently available did not allow for a conclusive answer on whether emissions were impacting Murujuga's rock art. Woodside confirmed it would continue to assess science on the topic and would provide information it became aware of to MRAS in recognition of the primacy of the program.
 - **(19)** Noted that the design of onshore processing facilities was outside the scope of the activity in the EP. However, Woodside also:
 - Advised the installation of wet scrubbers or Selective Catalytic Reduction (SCR) on turbines exhausts may result in a reduction in NOx emissions, however it also resulted in ammonia emissions, which was also a potential emission of concern being monitored by MRAMP. Woodside also noted it was not currently aware of instance of retrofitting to LNG mechanical drive turbines. However, in response to feedback, consideration of SCR had been included in Section 6.7.7 of the EP.
 - Noted Electrostatic pollution control equipment may be effective in removing particulates from exhaust streams but this was not considered a significant potential impact associated with onshore processing of Scarborough Gas.
 - Advised CCS was a mature technology which presented a proven solution to abate large-scale industrial GHG emissions. CCS was not currently in place for offshore activities or onshore facilities processing Scarborough gas, however Woodside was conducting feasibility studies to address onshore emissions generated through Scarborough gas processing. In response to feedback, consideration of CCS has been included in Section 6.7.6 of the EP.
 - **(2)** With respect to FARA's feedback on impacts to Murujuga Petroglyphs, Woodside:
 - Provided background on the Department of Water and Environmental Regulation (DWER)-commissioned Ramboll Australia Pty Ltd study on air emissions in the Murujuga airshed. Ramboll (2021) indicated that NOx loads from industrial sources were estimated to be 13,937 tonnes per year and were forecast to reduce to 12,052 tonnes per year by 2030.

- Confirmed it had committed to supporting the MRAS and MRAMP, including monitoring and implementing any outcomes as relevant. Woodside provided statements from MRAS which outlined how the strategy would provide protection for the rock art.
 - Advised there were no planned impacts to Murujuga rock art as a result of onshore processing of Scarborough Gas, and that the *Aboriginal Heritage Act 1972 (WA)* and other legislation provided for the protection and preservation of Aboriginal sites and objects in WA.
 - Advised facilities associated with the onshore processing of LNG were not subject to the OPGGS(E)R and provided a list of relevant legislation, approvals and governance measures that were in place.
 - Noted that under the regulatory conditions and air quality management plans, operators were required to implement a number of controls and risk management practices related to air emissions. Woodside provided examples of best practice technologies implemented to minimise air emissions in Pluto LNG (and Train 2) design and operation.
 - Advised there were no ongoing requirements for additional technologies to be considered. Woodside has committed to implement outcomes of the MRAS program which may include consideration of further NOx reduction alternatives.
 - Noted there had been several independent studies and rock art monitoring initiatives since the mid-2000s, none of which had conclusively demonstrated a causal link between degradation of rock art and industrial activity. Woodside would continue to assess science on this topic.
- (20) Advised that further information on the cultural features and heritage values of the Murujuga Cultural Landscape had been added to the EP. With regards to the potential impact of industrial operations, Woodside referred to the aforementioned DWER-commissioned Ramboll 2021 study and the precautionary approach taken to minimise NOx emissions at onshore facilities. Woodside also advised decommissioning of the Scarborough offshore facility and infrastructure was described in Section 7.3 of the EP, however the decommissioning of onshore gas processing facilities was outside the scope of the activity proposed in the EP.
- (22) Noted the contextual evaluation of climate change impacts in the EP included environment receptors, and that outcomes from publicly available and reputable sources such as the Intergovernmental Panel on Climate Change were drawn upon to provide the contextual evaluation. Woodside also advised:
- In accordance with Woodside’s decarbonisation strategy as relevant to Scope 1 GHG emissions, a scope of work had been ongoing through multiple project phases to design and operate out direct GHG emissions. A number of opportunities to reduce direct GHG emissions or reduce intensity were identified, resulting in an estimated 13% reduction compared to reference case design. Woodside aimed to continue identifying and, where practicable, reducing operate-phase emissions. Onshore processing facilities were subject to GHG emissions management frameworks, and Woodside continued to pursue a range of management and mitigation measures regarding Scope 3 emissions associated with third-party consumption of Scarborough gas.
 - Noted in the EP that AR6-WGII contained information about projected impacts to health and wellbeing for the Australasian region. Therefore, Woodside does not accept that the Scarborough project will contribute to the exacerbation of climate change impacts in Western Australia.
 - Noted in the publicly available EP that AR6-WGII contained information about project impacts to health and wellbeing for the Australasian region. Therefore, Woodside does not accept the Scarborough Project will contribute to the exacerbation of climate change impacts in Western Australia.
- (23) Confirmed that studies and literature relevant to the potential for accelerated anthropogenic change to Murujuga rock art had been reviewing during the course of preparing the EP, and the Operations EP was publicly available on NOPSEMA’s website.
- (4) Disagreed with FARA’s estimate of GHG emissions associated with the Scarborough Project. As described in the EP, the total lifecycle emissions associated with the project was estimated to be 880 MtCO₂-e.
- (7) Advised sections 6.7.3 to 6.7.12 of the EP contained risk assessments of all planned emissions and discharges. Each of the risk assessments identified potential environmental receptors and impact, as well as controls to limit to ALARP and Acceptable levels. Woodside noted the worst-case credible spill scenario for the activity was an unplanned diesel

release from vessel collision and the largest potential spill volume had been used to model the EMBA for the activity. The EMBA was then used to frame species, environmental communities and habitats which might be impacted by a worst-case loss of containment scenario.

- On 25 October 2024, Woodside emailed FARA in response to correspondence FARA sent to NOPSEMA on 1 July 2024 regarding information FARA considered relevant to the NWS Project Extension appeals so that NOPSEMA could consider this while assessing information relating to the Scarborough Gas field (SI Report, reference 57.15). Woodside:
 - (26) Advised it was not possible to comment accurately on the satellite imagery as FARA did not include context on the collection methodology through the atmosphere, relevance of dates selected, and applicability of the units of measure. Also the relationship between “satellite readings of NO₂” and the potential impact to ground level receptors such as Murujuga rock art was also not clear. Woodside disagreed that emissions had risen for the 4 years since 2021 and that air pollution was affecting rock art at an increasing pace.
 - For Murujuga rock art, Woodside and the Murujuga Rock Art Monitoring Program (MRAMP) undertook more relevant techniques which were jointly approved by the Murujuga Aboriginal Corporation (MAC) and the Department of Water and Environmental Regulation (DWER). In December 2023, an MRAMP report stated that results remained inconclusive with regards to whether industrial air emissions were resulting in anthropogenic change to rock art and recommended further studies were undertaken. Woodside supports the MRAS and MRAMP, including by monitoring and implementing relevant outcomes.
 - (19) In regard to scrubber technology, Woodside referred FARA to a response on this topic in its correspondence on 8 October 2024, which noted that the design of onshore processing was outside the scope of the activity described in the EP but provided a position on the feasibility of wet scrubber technology, catalytic and electrostatic pollution control, and underground disposal of compounds. In response to FARA’s feedback, consideration of SCR and CCS as potential controls had been considered in the relevant sections of the EP.
 - (11, 12, 16, 18, 22) With regard to FARA’s map entitled of Australia’s major LNG projects and the comment that the Burrup Peninsula was the highest emitted of air pollution in the country, Woodside referred FARA to its previous responses on the impact of industrial emissions, including LNG processing emissions on Murujuga petroglyphs in its correspondence of 8 October 2024.
- On 25 October 2024, NOPSEMA provided Woodside with correspondence from FARA, sent to NOPSEMA on 17 October 2024, including a report by the Australian Security Leaders Climate Group entitled Too Hot To Handle, The Scorching Reality Of Australia’s Climate-Security Failure (May 2024). FARA states the Federal system to manage emissions is inadequate, the WA EPA has reduced powers, and seeks NOPSEMA to be brave. (SI Report, reference 57.16). Woodside did not respond to FARA because the correspondence is not feedback on the activity, it was provided to NOPSEMA as a general statement.
- On 31 October 2024, FARA emailed to thank Woodside for the reminder, referring to Woodside’s correspondence to FARA dated 25 October 2024. FARA stated it was still working on a response as it had new information to put forward (SI Report, 57.17).
- On 1 November 2024, Woodside emailed FARA to confirm that consultation on this EP commenced with FARA on 9 August 2023 nearly 15 months ago (SI Report, reference 57.18). Woodside noted:
 - The volume of consultation correspondence between FARA and Woodside and Woodside’s assessment of claims and objections and comprehensive responses.
 - FARA’s topics of interest to date which have included:
 - (2, 11, 18, 19) Impacts on rock art
 - (3, 12, 13, 14, 15, 16, 20) Cultural heritage
 - (5, 21) Health and social impacts
 - (4, 22) Climate change and greenhouse gas emissions

- **(10, 23)** Consultation with relevant persons.
- On 29 November 2024, FARA emailed Woodside further feedback on this EP. This correspondence included a cover letter, an Attachment 1 (a copy of a letter sent from FARA to NOPSEMA dated 10 July 2024) and an Attachment 2 (FARA's additional responses to Woodside's consultation update of 8 October 2024). (SI Report, reference 57.19).
 - Cover letter:
 - **(1-26)** FARA reiterated that information provided to FARA for this EP had been insufficient and Woodside had continually refused to provide FARA with a draft EP.
 - **(10)** Woodside had submitted the draft EP on 3 July 2024 without consulting FARA further and adequately addressing FARA's concerns.
 - **(10)** FARA's letter dated 10 July 2024 to NOPSEMA containing additional feedback regarding indirect consequences of the activities had been ignored by Woodside in its consultation update sent to FARA on 8 October 2024.
 - **(10)** Woodside had resubmitted the EP (in November 2024) and had not given FARA adequate time to respond to Woodside's 8 October 2024 consultation update.
 - **(27)** The 8 October 2024 consultation update contained numerous misleading statements that misrepresented FARA's concerns.
 - **(10, 27)** Consultation had not been in good faith and had not meaningfully addressed unacceptable threats to irreplaceable heritage of universally outstanding value.
 - Specifically, Woodside had not:
 - ❖ **(10)** sufficiently met the requirements for relevant person consultation or sufficiently addressed FARA's concerns raised in the consultation process to date and has in some cases completely ignored or failed to respond to FARA's input. Woodside has not adequately understood potential impacts to FARA's interests and activities.
 - ❖ **(2)** adequately understood or assessed the indirect consequences of its proposed activities, including the serious risk of significant and unacceptable impacts to irreplaceable cultural heritage values
 - ❖ **(7)** disclosed what it believed to be acceptable levels of impact are for the purposes of this EP; or demonstrated that its proposed actions would reduce these risks to ALARP or address the impacts on FARA's functions and activities.
 - Further responses were provided in Attachment 1 and 2.
 - Attachment 1
 - **(10)** Regarding assessment of relevant person consultation requirements, FARA's feedback included that:
 - ❖ Woodside had not met relevant person consultation requirements including providing sufficient information and a reasonable period.
 - ❖ Woodside had not met FARA's request for further information concerning indirect impacts on Murujuga rock art, heritage sites, and climate.
 - ❖ Other information not provided was concerned with Woodside's definition of 'acceptable impact'; Woodside's proposed mitigation measures and outcomes these mitigation measures would achieve; and Woodside's response to various scientific studies and other evidence that were submitted by FARA during the course of consultation including peer reviewed scientific papers and the WA government's recent rock art monitoring studies.
 - ❖ Responses provided by Woodside did not address FARA's requests; nor provide sufficient information; Woodside either withheld information from FARA, or misrepresented and misunderstood the nature and significance of the information FARA had provided to Woodside.
 - ❖ FARA had been denied sufficient time for consultation. Matters concerning FARA were technical and required expert analysis that FARA was forced to undertake at its own expense and required time not accommodated by Woodside.
 - ❖ Published information provided by Woodside was inadequate for other relevant parties likely affected by the proposed activities and impacts on Murujuga rock art, heritage, and climate.

- ❖ FARA had not had sufficient time to examine the draft EP which contained new information including Woodside's interpretation of scientific evidence about rock art impacts and assessment of acceptable impact on cultural heritage values and therefore was only able to provide a preliminary and incomplete response to the Draft EP.
- **(7, 22)** Published information also reflected Woodside's interpretation of the EMBA by direct impacts; it did not provide detail regarding indirect impacts.
- **(25)** Woodside had not consulted with a number of rock art experts and scientists whose publications had been dismissed, misunderstood or misrepresented by Woodside.
- **(3, 10)** Traditional Custodians, Language groups and Native Title groups, and other Aboriginal organisations, had not been made sufficiently aware of the indirect consequences of the proposal on Murujuga rock art and their cultural heritage.
- **(2, 11)** FARA rejected Woodside's risk analysis in the Draft EP regarding potential impacts on Murujuga rock art which appeared to be based on:
 - ❖ mischaracterisation of the extent and nature of the impact to the National Heritage Values in a way which ignored that the deposition of acidic material on the Murujuga rock art was in itself a notable alteration, or modification of the values already demonstrably occurring at current pollution levels
 - ❖ mischaracterisation and misunderstanding of the available scientific evidence presented to Woodside which placed beyond doubt that Murujuga rock art was certain to be further impacted through the dissolution of the rock outer crust at the measured acidity levels
 - ❖ failure to consider all of the indirect effects of the processing, combustion and use of Scarborough gas on the Burrup Peninsula.
 - ❖ FARA also rejected claims in the Draft EP that Woodside had demonstrated impacts on Murujuga rock art would be reduced to ALARP and that they were acceptable.
- **(19)** FARA stated no evidence in the draft EP that mitigation measures included consideration of all potential mitigation options and independent analysis of which options were reasonably practicable. Woodside had not responded to FARA's repeated requests to provide information on technologies to reduce/mitigate acid gas emissions, and requests for information on why technologies suggested by FARA were not proposed to be implemented by Woodside.
- **(24)** Woodside appeared to rely on inadequate regulatory instruments including State approvals for the Pluto facility under the EPA and EPBC approvals which provided no protection for Murujuga rock art or climate and did not demonstrate that impacts would be managed to ALARP. Even if ALARP were achieved, this did not mean residual impacts could be considered acceptable.
- **(2)** FARA's position remained that no impact from industrial activities on Murujuga rock art was acceptable consistent with the National Heritage principles and other provisions of the EPBC Act, and commitments in NOPSEMA's EPBC Approved Program.
- **(2)** The statement that '*Processing of gas from the Scarborough project is therefore not predicted to increase NOx within the Murujuga airshed beyond historic maximum levels, which as described in section 4.9.5 has resulted in no scientifically conclusive evidence for anthropogenic change to rock art on Murujuga*' was baseless.
- **(2, 18)** It was indisputable that the surface of Murujuga rock art was currently impacted by acid gas pollution.
- **(2)** If the proposed 40% reduction of NOx emissions from the North West Shelf LNG facility by the end of 2030 were achieved, combustion and processing of Scarborough gas on the Burrup Peninsula would be responsible for ~30% of the total acid gas pollution that would be released annually after 2031. The cumulative impact of this pollution, and its contribution to the acidification of the surface of Murujuga rock art (already observed), had not been addressed in the draft EP.
- **(2)** The indirect consequences were likely to be in breach of the WA Aboriginal Heritage Act.
- **(20)** Relevant for NOPSEMA's assessment, the EPBC *Significant Impact Guidelines* provided that an action was likely to have a significant impact on National Heritage Values of a declared National Heritage Place if there were a possibility that it would cause one or more of the National Heritage values to be degraded or damaged, or one or more of the National Heritage values to be notably altered, modified, obscured or diminished.

- **(2, 20)** FARA contended that the deposition of acid material on Murujuga rock art through industrial pollution, leading to the rock art having measured surface acidity of 100 to 1000 times higher than background levels is a *notable alteration or modification* to the National Heritage values, and should also be regarded as a form of degradation and damage to these values. (31)
- **(2, 15, 20)** It was clear impact to the National Heritage Values was occurring to rock art as a result of industrial pollution, primarily from Woodside facilities including the Pluto LNG processing facility. Studies also showed damage on the outer patina on rock art images in other ways.
- **(2, 3, 15, 20)** FARA observed the release of industrial pollution was currently causing significant impacts on the National Heritage values of the Dampier Archipelago National Heritage Place through at least two mechanisms:
 - ❖ deposition of acidic material on the Murujuga rock art
 - ❖ inevitable degradation of the outer surface of the rock art as a consequence of this acidification.
- **(2, 7)** The draft EP only focused on the second impact through acid dissolution of the surface of rock art, and entirely ignored that an unacceptable impact was already occurring through the deposition of acid material on the rock art. This appeared to be a deliberate mischaracterisation of the nature of the impacts of the proposed Scarborough Operations by Woodside.
- **(2, 7, 22)** FARA asserted Scarborough operations would result in at least 2231 tonnes per year, or up to 30% of future total acid emissions from all sources in the Burrup airshed and that Woodside had not offered any plausible explanation for the ongoing deposition of acidic material on Murujuga rock art, other than the acid gas pollution from industrial sources. It could be concluded that the proposed Scarborough operations would be a primary cause of both the deposition of acid material on rock art and the dissolution of the surface of the rock art as a result of that acidification. Neither are acceptable for the purposes of the Regulations and the commitments in the NOPSEMA EPBC Approved Program.
- **(2, 7, 20, 22)** Approval for this EP would increase both the severity and duration of these significant impacts on the National Heritage Values, which are already unacceptable at current levels.
- **(11)** FARA stated Woodside had claimed the impacts of the Perdaman facility were not relevant to the assessment of the EP because the facility was not under Woodside's operational control but this was inaccurate, and is the wrong test to apply for the purposes of assessment of indirect consequences according to the EPBC Indirect Consequences Policy.
 - ❖ All impacts of the Perdaman facility on the heritage values must be considered indirect impacts of the proposed activity and all are unacceptable.
- **(17)** FARA included a report for additional analysis entitled Woodside's Acid Test – How acidic emissions from Woodside's LNG operations are destroying ancient rock art at Murujuga.
- **(10)** FARA comments were not to be taken as a complete presentation of its concerns regarding this EP due to the limited time provided, and NOPSEMA could not approve the EP because:
 - ❖ Woodside had not met requirements regarding relevant person consultation and in relation to indirect consequences, especially regarding impacts on Murujuga rock art.
 - ❖ Woodside's assessment of impacts on the Murujuga rock art was fundamentally inadequate, based on erroneous conclusions not supported by the evidence, and failed to consider unacceptable impacts already demonstrably occurring.
 - ❖ Approval of the proposed EP would be contrary to the Regulations and the EPBC Approved Program, and would result in ongoing unacceptable and irreversible impacts to National Heritage Values.
- **(10)** FARA was seeking further legal advice; advised NOPSEMA it would action to ensure consultation requirements were met; sought an urgent meeting with NOPSEMA.

- Attachment 2 – this document contains responses from FARA on 29 November 2024 to Woodside’s consultation update of 8 October 2024
 - **(2, 11, 12, 13, 14, 15, 22)** Regarding Woodside’s response that developments at onshore processing facilities were outside the scope of the activity proposed in the EP, and aside from emissions associated with processing Scarborough gas, were not considered indirect impacts of the activity, FARA stated that Woodside had appeared to draw an arbitrary distinction between emissions caused by processing Scarborough gas and other impacts consequences of processing Scarborough gas. FARA’s concerns included visual amenity, impacts on current and future economic, social and other opportunities, and impacts on cultural practices and responsibilities caused by visual impact, noise, light pollution and other physical impacts of the Pluto processing facility on the Burrup and the Perdaman fertiliser facility. Regarding Woodside’s response that these developments were subject to relevant onshore regulatory frameworks and approvals requirements, FARA responded that regulatory arrangements did not fully address the impacts of the facilities on Murujuga Cultural Heritage and were insufficient to address the impacts on FARA’s functions, interests and activities.
 - ❖ FARA assumed the regulations and approval instruments Woodside claimed provided adequate protection of Murujuga rock included:
 - Woodside’s Section 18 consents held under the Aboriginal Heritage Act.
 - The Ministerial Statement under the Environmental Protection Act
 - The DWER Operating License under the Environmental Protection Act
 - The EPBC approval instrument.
 - ❖ FARA stated these should not be relied upon by NOPSEMA and listed reasons and provided evidence of their inadequacy and also stated that the regulatory arrangements in place concerning the Pluto LNG processing facility and Perdaman fertiliser plant generally involved the application of different standards which were not necessarily transferrable to, or appropriate for the purposes of this EP which was being assessed against different criteria. These regulatory frameworks did not provide adequate certainty that impacts would be managed to ALARP and meet other requirements.
 - **(3, 21)** Regarding Woodside’s point that the risk of processing Scarborough gas to human health was assessed as Negligible, FARA replied that:
 - ❖ Woodside had not provided health data supporting this statement
 - ❖ Had failed to undertake assessment of health impacts, and its claimed absence of data did not mean there was an absence of impact, including to the mental health of Traditional Custodians and others which was callous and arrogant
 - ❖ FARA regularly spoke with Traditional Custodians who refuted this and had been distressed regarding the manner in which Woodside had undertaken developments in a way which had denied Custodians the right to be consulted about the impacts and the right to free, prior and informed consent
 - ❖ Woodside had never attempted to understand health impacts of its operations and provided examples of impacts on Traditional Custodians.
 - **(5, 22)** Regarding Woodside’s statement that in its view LNG could have a role in the energy transition and in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes, FARA stated that this role was highly contested and at best uncertain and LNG was now the largest source of emissions growth globally and Woodside’s ‘view’ could not be relied upon by NOPSEMA or others where it was not supported by enforceable measures.
 - **(5, 22)** As far as Woodside’s analysis that Nationally Determined Contributions (NDCs) and key policy documents of key customer nations that LNG had an important role in supporting their decarbonisation plans under the Paris Agreement was concerned, FARA stated that NDC’s in customer countries may or may not be aligned with global 1.5 temperature goals or carbon budgets, and may not be backed by policies, programs and measures that will ensure they are achieved. The role of LNG in achieving customer country NDC’s was at best theoretical only and not suitable as a measure for acceptability of GHG emissions arising from the proposed Scarborough operations.
 - **(5, 22)** FARA rejected Woodside’s position that the Scarborough project would not contribute to the exacerbation of climate change impacts in Western Australia and stated it appeared to be linked to the assertion that emissions will be ‘de minimus’ because:
 - ❖ the ‘carbon budget’ referred to by Woodside relied on hypothetical levels of carbon removal from the atmosphere which was unreasonable and implausible

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- ❖ Woodside's emissions estimates were flawed.
- **(2)** FARA asserted that Woodside's statement that if gas from the Scarborough project was processed at the Karratha Gas Plant, it would displace another source of gas processed at this facility so would not increase NOx emissions was misleading.
 - ❖ The statement appeared to be the basis for many of Woodside's claims regarding the contribution of Scarborough operations to emissions of NOx and SOx from the Pluto LNG facility and had no supporting evidence.
 - ❖ The Pluto LNG facility was being expanded with the sole purpose of processing Scarborough gas.
 - ❖ It was wrong and misleading to suggest that these emissions would occur even if the Scarborough Operations were not approved.
- **(2, 18)** FARA also disputed Woodside's statement that processing of gas from the Scarborough project was not predicted to increase NOx within the Murujuga airshed beyond historic maximum levels, which had resulted in no scientifically conclusive evidence for anthropogenic change to rock art on Murujuga. FARA claimed:
 - ❖ this was misleading
 - ❖ MRAMP clearly stated that ALL monitored sites on Murujuga demonstrated highly elevated levels of acidity on the surface of rocks under monitoring. This acidification of the surface of the rock art is a measured and observable anthropogenic change, irrespective of whether secondary damage is occurring as a result of this acid deposition. Woodside had offered no alternative explanation for this acidification, other than the approximately 25 tonnes per day of acid gas emissions that are being emitted from Woodside's own LNG production facilities.
- **(2, 18)** FARA further disputed Woodside's statement that there were no planned impacts to Murujuga rock art. This statement was misleading as it denied impacts were already occurring as a result of Woodside's LNG processing. Woodside also stated it would continue to comply with The Aboriginal Heritage Act 1972 (WA) and other legislation. FARA argued:
 - ❖ Pollution from LNG processing on Murujuga rock art was a measured and documented phenomenon confirmed by the MRAMP.
 - ❖ The deposition of material and changes to pH levels of rock art surface was a planned impact, to the extent Woodside plans the ongoing release of emissions which cause this impact.
 - ❖ Woodside did not hold authorisation under the Aboriginal Heritage Act 1972 (WA) to alter or impact Murujuga rock art; these impacts were never disclosed or considered by Woodside at the time of applying for Section 18 authorisation and have not been considered or addressed through the relevant processes afforded by that legislation.
 - ❖ Woodside's continued reliance on state regulation as a defense against ongoing impact to rock art was deceptive as it implied ongoing impacts to rock art were adequately addressed and regulated through these processes, which was not the case.
- **(2, 18, 24)** Regarding Woodside's response concerning Condition 11-1 of Ministerial Statement 757, FARA stated that all the processes referred to by Woodside in its response occurred prior to the 2023 EPA report *1734 Pluto Liquefied Natural Gas Development (Site B Option) Burrup Peninsula, Shire of Roebourne – inquiry under section 46 of the Environmental Protection Act 1986 to amend Ministerial Statement 757* and that according to the WA Environmental Protection Act, it was up to the Minister for the Environment to initiate such a review and this had not occurred.
- **(2, 19, 24)** Regarding Woodside's comment that there were no ongoing requirements for additional technologies to be considered and that it was difficult to retrospectively apply new technologies in an operating facility, FARA responded it agreed and that as the Pluto Train 2 facility was under construction there was opportunity to install additional control measures or electrification. For existing facilities, the 'difficulty' of retrofitting was not the primary consideration, but had nonetheless not been demonstrated by Woodside with reference to independent studies and analysis.

- **(2, 18)** In response to Woodside's statement that it had committed to implementing outcomes of the MRAS program which might include consideration of further NOx reduction alternatives, FARA stated it was not aware of any enforceable measures or undertakings that committed Woodside to 'implementing the outcomes of the MRAS program' and it was not clear to what 'outcomes' Woodside was referring. Woodside had not produced evidence of such commitments.
- **(2, 18)** FARA asserted Woodside's assessment of impacts of industrial emissions on Murujuga rock art continued to centre claims of scientific uncertainty surrounding the extent to which observable impacts were occurring or would occur. However, this misunderstood the nature of the impact that was already occurring in a way that leads to the misapplication of the relevant regulations and assessment procedures required for the EP.
- **(2, 18, 19)** FARA stated Woodside's comments regarding options for further controlling acid gas emissions revealed Woodside had not demonstrated that these emissions from processing Scarborough gas would be reduced to ALARP and acceptable levels. Woodside:
 - ❖ Had not provided studies, evidence or independent assessment despite FARA's repeated requests
 - ❖ Had not stated what it believed were acceptable levels of acid gas emissions, or acceptable levels of acid deposition on the surface of rock art nor what contribution Scarborough gas processing and use on the Burrup would make to this acceptable level. Without this, it could not be determined whether the impact of the proposed operations was acceptable. A zero measured elevated acidity on the surface of Murujuga rock art was acceptable.
 - ❖ Had not addressed options such as electrification of LNG trains.
 - ❖ Woodside's claims regarding the potential additional impacts or other consequences of installation of wet scrubbers or other technology were simply statement not evidence supported.
 - ❖ Had misunderstood FARA's comments regarding the use of geosequestration. FARA did not necessarily advocate for such measures, but Woodside had not investigated or addressed FARA's comments about them.
- On 21 January 2025, Woodside responded to FARA's correspondence (SI Report, reference 57.20). Woodside confirmed it had assessed the merits of FARA's objections or claims about the adverse impacts of the activity, and that no new measures were adopted or proposed to be adopted because of this correspondence. Woodside confirmed it would continue to review, assess and respond to relevant claims and objections throughout the life of the EP.
 - Regarding FARA's cover letter to Woodside, Woodside:
 - **(1 - 26)** Confirmed it had consulted FARA as a relevant person for this EP. Woodside provided a summary of what its consultation with FARA had included. Woodside confirmed it had reviewed, assessed and responded to FARA's topics of interest and provided an overview of its response on each topic: Impacts on Murujuga rock art as a result of onshore processing of Scarborough gas and regulatory frameworks (including text from the latest version of the EP which regarding updates to the WA State Government's GHG emissions policy and EPA guidance); studies and publications on Murujuga rock art; impact assessments – direct and indirect impacts; cultural heritage and cultural heritage values; health and social impacts; climate change, greenhouse gas emissions and climate budgets; consultation with relevant persons; and versions of the EP. For these eight topics, Woodside provided a summary of FARA's past feedback, claims and objections on each topic, as well as Woodside's response.
 - **(10)** Confirmed the EP was submitted to NOPSEMA in accordance with the Regulations and that Woodside had consulted FARA as a relevant person. Woodside reiterated that it would continue to review, assess and respond to feedback throughout the life of the EP.
 - **(10)** Noted FARA's statement and confirmed Woodside had not previously received a copy of FARA's 10 July 2024 letter to NOPSEMA. Woodside referred to Attachment B for further responses to the 10 July letter.
 - **(10)** Referred to its previous responses which set out information on consultation, including that feedback could continue to be provided throughout the life of the EP.
 - **(27)** Confirmed that, in complying with the Regulations, it had reviewed, assessed and responded to FARA's consultation correspondence as well as literature and information FARA had published publicly. Woodside noted that FARA's publicly available information stated FARA had links or collaborated with other organisations who were

fundamentally opposed to the oil and gas industry. This provided context for the consultation as FARA and Woodside may have differing views and positions. Given this, it was likely FARA and Woodside would have differing views on Woodside's responses to FARA's feedback and Woodside's assessment of the merits of FARA's objections or claims, and may be a reason why FARA was re-raising topics Woodside had already assessed and responded to during the consultation process.

- **(10, 27)** Confirmed it had consulted with FARA as a relevant person in accordance with Regulation 25 and had given FARA sufficient information, allowed a reasonable period of time and a reasonable opportunity to consult.
 - **(10)** Referred to earlier responses regarding examples of Woodside giving sufficient information to FARA.
 - **(2)** Confirmed that during consultation with FARA, Woodside reviewed, assessed and responded to FARA on cultural heritage values.
 - **(7)** Confirmed that during consultation with FARA, Woodside reviewed, assessed and responded to FARA on indirect impacts associated with the proposed activity and directed FARA to Section 2.3.6 of the EP for further information on the Acceptable levels and how they were assessed. Woodside confirmed the EP was consistent with the requirements of Regulation 21 (5) (c) and included control measures in place to reduce impacts and risks to ALARP and an acceptable level). Woodside confirmed it had also previously addressed FARA when it raised issues with a particular ALARP or Acceptability position.
- With regards to Attachment 1, FARA's letter to NOPSEMA dated 10 July 2024, Woodside:
- **(10)** Confirmed it has consulted with FARA as a relevant person in the preparation of this EP in accordance with Regulation 25 – Woodside has given FARA sufficient information, allowed a reasonable period of time and reasonable opportunity to consult. Woodside confirmed it had reviewed, assessed and responded to objections and claims raised by FARA. Woodside noted FARA's references to the Regulations and provided an excerpt from NOPSEMA's consultation guideline. Woodside provided summaries of the consultation timeline with FARA and information given to FARA.
 - **(7, 22)** Confirmed the concept of the EMBA was set out in the Regulations, and Woodside's understanding was further detailed in Section 4 of the EP. Woodside provided an overview of the EMBA for this activity. Woodside further confirmed the EP assessed the impacts and risks arising directly and indirectly from the activity. Woodside referred FARA to Section 6.6 of the EP for further information, and provided examples of some of the potential indirect impacts and risks associated with the EP.
 - **(25)** Referred FARA to information on Woodside's consultation process which, for this EP, included extensive public advertising enabling a person or organisation whose functions, interests or activities may be affected to self-identify.
 - **(3, 10)** Referred FARA to responses outlining Woodside's consultation with Traditional Owners, confirmed Woodside regularly engaged with a number of Traditional Owners, including MAC, on rock art, and confirmed it consulted in accordance with Regulation 25.
 - **(2, 11)** Disagreed with FARA's rejection of the risk analysis and referred FARA to Woodside's response setting out the context for consultation and the differing views held by FARA and Woodside. Woodside confirmed potential impacts of the EP activities on Murujuga rock art, Woodside's review of scientific studies and impact assessments of emissions from onshore processing were topics that had been raised and responded to a number of times.
 - **(19)** Confirmed that, in accordance with the Regulations, the EP provided for appropriate environmental performance outcomes, environmental performance standards and measurement criteria. Regarding available technologies, Woodside noted its letter to FARA on 8 October 2024 included information about scrubber technology, catalytic and electrostatic pollution control equipment, and underground disposal and sequestration of compounds.
 - **(24)** Disagreed with FARA's assertion that state approvals and regulatory instruments were inadequate, and referred FARA to Woodside's previous response regarding the context for consultation and the differing views held by FARA and Woodside.
 - **(2)** Advised there were no planned impacts to National Heritage values and referred FARA to previous responses regarding Woodside's application of "acceptable level" in the OPP and EP, and the context for consultation.

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- (2) Noted the excerpt FARA had used was to be read in its context of the impact assessment which demonstrated there was analysis supporting the statement.
- (2, 18) Disagreed with FARA's assertion around acid gas and Murujuga rock art. Woodside noted the excerpt FARA had highlighted from the MRAMP Monitoring Studies Report 2023 must be read in context. Woodside set out further context from the MRAMP and referred to Woodside's response regarding Woodside and FARA's differing views.
- (2) Advised that if other offshore sources such as Pluto and NWS gas fields declined, the relative proportion of NOx emissions to the Murujuga airshed associated with processing of Scarborough gas may theoretically proportionately increase. However, Woodside does not agree with the logic of FARA's calculation. Emissions and the airshed would continue to be assessed through future revisions of the EP and as external context evolved. Reduction of NOx at the Karratha Gas Plant (which is conditioned in MS1233) is a requirement even in context of Scarborough gas being processed at the Karratha Gas Plant.
- (2) Confirmed there were no planned impacts to Murujuga rock art under the EP. The Aboriginal Heritage Act 1972 (WA) and other legislation which applied to Woodside activities provided for the protection and preservation of Aboriginal sites and objects in WA. Woodside did not have input or oversight of the heritage approvals applied for by the Perdaman urea facility and would not comment on Perdaman matters.
- (20) Noted FARA had referenced the Australian Government publication entitled Matters of National Environmental Significance (2013) and confirmed the regulations enacted by Parliament that governed the content of the EP and also governed consultation for EPs were the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth). The EP demonstrated that impacts would be reduced to ALARP and acceptable levels.
- (2, 15, 20) Disagreed with FARA's position on the topic of Murujuga rock art, and advised that there were no planned impacts to National Heritage values. Woodside referred FARA to previous responses regarding the context for consultation with FARA.
- (2, 15, 20) Disagreed with FARA's assertions regarding deposition of acid material and studies and tests on Murujuga rock art. Woodside referred FARA to previous responses regarding the context for consultation with FARA.
- (2, 3, 15, 20) Disagreed with FARA's assertions regarding the National Heritage values of the Dampier Archipelago National Heritage Place and referred FARA to previous responses regarding the context for consultation with FARA.
- (2, 7) Disagreed with FARA's assertions and referred to a previous response which included notes on the applicable regulations governing the content of the EP, with which the EP complied.
- (2, 7, 22) Disagreed with FARA's assertions and referred FARA to previous responses including notes on why Woodside disagreed with FARA's calculations, and the applicable regulations governing the content of the EP.
- (2, 7, 20, 22) Disagreed with FARA's assertions and referred to a previous response which included notes on the applicable regulations governing the content of the EP, with which the EP complied. Woodside also noted the OPP had been accepted and that it included an assessment of environmental impacts and risks and demonstrated that they would be managed to an acceptable level.
- (11) Disagreed with the assertion that Woodside's assessment was inaccurate and that the wrong test had been applied. Woodside referred FARA to previous responses which included notes on the applicable regulations governing the content of the EP. Woodside confirmed Woodside and Perdaman had entered into a gas sale and purchase agreement, and that atmospheric emissions which may be created by processing Scarborough gas at the proposed Perdaman project had been considered and assessed in the EP. Woodside confirmed it did not have operational control over the Perdaman facility and was not involved in the items FARA had referenced and asserted had happened on the Perdaman facility.

- **(17)** Noted FARA had referenced a report authored in collaboration with FARA. The report did not appear to include original research or be peer-reviewed literature or published in a journal. Woodside noted the report presented many similar topics to those contained in the FARA letter to Woodside from 29 November 2024 and many of the claims in the article were addressed in Woodside's response.
- **(10)** Confirmed it had consulted FARA as a relevant person in the preparation of this EP in accordance with Regulation 25 – Woodside has given FARA sufficient information, allowed FARA a reasonable period of time and reasonable opportunity to consult. Woodside referred FARA to other relevant responses regarding consultation, indirect impacts, assessment of impacts on Murujuga rock art, and consistency with EPBC Approved program. Woodside
- **(10)** Noted FARA's comments that it was seeking further legal advice. Woodside noted that FARA's comment seemed to suggest FARA was well supported and advised by lawyers, which was further confirmation that FARA had had the opportunity to consult and it understood the information provided by Woodside.
- With regards to Attachment 2, FARA's letter to Woodside dated 29 November 2024, Woodside:
 - **(2, 11, 12, 13, 14, 15)** Referred FARA to previous responses regarding the context for consultation and confirmed it had reviewed, assessed and responded to FARA a time of times regarding assessment of direct and indirect impacts, including from onshore processing of Scarborough gas; cultural heritage and cultural heritage values; Perdaman; legislation relevant to the EP; and consultation.
 - **(3, 21)** Disagreed with FARA's assertions and:
 - ❖ Acknowledged impacts to cultural heritage had the potential to impact the health of Traditional Custodians, however Woodside did not agree that the activities under the EP would impact mental health due to the damage to cultural heritage arising from Woodside's operations.
 - ❖ Referred FARA to previous responses which set out information on consultation with First Nations groups, which had included undertaking cultural heritage surveys. Woodside further confirmed it had relationships with Traditional Custodians in the Pilbara and consultation enabled Traditional Custodians to understand the nature of Woodside's activities and provide feedback, including where they considered that activities were contrary to traditional lore or may lead to moral injury in the community.
 - ❖ Confirmed it regularly engaged with MAC through its CEO, Board, and Circle of Elders and had consulted extensively with MAC on the Scarborough project.
 - ❖ Referred to previous responses regarding Perdaman.
 - ❖ Provided a link to Woodside's response to the Joint Communication from Special Procedures.
 - **(5, 22)** Referred FARA to previous responses regarding the context of consultation and topics Woodside had previously reviewed, assessed and responded to FARA on, which included climate change, greenhouse gas emissions and carbon budgets.
 - **(2)** Referred FARA to previous responses regarding the context of consultation and topics Woodside had previously reviewed, assessed and responded to FARA on, which included onshore emissions associated with onshore processing.
 - **(2, 18, 24)** Referred FARA to previous responses regarding the context of consultation and topics Woodside had previously reviewed, assessed and responded to FARA on, which included MRAMP and Murujuga rock art, onshore emissions associated with onshore processing, and regulatory frameworks. (9)
 - **(2, 19, 24)** Disagreed with FARA's assertion regarding retrofitting technologies to Pluto Train 2. Woodside noted that it acted in accordance with Ministerial Statement 757 and its Best Practice Report and Pluto LNG Facility Air Quality Management Plan were updated to include Pluto Train 2 and were subject to review by the EPA before being approved by the Minister for the Environment on the advice of the EPA.
 - **(2, 18)** Referred FARA to previous responses regarding the context of consultation and topics Woodside had previously reviewed, assessed and responded to FARA on, which included Murujuga rock art, onshore processing of gas and regulatory frameworks.

<ul style="list-style-type: none"> ▪ (2, 18, 19) Referred FARA to previous responses regarding the context of consultation and topics Woodside had previously reviewed, assessed and responded to FARA on, which included Murujuga rock art, onshore processing of gas and regulatory frameworks; Woodside’s application of the “acceptable” level in the OPP and EP; and assessment of an installation of technology. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) FARA was a relevant person.</p>	<p>(1) Woodside assessment: In accordance with regulation 25 of the Environment Regulations, Woodside has assessed FARA as a relevant person based on its functions, interests or activities. Woodside response: Woodside confirmed FARA had been assessed as a relevant person for this EP and had been provided with sufficient consultation information and a reasonable period for consultation on this EP.</p>	<p>(1) Woodside’s assessment of FARA as a relevant person is described in Appendix F, Table 1.</p>
<p>(2) Impacts on the preservation and conservation of the Murujuga Petroglyphs.</p>	<p>(2) Woodside assessment: There are no planned impacts to Murujuga rock art as a result of onshore processing of Scarborough gas. Several independent studies and rock art initiatives conducted since the mid-2000s have not conclusively demonstrated a causal link between degradation of rock art and industrial activity, however Woodside will continue to assess science on this topic. Woodside response: Woodside provided information about the DWER-commissioned Ramboll (2021) study on air emissions in the Murujuga airshed and confirmed it had committed to supporting the MRAS and MRAMP. Woodside advised facilities associated with onshore processing of LNG were not subject to OPGGS(E)R and provided details of relevant legislation and approvals in place, as well as examples of best practice technologies implemented to minimise air emissions in Pluto LNG (and Train 2) design and operation. Woodside noted the <i>Aboriginal Heritage Act 1972</i> (WA) and other legislation provided for the protection and preservation of Aboriginal sites and objects in WA.</p>	<p>(2) The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP. Woodside supports the MRAS/MRAMP, as referenced as PS 7.1.1 in Section 6.7.7 of the EP.</p>
<p>(3) Impact of the Scarborough development on Traditional Custodians of Murujuga and the Dampier Archipelago.</p>	<p>(3) Woodside assessment: Woodside has consulted with First Nations relevant persons for this EP. Woodside response: Woodside confirmed it had consulted First Nations relevant persons and noted that under the United Nations Declaration on the Rights of Indigenous Persons that cultural heritage and other communal</p>	<p>(3) Woodside’s consultation with relevant persons is described in Appendix F, Table 2.</p>

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	rights of Indigenous people is to be managed through consultation with representative institutions.	
(4) Scarborough gas field development will lead to the production of 1.5 billion tonnes of carbon emissions over coming decades.	(4) Woodside assessment: Woodside does not agree with FARA's estimate of GHG emissions associated with the Scarborough Project. Woodside response: Woodside confirmed estimates of GHG emissions associated with the Scarborough Project were set out in the EP, with total lifecycle emissions estimated to be 880 MtCO ₂ -e.	(4) Estimates of GHG emissions associated with the Scarborough Project are described in Section 6.7.6 of the EP and summarised in Table 6-22.
(5) The climate impacts of the project which will cause increasing severity in heatwaves, bushfires, floods and storms, and the socio-economic pressures that will arise from these environmental changes.	(5) Woodside assessment: Woodside acknowledges that climate science understands climate change to be caused by the net cumulative global concentration of GHG emissions in the atmosphere, and changes in the global atmospheric GHG concentration cannot be attributed to any one activity or project, including the Scarborough Project. Woodside's view is that LNG can have a role in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes. Therefore, Woodside does not accept the Scarborough Project will contribute to the exacerbation of climate change impacts in Western Australia. Woodside response: Woodside confirmed its view was that LNG could have a role in the energy transition and the full volume of GHG emissions associated with the project was not expected to be additive. To facilitate a comparison against carbon budgets, a hypothetical assumption had been used in the EP where GHG emissions associated were hypothetically treated as additive, and the contribution was de minimis. Woodside confirmed climate change was recognised as a global issue, and, for reference, a contextual evaluation of climate change impacts was set out in detail in the EP. Woodside provided a list of relevant projections for climate change in Australia as well as nine key climate risks for the Australasian region.	(5) GHG emissions associated with the activity, and the potential impacts of climate change are described in Section 6.7.6 of the EP, and potential impacts of atmospheric emissions are assessed in Section 6.7.7 of the EP.
(6) Compromise of the Murujuga World Heritage consideration.	(6) Woodside assessment: Woodside understands the World Heritage nomination has been progressed with full awareness of existing and future industry. Woodside response: Woodside advised that it understood the World Heritage nomination had been progressed with full awareness of existing and future industry, and that its support for the World Heritage listing of the Burrup Peninsula reflected the co-existence of heritage and industry.	(6) The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.

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<p>(7) Impacts from all pollution sources on potential receptors.</p>	<p>(7) Woodside assessment: The measures and controls described within the EP address the potential impact from the proposed activities on FARA's functions, interests or activities. Woodside response: Woodside advised that while impacts to potential receptors were possible in the event of an unplanned diesel release from a vessel collision, Woodside considered it adopted appropriate controls to prevent a spill and to respond in the highly unlikely case a spill did occur. Woodside directed FARA to specific sections of the EP which contained risk assessments for planned emissions and discharges. Each of the risk assessments identified potential environmental receptors and impact, as well as controls to limit to ALARP and Acceptable levels. Woodside also provided additional information about the greatest volume that could be released in a worst-case loss of containment scenario and how the EMBA was used to frame species, communities and habitats that might be impacted.</p>	<p>(7) Potential risks and impacts from planned and unplanned activities are set out in sections 6.7 and 6.8 of the EP.</p>
<p>(8) Robust plans for decommissioning, including rehabilitation of sites used for processing and utilisation of Scarborough gas.</p>	<p>(8) Woodside assessment: Woodside proactively plans for decommissioning and activities. Woodside response: Woodside confirmed it had developed a Scarborough Decommissioning Strategy which would be used to plan for infrastructure decommissioning at the end of field life. Decommissioning of the offshore facility and infrastructure was described in the EP, however the decommissioning of onshore gas processing facilities was outside the scope of the EP.</p>	<p>(8) Decommissioning planning framework is set out in Section 7.3 of the EP.</p>
<p>(9) Support requests from Murujuga custodians [Individual 4] and [Individual 3] that they were relevant persons.</p>	<p>(9) Woodside assessment: Woodside has consulted extensively with the Traditional Custodians of Murujuga through their representatives and addressed the potential impacts which Traditional Custodian representatives have themselves identified. Woodside response: Woodside does not provide comment on the extent of consultation with specific individuals, including their status as relevant persons.</p>	<p>(9) Consultation with Traditional Custodians of Murujuga is described in Appendix F, Table 2 of the EP.</p>
<p>(10) Statements that Woodside had not provided sufficient information and a reasonable period of</p>	<p>(10) Woodside assessment: Woodside has provided FARA with sufficient information via the Consultation Information Sheet, Scarborough OPP, publicly available EP, and direct responses to FARA, for FARA to make an</p>	<p>(10) FARA has been given sufficient information and a reasonable period in which to make an informed assessment of the possible consequences of the activity</p>

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<p>time for consultation and needed to be transparent with FARA's feedback.</p>	<p>informed assessment of the possible consequences of the activity. Woodside allowed FARA 4.5 months for consultation for the EP and continues to accept feedback on the EP.</p> <p>Woodside response: Woodside provided consultation information, including a summary of the PAP, impacts and risks, and proposed mitigation and management strategies, directly to FARA on 9 August and 30 August 2023. In the absence of a response, Woodside proactively addressed previous feedback provided by FARA on the Scarborough Project and provided this to FARA on 5 December 2023, while also advising Woodside had extended the consultation period to 20 December 2023 – a total of 4.5 months. Woodside has continued to directly respond to FARA's feedback regarding this EP and has provided further proactive information, including a link to the EP once it was publicly available on NOPSEMA's website.</p>	<p>on its functions, interests or activities, as described in Section 5.4 of the EP.</p>
<p>(11) Increased levels of direct disturbance and displacement of petroglyphs that would result from the utilisation of Scarborough gas on the Burrup Peninsula, in particular by the proposed Perdaman urea facility.</p>	<p>(11) Woodside assessment: No disturbance or displacement of petroglyphs or other heritage sites is planned or anticipated in the development of the Scarborough Project. Woodside response: Woodside advised FARA the processing of Scarborough gas would occur within the footprint of existing Woodside LNG processing facilities. Woodside confirmed it had a gas sale and purchase agreement with Perdaman, and that atmospheric emissions which may be created by processing Scarborough gas at the proposed Perdaman project had been considered and assessed in the EP. Woodside would not comment on the activities and impacts of other proponents such as Perdaman.</p>	<p>(11) Not required.</p>
<p>(12) Increased intensity and duration of other industrial impacts on the Murujuga cultural landscape.</p>	<p>(12) Woodside assessment: There will be no additional impact associated with the processing of Scarborough gas. Woodside response: Woodside advised there would be no additional impact associated with the processing of Scarborough gas, which occurred within the footprint of existing Woodside LNG processing facilities. Developments at onshore processing were outside the scope of the activity described in the EP and were subject to relevant onshore regulatory frameworks and approvals.</p>	<p>(12) Not required.</p>
<p>(13) Increased disruption to ongoing cultural practises connected with the landscape.</p>	<p>(13)</p>	<p>(13) Consultation with Traditional Custodians of Murujuga is described in Appendix F, Table 2 of the EP.</p>

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	<p>Woodside assessment: The functions, interests or activities of Traditional Custodians of Murujuga are not anticipated to be impacted by the processing of Scarborough gas.</p> <p>Woodside response: Woodside confirmed it had consulted with Traditional Custodians to understand their functions, interests or activities, which are not anticipated to be impacted by the processing of Scarborough gas.</p>	
<p>(14) Impacts on opportunity for visitors, researchers and custodians to use the cultural landscape.</p>	<p>(14) Woodside assessment: In Woodside’s assessment, there will be no additional impact associated with the processing of Scarborough gas. Woodside response: Woodside advised there would be no additional impact associated with the processing of Scarborough gas, which occurred within the footprint of existing Woodside LNG processing facilities. Developments at onshore processing were outside the scope of the activity described in the EP and were subject to relevant onshore regulatory frameworks and approvals.</p>	<p>(14) Not required.</p>
<p>(15) Impacts on the opportunities that exist for local communities and custodians in connection with the protection and maintenance of the World Heritage Values of the area.</p>	<p>(15) Woodside assessment: In Woodside’s assessment, there will be no additional impact associated with the processing of Scarborough gas. Woodside response: Woodside advised there would be no additional impact associated with the processing of Scarborough gas, which occurs within the footprint of existing Woodside LNG processing facilities. Developments at onshore processing were outside the scope of the activity described in the EP and were subject to relevant onshore regulatory frameworks and approvals.</p>	<p>(15) Not required.</p>
<p>(16) Impacts on the ability to remediate and restore the cultural landscape in the future.</p>	<p>(16) Woodside assessment: In Woodside’s assessment, there will be no additional impact associated with the processing of Scarborough gas. Woodside response: Woodside advised there would be no additional impact associated with the processing of Scarborough gas, which occurs within the footprint of existing Woodside LNG processing facilities. Developments at onshore processing were outside the scope of the activity described in the EP and were subject to relevant onshore regulatory frameworks and approvals.</p>	<p>(16) Not required.</p>
<p>(17)</p>	<p>(17)</p>	<p>(17)</p>

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<p>Peer-reviewed scientific studies and other papers on impacts of industrial emissions.</p>	<p>Woodside assessment: Research to date on the impacts of emissions on rock art has not been conclusive. Woodside will continue to assess science on this topic and provide information to MRAS.</p> <p>Woodside response: Woodside confirmed the EP contained a review of published studies and literature on this topic, including information provided by FARA. Woodside included a statement from MRAS which noted the data currently available from previous monitoring projects did not allow for a conclusive answer on whether anthropogenic emissions were impacting Murujuga’s rock art, and the MRAS was essential to fill the gaps in knowledge. Woodside confirmed it would provide information to MRAS as it became available in recognition of the primacy of the program.</p>	<p>The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.</p>
<p>(18) Murujuga Rock Art Monitoring Program: Summary Monitoring Studies Report 2023 findings regarding the PH of rock surfaces.</p>	<p>(18) Woodside assessment: Woodside considers that no meaningful conclusions can be drawn from this data at this time, given the Summary Monitoring Studies Report notes “data collected in the first year of observation do not permit any firm conclusions to be drawn about trends in rock surface condition and any relationship to air quality over time”.</p> <p>Woodside response: Woodside advised FARA that the report cautioned against drawing conclusions from the data during the first year of observation, and that it was incorrect to state that the publications supported the hypothesis that industrial emissions were impacting rock art through increased acidification.</p>	<p>(18) The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.</p>
<p>(19) Options for controlling and mitigating industrial emissions, including wet scrubber technology, catalytic and electrostatic pollution control, underground disposal and sequestration of compounds.</p>	<p>(19) Woodside assessment: Woodside has assessed wet scrubber and CCS technologies, and catalytic and electrostatic pollution control equipment, in the EP.</p> <p>Woodside response: Woodside noted the design of onshore processing was outside the scope of the activity described in the EP but provided a position on the feasibility of wet scrubber technology, catalytic and electrostatic pollution control, and underground disposal of compounds. Woodside noted that in response to FARA’s feedback, consideration of SCR and CCS as potential controls had been considered in the relevant sections of the EP.</p>	<p>(19) Based on FARA’s feedback, Woodside has updated sections 6.7.6 and 6.7.7 of the EP to consider SCR, CCS and catalytic and electrostatic pollution control equipment as potential controls.</p>
<p>(20) Other impacts on Murujuga cultural heritage landscape and values.</p>	<p>(20) Woodside assessment: Woodside considers cultural features and heritage values in the EP and has included further information regarding the Murujuga</p>	<p>(20) A description of cultural features and heritage values is provided in Section 4.9 of the EP. Assessment of</p>

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	<p>cultural landscape in the latest version of the EP. Woodside supports further research on this topic, including MRAMP.</p> <p>Woodside response: Woodside noted further information had been included in the EP, describing the highly significant cultural landscape of Murujuga; the stories, knowledge and customs that were still held by Traditional Custodians and which had significance beyond their archaeological value; and statements from the UNESCO World Heritage Centre.</p>	<p>potential risks and impacts to cultural heritage is set out in Section 6.10 of the EP.</p>
<p>(21) Health and social impacts to communities and visitors resulting from processing and utilisation of Scarborough gas.</p>	<p>(21) Woodside assessment: Woodside notes FARA’s feedback regarding health and social impacts. The risk of processing Scarborough gas to human health has been assessed in the EP as Negligible.</p> <p>Woodside response: Woodside advised the magnitude of emissions from processing Scarborough gas was insufficient to lead to the exceedance of any relevant health criteria on the Burrup Peninsula or surrounding region. Noting the absence of any current impacts to health from industrial activity on Murujuga, the risk of processing Scarborough gas to human health was assessed as Negligible. Woodside also noted it monitored air quality around the Pluto LNG Plant as per the AQMP which was publicly available on the Woodside website.</p>	<p>(21) Consideration of human health impacts is set out in Section 6.7.7 of the EP.</p>
<p>(22) Impacts and effects related to climate change and GHG emissions, including sensitive environmental receptors that would be impacted including MNES and World Heritage Values; effects of Scarborough project on these receptors; modelling; and mitigation options; impacts on local Pilbara communities.</p>	<p>(22) Woodside assessment: Woodside acknowledges that climate science understands climate change to be caused by the net cumulative global concentration of GHG emissions in the atmosphere, and changes in the global atmospheric GHG concentration cannot be attributed to any one activity or project, including the Scarborough Project.</p> <p>Woodside response: Woodside advised the contextual evaluation of climate change impacts in the EP included environmental receptors. Outcomes from reputable sources such as the IPCC had been drawn upon to provide this contextual evaluation. Woodside provided an overview of its decarbonisation strategy, as relevant to Scope 1 GHG emissions. Woodside also advised that, as set out in the EP, the AR6-WGII contained information about projected impacts to health in the Australasian region, and therefore, Woodside did not accept that the Scarborough Project would contribute to the exacerbation of climate change impacts in Western Australia. Woodside confirmed it assessed emissions against a range of scenarios including the IEA NZE. Woodside also confirmed its understanding of the EMBA.</p>	<p>(22) A description of the existing environment is provided in Section 4 of the EP. A contextual evaluation of climate change impacts is set out in Section 6.7.6. A range of climate-related scenarios are also set out in Section 6.7.6.</p>

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<p>(23) Requests for other documents and information including studies and other material relied up in assessing the impact of chemical emissions on rock art, and GHG emissions and climate impacts.</p>	<p>(23) Woodside assessment: There is no requirement for Woodside to make studies and internal information publicly available to relevant persons. Woodside response: Woodside confirmed that studies and literature relevant to the potential for accelerated anthropogenic change to Murujuga rock art had been reviewed during the course of preparing the EP. The EP was publicly available on NOPSEMA's website.</p>	<p>(23) Not required.</p>
<p>(24) Specific reference to EPA's approval statement regarding Woodside's AQMP, noting the EPA has subsequently recommended in public advice that current controls are not adequate.</p>	<p>(24) Woodside assessment: The updated Pluto AQMP was approved by the Minister for Environment in 2020, following advice from the EPA. Further amendments may be made to Pluto documents after the outcomes from the MRAMP are published. Woodside is currently updating the Pluto LNG Plant's Greenhouse Gas Abatement Program in accordance with Ministerial Statement 1208. Woodside response: Woodside developed an Assessment of Best Practice for Minimising Emission to Air from Major Plant – Pluto Train 2 and a peer review was commissioned by DWER. The document was approved by the WA Minister for Environment in January 2020. Woodside's Pluto AQMP was updated to incorporate Pluto Train 2 and received approval from the Minister for Environment in April 2020, upon receiving advice from the EPA. Woodside later provided updated information regarding changes to the WA State Government's GHG emissions policy and EPA guidance.</p>	<p>(24) Not required.</p>
<p>(25) Information on independent archaeologists or anthropologists Woodside has consulted, and claims it had not consulted with a number of rock art experts and scientists.</p>	<p>(25) Woodside assessment: Woodside engages with independent experts in the assessment of its projects where appropriate. Woodside response: Woodside advised that it engaged with independent experts as appropriate, however Woodside considered Traditional Custodians to be the primary authority on the significance of the Murujuga Cultural Landscape. Woodside also confirmed it had consulted broadly for this EP, enabling a person or organisation whose functions, interests or activities may be affected to self-identify.</p>	<p>(25) Not required.</p>
<p>(26) Satellite imagery demonstrated air quality over the Burrup was damaging petroglyphs and would worsen.</p>	<p>Woodside assessment: Woodside is not able to comment on the satellite imagery because it does not include context on the collection methodology. Woodside uses more relevant techniques in conjunction with MRAMP which have produced inconclusive results with regards to whether industrial air emissions are affecting rock art.</p>	<p>(26) The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.</p>

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	<p>Woodside response: Woodside advised it was not able to comment on the satellite imagery because it did not include sufficient context on the collection methodology. Woodside used more relevant techniques in conjunction with MRAMP to monitor rock art. An MRAMP report (Dec 2023) produced inconclusive results with regards to whether industrial air emissions were affecting rock art and recommended further scientific studies were undertaken.</p>	
<p>(27) Woodside's October 2024 consultation update contained numerous misleading statements that misrepresented FARA's concerns.</p>	<p>(27) Woodside assessment: Woodside does not agree with FARA's assertions. In complying with Regulation 25, Woodside has reviewed, assessed and responded to FARA's consultation correspondence as well as literature and information FARA has published publicly. Woodside has responded in accordance with Woodside's understanding of items raised by FARA. Woodside response: Confirmed that, in complying with the Regulations, it had reviewed, assessed and responded to FARA's correspondence as well as information FARA had published publicly. This provided context for the consultation as FARA and Woodside may have differing views and positions. Given this, it was likely FARA and Woodside would have differing views on Woodside's responses to FARA's feedback and Woodside's assessment of the merits of FARA's objections or claims, and may be a reason why FARA was re-raising topics Woodside had already assessed and responded to during the consultation process.</p>	<p>(27) Not required.</p>
<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside has assessed the merits of any each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>The measures and controls described within this EP address the potential impact from the proposed activities on FARA's functions, interests or activities.</p>

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with FARA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

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Sufficient Information

Woodside has given FARA sufficient information to allow FARA to make an informed assessment of the possible consequences of the activity on FARA's functions interests or activities because:

- The Consultation Information Sheet has been publicly available on the Woodside website since August 2023. Woodside gave this information to FARA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the information about this activity which is contained in the OPP, information relevant to this EP provided to FARA during consultation and the specific information provided in the Consultation Information Sheet, Woodside gave FARA further detailed information which addressed FARA's specific feedback, objections or claims related to this EP (see information given on 5 December 2023, 12 January 2024, 22 February 2024, 7 March 2024, 28 May 2024, 4 July 2024, 8 October 2024, 20 January 2025).
- Woodside proactively reminded FARA about the ability to provide feedback on this EP and given FARA's interest in climate-related matters, gave FARA information on Woodside's Climate Transition Action Plan and 2023 Progress Report (email of 7 March 2024).
- Woodside again reminded FARA that it could provide feedback on this EP and proactively provided FARA with a link to the full EP when it was published on NOPSEMA's website (email of 4 July 2024). Woodside also provided specific references within the EP that addresses areas of interest identified by FARA.
- On 8 October 2024, Woodside also emailed FARA to confirm it would shortly resubmit the EP for assessment and reminded FARA that Woodside remained open to receiving feedback.
- On 20 December 2023, 1 February 2024, 24 May 2024 and 29 November 2024, FARA claimed it had not been provided with sufficient information to allow it to make an informed assessment of consequences on its functions, interests or activities. Woodside disagrees with this assertion because FARA responded to Woodside's email with questions specific to the activity indicating the information provided was sufficient to enable FARA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. FARA shared its feedback, claims and objections based on its understanding of the project, which Woodside assessed and responded to as demonstrated in the summary of consultation above. FARA continues to reiterate the same or similar topics that Woodside has provided responses to.

Reasonable Period

Woodside has allowed FARA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was advised in the initial consultation correspondence to FARA. That correspondence advised when consultation closed for purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside ultimately allowed FARA 4.5 months for consultation.
- During the consultation period and following it, Woodside proactively sent follow-up emails to FARA to remind FARA of consultation and timeframes on numerous occasions (30 August 2023, 5 December 2023, 12 January 2024, 22 February 2024, 7 March 2024, 4 July 2024, 8 October 2024, 20 January 2025).

- In this context, Woodside allowed FARA a reasonable period for consultation in preparation of the EP.
- On 20 December 2023, FARA claimed it had not been provided with a reasonable period of time to provide feedback. Woodside disagrees with this assertion as Woodside commenced consultation on 9 August 2023, and on 5 December 2023 provided additional information to FARA and advised it had extended the consultation period to 20 December 2023. The consultation requirement under Regulation 25 cannot be one that is incapable of being complied with within a reasonable time (Tipakalippa Full Court para 136).
- As has been made clear during consultation emails, Woodside is open to receiving feedback after EP submission and throughout the life of the EP. FARA has demonstrated it understands this and it continues to provide feedback to Woodside irrespective of consultation timeframes as demonstrated in its emails received on 1 February 2024, 24 May 2024 and 29 November 2024.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with FARA is appropriate and adapted to the nature of interests of FARA:

- Woodside published 8 advertisements in national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to FARA because Woodside notes FARA regularly uses social media as a means to share its views. This also allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside engaged with FARA in the manner that FARA has consulted in previous consultations, that is, by email.
- Woodside provided an alternative method for FARA to provide feedback by offering meetings. The offer to meet was not taken up by FARA.
- In the absence of feedback, Woodside sent a proactive letter to FARA on 5 December 2023 addressing previous feedback received from FARA on other EPs and seeking further feedback.
- Following publication of the EP on NOPSEMA's website, Woodside provided FARA with correspondence on climate-related matters and directed them to the sections of the EP which contain additional information relevant to their interests. This enable FARA to engage with those specific topics of interest and Woodside gave FARA yet another opportunity to consult on this EP.
- Woodside considers a reasonable opportunity was provided to FARA as evidenced in its exchanges with FARA and in particular as evidenced in FARA's responses on 20 December 2023, 1 February 2024, 24 May 2024 and 29 November 2024 where it provided feedback, claims and objections.

Outcomes of Consultation:

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- FARA provided feedback or objections or claims about the adverse impacts of the proposed activities to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
 - Responded to feedback from FARA and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
 - Based on FARA's feedback, assessed the feasibility of wet scrubber technology, catalytic and electrostatic pollution controls equipment, and CCS in sections 6.7.6 and 6.7.7. of the EP. No new measures were adopted as a result of FARA's feedback. However, as a result of consultation, Woodside has updated its EP to include assessment of wet scrubber technology, catalytic and electrostatic pollution controls equipment, and CCS.

- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Lock The Gate Alliance (LGA)

Context

LGA states on its website that it is a 'grassroots movement fighting destructive coal and gas across Australia'^[1] which suggests LGA has a fundamental objection to entities in the gas industry. LGA posted on Facebook in November 2023 about the lack of consultation with local Indigenous people about the seismic program for the Scarborough Energy Project.^[2]

Its website does not list any Woodside's projects under the heading Gasfields.^[3] Woodside nevertheless provided information to LGA about the various Scarborough Energy Project EPs and reached out to them three times in relation to this EP, including a proactive letter outlining past issues raised by LGA as well as offering to meet, however, despite providing opportunity and offering consultation, LGA has not engaged or responded.

The background and previous engagements with LGA are important because they confirm that consultation with LGA on this EP was appropriate and adapted to the nature of the interests of LGA.

Historical Engagement:

2022- 2023

- From 2022 to 2023 Woodside consulted and responded to feedback from LGA on the Scarborough D&C, SIT1, Subsea and Seismic EPs. A number of topics raised by LGA during consultation on those EPs have been addressed and raised as part of consultation on this EP and include:
 - LGA believed its members, especially those who lived in the Pilbara and Kimberley, those who depended on groundwater, and those who lived in areas subject to flooding (especially the Kimberley), would be affected by climate change which would be increased by the project.
 - The development would produce carbon emissions over the next 25 years, impacting climate change and socioeconomic pressures which would directly affect LGA and its supporters.
 - The Scarborough development would lead to damage to the National Heritage values of the Burrup Peninsula.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed LGA advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- When no response was received, on 30 August 2023, Woodside proactively sent a follow-up email asking LGA about consultation (Record of Consultation, reference 2.1).
- On 5 December 2023, in the absence of specific feedback from LGA, Woodside sent a letter via email, (Record of Consultation, reference 2.18) which stated the following:
 - LGA self-identified for the Scarborough D&C, SIT1 and Seismic EPs and provided feedback to Woodside which has been addressed.
 - Woodside had provided LGA with the Consultation Information Sheet for the Scarborough Operations EP on 9 and 30 August 2023 and also included a link to the online Information Sheet.
 - Woodside advised that consultation in the course of preparing this EP closed on 20 December 2023 and asked if LGA had feedback and/or would like to meet.

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- In the absence of feedback on this EP, Woodside reviewed previous feedback from LGA on other related Scarborough EPs and provided assessment and response as follows:
 - **(1)** LGA and its members would be affected by climate change which would be increased by the Scarborough project. It would especially affect its members who live in the Pilbara and Kimberley, the many people who depend on groundwater, and areas that were subject to flooding, especially the Kimberley.
 - **(2)** The Scarborough gas field development would lead to the production of 1.6 billion tonnes of carbon emissions over the next 25 years, adding to WA's emissions and the planet's burden of climate change impacts. LGA and its supporters stood to be directly affected by the climate impacts of the project, which would cause increasing severity in heatwaves, bushfires, floods, storms, etc., and socio-economic pressures that would arise from these environmental changes.
 - **(3)** The Scarborough gas field development would support further industrialisation of the Burrup Peninsula which would damage the National Heritage values of this area.
- Woodside responded as follows:
 - **(1)** GHG emissions relevant to the PAP, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008* and other industry standard database. The EP would assess direct emissions (Scope 1) and indirect emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*.
 - **(1)** The EP would assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. Direct GHG emissions of carbon dioxide, methane and nitrous oxide and Total carbon dioxide equivalent emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
 - **(2)** Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
 - **(3)** An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions had been undertaken including development of a decarbonisation plan for the Pluto Hub.
 - **(1,2)** Woodside had a Climate Strategy which was an integral part of the company strategy and had two key elements: Reducing Woodside's net equity Scope 1 and 2 GHG emissions and investing in the products and services that Woodside's customers need as they secure their energy needs and reduce their emissions.
 - **(1, 2)** Woodside's net equity reduction targets had an aspiration of net zero by 2050 or sooner and in 2022, Woodside achieved 11% reduction compared to starting base. Woodside planned to achieve net equity Scope 1 and 2 GHG emissions reduction targets in three ways:
 - ❖ Avoiding GHG emissions through the way it designs its assets.
 - ❖ Reducing GHG emissions through the way it operates its assets.
 - ❖ Originating and acquiring carbon credits to use as offsets for the remainder.
 - **(1, 2)** Avoiding and reducing emissions were Woodside's first priorities for meeting the net equity emissions reduction targets. However, offsetting emissions would allow Woodside more flexibility to meet these targets, while asset and technology decarbonisation plans were matured and implemented. In the longer term, where emissions prove to be hard-to-abate, any such residual emissions would also need to be offset using carbon credits to achieve its net zero aspiration.
- On 8 October 2024, Woodside emailed LGA advising it would shortly resubmit the EP to NOPSEMA for further assessment and that as part of the consultation process, Woodside had further assessed the merits of a number of objections and claims raised by LGA (SI Report, reference 65.1). Woodside reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:

- (1) Noted it acknowledged that climate science understood climate change to be caused by the net (cumulative) global concentration of GHG in the atmosphere. However, changes in global atmospheric GHG concentration could not be attributed to any one activity or project, including the Scarborough Project, as they were instead the result of global emissions, minus GHG sinks, that had accumulated in the atmosphere since the start of the industrial revolution.
- (2) Disagreed with LGA's estimation of GHG emissions associated with the Scarborough Project. Section 6.7.6 of the EP set out a breakdown of emissions sources and the total estimated GHG emissions associated with the project were approximately 880 MtCO₂-e over the life of the activity.
- (3) Noted it had operated on Murujuga for more than 35 years and understood the World Heritage nomination had been progressed with full awareness of existing and future industry. Woodside's support for the World Heritage listing of the Burrup Peninsula reflected the successful co-existence of heritage and industry.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) LGA and its members would be affected by climate change which would be increased by the Scarborough project. Members in the Kimberley and Pilbara will be especially affected.</p>	<p>(1) Woodside assessment: Changes in global atmospheric GHG concentration cannot be attributed to any one activity or project, including the Scarborough Project, as they are the result of global GHG emissions, minus global sinks, that have accumulated in the atmosphere since the industrial revolution started. It is Woodside's view that LNG can have a role in the energy transition and the full volume of GHG emissions associated with the project are not expected to be additive to global GHG emissions. Therefore, Woodside does not accept that the Scarborough Project will contribute to the exacerbation of climate change in Western Australia. Woodside response: Woodside acknowledged that climate science understood climate change to be caused by the net cumulative global concentration of GHG in the atmosphere, and that changes in global atmospheric GHG concentration could not be attributed to any one project. However, to facilitate a comparison against carbon budgets, a hypothetical assumption where GHG emission associated with the project were hypothetically treated as additive is considered in the latest version of the EP, and the contribution was de minimis. Notwithstanding this, climate change was recognised as a global issue and Woodside advised that for reference, a contextual evaluation of climate change impacts was set out in the EP. Woodside included a list of relevant projections for climate change in Australia and nine key climate risks.</p>	<p>(1) Comparisons against carbon budgets, and a contextual evaluation of climate change impacts, are set out in EP Section 6.7.6,</p>
<p>(2) The Scarborough gas field development will lead to the production of 1.6 billion tonnes of carbon emissions over the next 25 years, adding to WA's</p>	<p>(2) Woodside assessment: Woodside does not agree with LGA's estimation of GHG emissions associated with the Scarborough project. Woodside response: Woodside confirmed a breakdown of emissions sources extended over 11 pages in the EP, however the estimated GHG</p>	<p>(2) Estimates of sources and volumes of emissions associated with the Scarborough Project are provided in Section 6.7.6 of the EP and summarised in Table 6-22.</p>

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emissions and the planet's burden of climate change impacts.	emissions associated with the project were approximately 880 MtCO ₂ -e over the life of the activity.	
(3) The Scarborough gas field development will support further industrialisation of the Burrup Peninsula which will damage the National Heritage values of this area.	(3) Woodside assessment: There will be no additional impact expected on the Burrup Peninsula associated with the processing of Scarborough gas. Woodside response: Woodside noted it had operated on Murujuga for more than 35 years and that it understood the World Heritage nomination had been progressed with full awareness of existing and future industry. Woodside's support for the World Heritage listing of the Burrup Peninsula reflected the successful co-existence of heritage and industry.	(3) Cultural features and heritage values are described in Section 4.9 of the EP. This includes national heritage values. Atmospheric emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7. of the EP.
Woodside has addressed objections and claims as noted above.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	The measures and controls described within this EP address the potential impact from the proposed activities on LGA's functions, interests or activities.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with LGA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given LGA sufficient information to allow LGA to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of LGA because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to LGA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.

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- A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- In addition to the initial consultation information provided to LGA on 9 August 2023 and information relevant to this EP that was provided to LGA in previous consultations, Woodside proactively provided LGA with further detailed information which addressed LGA's specific topics of interest and feedback, objections or claims related to this EP (see information given 5 December 2023 and 8 October 2024).
- Woodside also emailed LGA to confirm it would shortly resubmit the EP for assessment and reminded LGA that Woodside remained open to receiving feedback (email of 8 October 2024).

Reasonable Period

Woodside has allowed LGA a reasonable period for consultation in the preparation of this EP because:

- A consultation process and period were advised in the initial correspondence to LGA including when consultation would close for the purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside ultimately allowed LGA over 4.5 months for consultation.
- During the consultation period and following it, when LGA did not provide a response, Woodside proactively sent follow-up emails to LGA to remind LGA of consultation and timeframes on numerous occasions (30 August 2023, 5 December 2023, 8 October 2024).
- LGA has not responded or replied to Woodside's correspondence.
- In this context, Woodside allowed LGA a reasonable period for consultation in preparation of the EP.
- As has been made clear during consultation, Woodside is open to receiving feedback after EP submission and throughout the life of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with LGA is appropriate and adapted to the nature of interests of LGA:

- Woodside published 8 advertisements in national, state and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This is appropriate and adapted to LGA because Woodside notes LGA regularly uses social media as a means to share its views. It also allowed for broad awareness of the activity and consultation.
- Woodside also provided LGA with a link to NOPSEMA's various information sheets and brochures assisting to provide LGA with context around the consultation process (9 August 2023).
- Woodside consulted LGA in the same way that LGA corresponded with Woodside, i.e. by email. Woodside has also provided an alternative method for LGA to provide feedback by offering meetings. This offer to meet for this EP was not taken up by LGA.
- When no response to received from LGA, Woodside proactively sent a follow-up consultation email on 30 August 2023, followed by a proactive letter on 5 December 2023 which addressed previous topics of interest and feedback received from LGA on the Scarborough Project that were relevant to this EP.

Outcomes of Consultation

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Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were required as LGA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in the EP address the potential impact from the proposed activity on LGA's functions, interests or activities.

Telstra

Summary of information provided and record of consultation for this EP:

- On 12 March 2020, Telstra Corporation Limited as operator and owner of the Fibre Optic Cable Assets (subsequently referred to as 'Telstra') and Woodside Energy Limited signed an agreement to support engagements regarding design of the Scarborough trunkline crossing over the Telstra Fibre Optic Cables.
- Since that time Woodside and Telstra have had regular project engagements on undertaking and executing the project activities.
- On 4 November 2024, Woodside emailed Telstra to provide additional information regarding the specific activities. Woodside attached a Consultation Information Sheet and a map of submarine communication cables relevant to the activity (Record of Consultation, reference 1.40).
- On 18 November 2024, as no response had been received,, Woodside proactively sent a follow-up email reminding Telstra of the opportunity to provide feedback (SI Report, reference 68.1).
- On 18 November 2024, Telstra responded thanking Woodside for the email (SI Report, reference 68.2). Telstra advised it would liaise with its infrastructure team to provide feedback.
- On 27 November 2024, Telstra provided a response to Woodside (SI Report, reference 68.3) which advised:
 - **(1)** As the trunkline appeared likely to cross subsea cables and be where Telstra had plans to install new subsea cables, Telstra's legal and delivery quality management teams should be informed.
 - **(2)** Any crossing of the Telstra subsea cable required agreement between Telstra/InfraCo and Woodside and a disturbance-free zone within a 1 km radius of any Telstra subsea cable should be maintained.
 - **(3)** As the FPU was to be anchored to the seabed, and connecting pipes laid on the sea floor which could impact Telstra's subsea network cables, consideration was required.
- On 4 December 2024, Woodside responded to Telstra (SI Report, reference 68.4) and advised:
 - **(1)** The Scarborough Pipeline Crossing Contract between Telstra and Woodside signed 21 April 2022 acknowledged the proposed route for the pipelay of the Scarborough pipeline crossed the cable(s) owned by Telstra. The pipeline had been constructed in accordance with the agreement and work was expected to be completed by end of 2024. Woodside's primary Telstra contact was copied to this response.
 - **(2)** The agreement included reference to the Safety Zone in connection with a particular Crossing Point that meant the intersecting area was within 20 m either side of the cable(s) and 25 m either side of the Scarborough pipeline at the Crossing Point. To date, in the event of construction / survey work within that area associated with the Scarborough pipeline construction, Telstra had been informed and CMART Requests put in place. The agreement included post-construction completion commitments within the safety zone.

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<p>– (3) The FPU would not be in proximity to any known Telstra infrastructure so no impact potential for Telstra owned assets in the area (considered in Table 4-28 in Section 4.10.6 of the EP).</p>		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Telstra's legal and delivery quality management teams may need to be informed as the trunkline appeared likely to cross Telstra's subsea cables and be in an area where Telstra had plans to install new subsea cables.</p>	<p>(1) Woodside assessment: Woodside has an existing agreement in place with Telstra. Woodside response: The Scarborough Pipeline Crossing Contract signed between Telstra and Woodside acknowledged the proposed route for the pipelay crossed the cable(s) owned by Telstra. The pipeline had been constructed in accordance with the agreement. For awareness, Woodside's primary Telstra contact was copied to this response.</p>	<p>(1) Not required.</p>
<p>(2) Any crossing of the Telstra subsea cable would require an agreement between Telstra/InfraCo and Woodside and a disturbance-free zone would need to be maintained.</p>	<p>(2) Woodside assessment: Woodside's agreement with Telstra acknowledges a disturbance-free zone with regards to any Telstra subsea cables. Woodside response: Woodside advised the agreement included reference to the Safety Zone in connection with a particular Crossing Point. Woodside had informed Telstra of any work within the area and CMART Requests had been put in place. The agreement included post-construction completion commitments within the safety zone.</p>	<p>(2) Not required.</p>
<p>(3) Potential impact with FPU connecting pipes and subsea network cables required consideration.</p>	<p>(3) Woodside assessment: Woodside has considered impact to Telstra's subsea network cable however is not aware of any Telstra infrastructure in the permit area. Woodside response: Woodside advised the FPU would not be in proximity to any known Telstra infrastructure so there was no impact potential for Telstra owned assets in the area. This was considered in Table 4-29 in Section 4.10.6 of the EP.</p>	<p>(3) Communications infrastructure in proximity to the PAA is considered in Table 4-29 in Section 4.10.6 of the EP.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of any objection or claim about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p>	<p>No additional measures or controls are required.</p>

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	<p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2).</p>	
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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Telstra for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Telstra sufficient information to allow Telstra to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of Telstra because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity and receiving environment, impacts and risks associated with the activity, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure: Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- Woodside also provided the Consultation Information Sheet to Telstra directly, along with additional information tailored to its needs including a map of submarine communication cables relevant to the activity.
- In addition, Telstra has been provided with tailored information regarding the Scarborough Project for the purposes of its role in relation to the design of the Scarborough trunkline crossing over the Telstra Fibre Optic Cables.

Reasonable Period

Woodside has allowed Telstra a reasonable period for consultation in the preparation of this EP because:

- In addition to a 30-day consultation period for this specific EP, Telstra has been engaging with Woodside on the Scarborough Project in a technical capacity since 2020.
- Consultation on this EP commenced 17 months ago in August 2023.
- Woodside and Telstra engaged throughout 2023 and 2024 regarding the Scarborough Project.

Reasonable Opportunity

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A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Telstra is appropriate and adapted to the nature of interests of Telstra:

- Woodside published 8 advertisements in national, state and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Telstra has been engaging with Woodside on the Scarborough Project in a technical capacity since 2020.
- In addition, Woodside sent Telstra information on the Operations EP and sought feedback.
- In this context, Woodside allowed Telstra a reasonable opportunity for consultation, as evidenced by Woodside's ongoing engagement with Telstra, and Telstra's feedback on 27 November 2024.

Outcome of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Telstra provided feedback regarding the proposed activities in this EP. In line with the intended outcome of consultation as set out in Section 5.2 and Regulation 24, Woodside has:
 - Responded to feedback from Telstra and has assessed the merits of each objection or claim (if any) about the adverse impact of the activities to which this EP relates.
 - Adopted appropriate measures (if any) because of consultation with Telstra.
 - Made no changes or inclusions to the EP as a result of consultation with Telstra because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Vocus

Summary of information provided and record of consultation for this EP:

- On 12 September 2024, Woodside telephoned Vocus to provide background on the Scarborough Operations EP and discuss consultation for the EP. Woodside also asked Vocus to provide the best contact person for consultation material regarding this EP.
- On 12 September 2024, Woodside emailed Vocus advising of the proposed activity (Record of Consultation, reference 1.39) and provided a Consultation Information Sheet, a communication cables map and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 12 September 2024, Vocus responded acknowledging receipt of Woodside's consultation information and advising it would consult internally as there were spur cables that had been built for the Scarborough FPU and Vocus needed to ensure their safety and readiness (SI Report, reference 61.1).
- On 19 September 2024, Vocus emailed and thanked Woodside for the information (SI Report, reference 61.2). Vocus noted that its Highclere active trunk cable was approximately 10km from Well 7. Vocus also:
 - **(1)** Advised there were two spur cables built for the Scarborough FPU in the area that all care should be taken not to interfere with.

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<ul style="list-style-type: none"> - (2) Advised that with the activity being about 10km from the main trunk cable, the Vocus (Highclere) Cable operated outside of the designated area of operations and as such, Vocus had no comments on the environment plan. - (3) Queried whether Woodside had been supplied with the route position lists for the spur cable and to reach out if not. • On 27 September 2024, Woodside responded thanking Vocus for its feedback (SI Report, reference 61.3). Woodside: <ul style="list-style-type: none"> - (1) Advised Woodside would take care not to interfere with the spur cables built for the Scarborough FPU. - (2) Noted that Vocus had no comments on the EP, due to the Highclere cable operating outside the designated area of operations. - (3) Confirmed it had the necessary information regarding the spur cables at this time. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) The need to take care to avoid interference with the spur cables for the FPU.	(1) Woodside assessment: Woodside is aware of the two spur cables built for the Scarborough FPU and will take care to avoid interference with the cables. Woodside response: Woodside confirmed it would take care to avoid interference with the spur cables.	(1) Communications infrastructure located in the vicinity of the PAP is set out in Section 4.10.6 of the EP and risked assessed accordingly in Section 6.
(2) No comments on the EP due to the Highclere cable operating outside the area of operations.	(2) Woodside assessment: Woodside accepts that Vocus has no comments on the EP. Woodside response: Woodside noted that Vocus had no comments on the EP due to the Vocus cable operating outside of the area of operations.	(2) Communications infrastructure located in the vicinity of the PAP is set out in Section 4.10.6 of the EP and risked assessed accordingly in Section 6.
(3) Enquired whether Woodside had the route position lists for the spur cables.	(3) Woodside assessment: Woodside currently has the necessary information from Vocus regarding the spur cables. Woodside response: Woodside confirmed it had the necessary RPL information at this time.	(3) Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of any objection or claim about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	No additional measures or controls are required.

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	<p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2).</p>	
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Outcomes of Consultation

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Vocus for the purpose of Regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Vocus sufficient information to allow Vocus to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Vocus on 12 September 2024, marking the commencement of consultation on this EP. However, Vocus was already broadly aware of the Scarborough Project as owner and installer of two spur cables for the Scarborough FPU. The Consultation Information Sheet provided to Vocus included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided Vocus with information tailored to its needs by including a map of submarine communication cables relevant to the activity.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- A consultation period was stated in the initial correspondence to Vocus advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside’s methodology allows a 30-day consultation period in the preparation of the EP and Woodside allowed Vocus 30 days for consultation.
- In this context, Woodside allowed Vocus a reasonable period for consultation in preparation of the EP, as evidenced by Vocus’s response on 19 September 2024.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with Vocus is appropriate and adapted to the nature of interests of Vocus:

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- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside phoned Vocus to advise of consultation and to confirm Vocus's preferred consultation method and staff contact.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Vocus provided feedback regarding the proposed activities in this EP. In line with the intended outcome of consultation as set out in Section 5.2 and Regulation 24, Woodside has:
 - Responded to feedback from Vocus and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
 - Adopted appropriate measures (if any) because of consultation with Vocus.
 - Made no changes or inclusions to the EP as a result of consultation with Vocus because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

[Individual 2]

Context

[Individual 2] self-identified as a Relevant Person for this EP on 20 December 2023. In their correspondence, [Individual 2] claimed they were a 'relevant person' by listing their credentials working with Aboriginal people, being a Fellow of the Australian Anthropological Society and undertaking research on Burrup rock art. They also advised that they provided pro-bono advice to FARA and Save Our Songlines.

[Individual 2] publicly states they are a co-founder and current committee member of FARA (FARA website and [Individual 2]'s LinkedIn profile cited in January 2024).^{xlviii} In January 2024, Woodside responded to [Individual 2]'s claims raised in their letter. [Individual 2] has subsequently not re-engaged with Woodside on this EP. In correspondence to [Individual 2], Woodside has offered to meet with FARA.

On 26 May 2024, [Individual 2] attended the Woodside AGM where they stated "I am the co-founder of Friends of Australian Rock Art". A YouTube video of [Individual 2]'s AGM appearance at the AGM is currently posted on FARA's website.^{xlix}

This context is provided in order to demonstrate that, in the circumstances, Woodside has engaged in consultation that is appropriate and adapted to the nature of interest of [Individual 2].

Summary of information provided and record of consultation for this EP:

- On 20 December 2023, [Individual 2] sent an email and letter to Woodside (SI Report, reference 56.1), making the following assertions:
 - **(1)** Woodside was required to consult with them as a relevant person as they had worked as a consultant anthropologist and professional Aboriginal heritage consultant for a wide range of Aboriginal organisations in Western Australia and the Northern Territory, was a Fellow of the Australian Anthropological Society and had provided evidence as an expert witness in numerous Federal Court native title cases since 2012.

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- **(2)** Woodside had availed itself of the BMIEA Agreement 4.6 gag clause which legally prevented native title BMIEA signatories as well as the Murujuga Aboriginal Corporation from objecting to Woodside's destructive activities within the Burrup industrial area.
- **(3)** They were aware of strong opposition in the local community to the continuation of Woodside's activities on the Burrup.
- **(4)** Climate Analytics had estimated that the project would result in around 1.3 billion tonnes of GHG emissions over its lifetime.
- **(5)** In terms of the rock art, it was of particular concern that, as revealed in several recent refereed scientific publications, Woodside was releasing vast quantities of NOX and SOX emissions which had generated very high acid levels which were destroying the rock art patina.
- **(6)** Although the recent Murujuga Rock Art Monitoring Program first year interim report was at a very early stage of its research, it was still able to make very disturbing findings relevant to industrial impacts on the rock art.
- **(7)** They understood Woodside had declined requests by FARA and others to install state of the art scrubber technology in its Burrup facilities.
- **(8)** Impacts on Murujuga petroglyphs and cultural heritage landscape fell under the scope of indirect consequences that would result from the EP and must be assessed in accordance with the approved NOPSEMA Program under the EPBC Act, and separately, as part of the broader environment that must be considered by NOPSEMA in accordance with the Environment Regulations.
- **(9)** Impacts on the opportunities that exist for local communities and custodians in connection with the protection and maintenance of the World Heritage Values of the area.
- **(10)** Requests for peer reviewed evidence of how Woodside was assessing the impacts of the project on Murujuga's Aboriginal cultural heritage.
- **(11)** Explain how Woodside planned to mitigate the impacts of this project on their area of research interest and activities.
- On 12 January 2024, Woodside responded to [Individual 2] (SI Report, reference 56.2) as follows:
 - **(1)** Woodside recognised [Individual 2] was a co-convenor, co-founder and committee member of FARA which, as referenced on the FARA website, held committee meetings monthly. Woodside provided consultation information including a Consultation Information Sheet on this EP to FARA on 9 August 2023 and 30 August 2023.
 - **(1)** As well as directly consulting FARA, Woodside advertised the EP and consultation opportunities in The Australian, The West Australian, regional newspapers and Indigenous newspapers and ran two social media campaigns across Facebook and Instagram. Woodside also had experts and consultation information available at a number of community events in the Pilbara, Gascoyne and Murchison, as well as a tailored community roadshow in these regions throughout September and October 2023.
 - **(1)** The Consultation Information Sheet had been available to members of the public on the Woodside website since 9 August 2023. Woodside noted that [Individual 2] made references in their correspondence about claims they'd found on the Woodside website and suggested that to ensure they received future information about Woodside's EPs they could subscribe to receive information.
 - **(1)** [Individual 2] was informed that in the absence of a response from FARA to Woodside's correspondence and requests for feedback on this EP in August 2023, Woodside proactively reviewed, considered and addressed previous feedback provided by FARA on the Scarborough Project and related EPs, and assessed that feedback in the context of this EP.
 - Woodside provided this to FARA on 5 December 2023 and advised that the consultation period, which had been extended, would close on 20 December 2023. FARA acknowledged it received both the Consultation Information Sheet and the letter on 5 December 2023 in its correspondence on 20 December 2023.
 - Woodside included the Attachment A from the 5 December 2023 letter which had been sent to FARA and included a review of past feedback from FARA on the Scarborough D&C, SIT1 and Seismic EPs and provided assessment and response.

- (1) Based on the Consultation Information Sheet provided to FARA on 9 August 2023, which provided a summary of the activity description, the receiving environment, a comprehensive summary of impacts and risks associated with Petroleum Activities Program and proposed mitigation and management measures, and Woodside's substantive feedback on 5 December 2023 addressing previous feedback from FARA, as well as responses raised in FARA's 20 December 2023 letter, FARA had been provided with sufficient information to allow it to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- (1) Woodside considered that based on [Individual 2]'s stated and close connection to FARA and [Individual 2]'s stated use of the Woodside website, they had access to sufficient information to allow an informed assessment of the possible consequences of the proposed activity on [Individual 2]'s functions, interests or activities, along with reasonable time and opportunity, to consult in relation to this EP.
- (2) Woodside took the reference to BMIEA Agreement 4.6 to mean clause 4.8 of the Burrup and Maitland Industrial Estates Agreement (BMIEA) as Clause 4.6 related to financial compensation by the Western Australian government.
 - Woodside did not interpret Clause 4.8 of the BMIEA as preventing Traditional Custodians of Murujuga Aboriginal Corporation (MAC) from objecting to projects in the Burrup industrial area if they had concerns about heritage impacts.
 - Woodside understood that MAC's own interpretation of Clause 4.8 was "The No Objections clause in the BMIEA does not prevent MAC and the contracting parties represented by MAC from objecting to the damage, destruction or any deleterious impact to cultural heritage values within a development footprint"
 - Woodside believed the State Government similarly agreed that this clause did not prevent Traditional Owners from objecting to projects on Murujuga.
- (3) Woodside had consulted extensively with Traditional Custodians in the development of this EP.
- (4) GHG emissions relevant to the Petroleum Activities Program (PAP), including sources and volumes, would be presented and assessed in this EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008* and other industry standard database. This EP would assess direct and indirect GHG emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*.
- (4) The publicly available Scarborough OPP presented GHG emissions estimate calculations for the total expected field life of the Scarborough Project, broken into the different emissions categories.
- (3) It was not clear what recent referred scientific publications were being referred to, however compliance data for the Pluto LNG facility was available online in the Annual Compliance Reports Pluto Annual Compliance Report – Ministerial Statement 757 as amended by Ministerial Statement 850.
- (6) The Murujuga Rock Art Monitoring Program (MRAMP): Summary Monitoring Studies Report 2023 explicitly cautioned against drawing conclusions, noting that data collected in the first year of observation does not permit any firm conclusions to be drawn about trends in rock surface condition and any relationship to air quality over time."
 - Woodside recognised the need for further research and supported the MRAMP and would implement relevant practicable measures resulting from the programme.
- (7) A number of technologies had been assessed by Woodside for emissions control at the Pluto LNG Plant.
 - Pluto LNG's Air Quality Management Plan (AQMP) had been reviewed and approved by the Western Australian Environment Protection Authority (EPA) as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant. This included independent peer review assessment which concluded that the design of Pluto Train 2 was consistent with best practice in the context of air emissions control for LNG plants.
 - The AQMP was publicly available on the Woodside website.
- (8) The Scarborough Offshore Project Proposal (OPP – publicly available on the NOPSEMA website) was assessed and subsequently accepted by NOPSEMA, in accordance with regulation 5D of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009*.

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- (11) Impact and risk assessments in this EP would provide controls that would be in place to manage risks to ALARP and acceptable levels. Mitigation measures relating to impacts onshore at Pluto Train 2 were managed according to the relevant environmental approvals including the Pluto LNG's AQMP.

Ongoing engagement:

- On 7 March 2024, Woodside proactively sent [Individual 2] an email stating that as they had shown an interest in climate-related matters, they might be interested in Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report which summarised Woodside's climate-related plans, activities, progress and climate-related data (SI Report, reference 56.3 and 57.6).
 - The email included links to the CTAP and the ASX Announcement.
 - (1) It also re-iterated that consultation in the preparation of this EP had closed however, demonstrated an openness to engage in further consultation by saying feedback could continue to be provided during the life of an EP, including after consultation had closed on the EP, during EP assessment, and after an EP had been accepted by NOPSEMA.
 - (1) Finally it stated Woodside was available to meet with [Individual 2] to discuss this EP should they be interested.
- On 4 July 2024, Woodside once again proactively emailed [Individual 2] and provided a link to the publicly available EP on the NOPSEMA website (SI Report, reference 56.4). Woodside once again demonstrated an openness to engage in further consultation by advising that it continued to assess and respond to feedback throughout the life of an EP, and that Woodside was available to meet with [Individual 2] over the following month. Based on [Individual 2]'s previous feedback on climate-related matters, Woodside also proactively included a table of specific topics which [Individual 2] might be interested in, and where to find that topic in the EP, including:
 - (4) Information relating to routine and non-routine GHG emissions, including estimated emissions over the life of the facility and assessment of potential climate change impacts, could be found in Section 6.7.6 of the EP.
 - (5, 8, 11) Information about assessment of potential risks/impacts of atmospheric emissions on Murujuga rock art could be found in Section 6.7.7
 - (3, 8) Information about assessment of potential risks/impacts on cultural heritage in Section 6.10 of the EP.
 - (7) Information about atmospheric emissions requirements for onshore processing facilities could be found in Section 6.7.7 of the EP.
- On 8 October 2024, Woodside emailed [Individual 2] to thank them for their feedback and for engaging with Woodside on this EP (SI Report, reference 56.5). Woodside advised it would shortly resubmit the EP to NOPSEMA for further assessment and that as part of the consultation process, Woodside has further assessed the merits of a number of objections and claims raised by [Individual 2]. Woodside reiterated that feedback from relevant persons could continue to be provided, including after consultation for the EP had closed and after an EP had been accepted by NOPSEMA. Woodside:
 - (4) Advised it did not agree with Climate Analytics' emissions estimation. Woodside noted a breakdown of emissions sources extended over 11 pages in the EP, however the total estimated lifecycle GHG emissions associated with the Scarborough project were approximately 880 MtCO₂-e.
 - (5) Acknowledged NO_x and SO_x were emitted in association with Scarborough gas processing onshore and provided an overview of the Department of Water and Environmental Regulation (DWER)-commissioned Ramboll Australia Pty Ltd study on air emissions in the Murujuga airshed. Ramboll (2021) indicated that NO_x loads from industrial sources were estimated to be 13,937 tonnes per year and were forecast to reduce to 12,052 tonnes per year by 2030, and based on estimations in Ramboll (2021) and the Pluto AQMP, it was estimated the Pluto LNG facility would account for 11% of the total estimated 2030 NO_x load in the Murujuga region.
 - Woodside further advised that it did not agree that the statement on its website was factually incorrect. It noted there had been several independent studies and rock art monitoring since the mid-2000s, none of which had conclusively demonstrated a causal link between degradation of rock art and industrial activity. Woodside provided a statement from MRAS regarding the lack of conclusive data currently available and how the MRAS was required to fill the gaps in knowledge. Woodside noted it would continue to assess science on the topic and provide information to MRAS.

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- (7) Advised that the design of onshore processing facilities was outside the scope of the activity described in the EP; nevertheless, while wet scrubbers or SCR technology might result in an overall reduction in NOx emissions, it also resulted in ammonia emissions. Woodside noted that worldwide, it was aware of SCR being retrofitted to power generation turbines but not LNG mechanical drive turbines. Woodside noted that based on feedback, SCR technology would be reflected as a potential control that was assessed by Woodside in section 6.7.7 of the EP.
- (8) Woodside confirmed onshore atmospheric emissions associated with the onshore processing of Scarborough gas were assessed in Section 6.7.7. of the EP and concluded to contribute only a minor portion to the overall industrial emission airshed load on the Burrup Peninsula. Based on the implemented controls and State regulatory processes including MRAS, which can apply adaptive management and mitigation measures, impacts from indirect air emissions as a result of onshore processing of Scarborough gas were considered Negligible and of an ALARP and Acceptable level.
- (10) Advised that further information on the cultural features and heritage values of the Murujuga Cultural Landscape had been included in the latest version of the EP. Woodside confirmed the EP contained a thorough review of published studies and literature on the topic, and that it would continue to assess science as it became available and provide information it became aware of to MRAS.
- (11) Advised it did not agree there was conclusive scientific evidence that onshore emissions associated with processing of Scarborough gas would impact Murujuga rock art. Woodside confirmed it had committed to supporting the MRAS and MRAMP and noted that in accordance with State regulatory conditions, it had developed a Best Practice Report for the Pluto LNG Facility, and the Pluto AQMP, to demonstrate that best available practicable and efficient technologies were used to minimise and monitor air emissions. The reports were updated in 2019 before being approved by the Minister for Environment in 2020 on advice of the EPA. Woodside further provided examples of best practice technologies implemented in Pluto LNG and Pluto LNG (Train 2) design and operation.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) [Individual 2] was a relevant person.</p>	<p>(1) Woodside assessment: Woodside has applied its relevant persons methodology following [Individual 2]'s self-identification and has considered [Individual 2] as a relevant person for this EP. Woodside response: Woodside directly responded to [Individual 2]'s feedback, objections and claims. Woodside also included a copy of the Consultation Information Sheet, though noted that [Individual 2]'s feedback demonstrated their familiarity with Woodside's website and that consultation information for this EP had been available on the website since August 2023. Woodside acknowledged [Individual 2]'s close connection to FARA and noted Woodside had been consulting FARA on this EP since August 2023.</p>	<p>(1) Woodside's assessment of [Individual 2] as a relevant person is described in Appendix F, Table 1 of the EP.</p>
<p>(2) BMIEA Agreement 4.6 preventing objection to Woodside activities.</p>	<p>(2) Woodside assessment: Woodside takes the reference to mean clause 4.8 of the Burrup and Maitland Industrial Estates Agreement (BMIEA) and does not interpret clause 4.8 to prevent Traditional</p>	<p>(2) Not required.</p>

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	<p>Custodians of MAC from objecting to projects in the Burrup industrial area if they have concerns about heritage impacts.</p> <p>Woodside response: Woodside advised it had taken the reference to mean clause 4.8 of the BMIEA and it understood both MAC and the State’s interpretation was that the clause did not prevent Traditional Owners from objecting to projects on Murujuga.</p>	
<p>(3) Concerns regarding damage to the cultural landscape and rock art and impacts on Traditional custodians who would be directly impacted (emissions, facilities) and indirectly impacted (noise, view, dust).</p>	<p>(3) Woodside assessment: Woodside has consulted extensively with the Traditional Custodians of Murujuga, through their representatives, for this EP. Woodside response: Woodside confirmed it had consulted extensively with Traditional Custodians of Murujuga, through their representatives, and had included the appropriate management of cultural heritage on Murujuga, and all matters raised were directly addressed through the EP. Woodside noted it did not provide comment on the content of consultation undertaken with Traditional Custodians, which may include confidential or culturally sensitive material.</p>	<p>(3) Consultation with Traditional Custodians of Murujuga is described in Appendix F, Table 2 of the EP.</p>
<p>(4) Estimations from Climate Analytics that the project would result in about 1.3 billion tonnes of GHG emissions.</p>	<p>(4) Woodside assessment: Woodside does not agree with Climate Analytics’ GHG emissions estimations regarding the Scarborough Project. Woodside response: Woodside confirmed that a breakdown of emissions sources was provided in Section 6.7.6 of the EP, and that the total estimated lifecycle GHG emissions associated with the project were approximately 880 MtCO₂-e.</p>	<p>(4) Estimated sources and volumes of GHG emissions associated with the Scarborough Project are set out in Section 6.7.6 of the EP and summarised in Table 6-22.</p>
<p>(5) It was of particular concern that, as revealed in recent scientific publications, Woodside was releasing vast quantities of NOX and SOX emissions, and a Woodside website statement that there was no peer reviewed scientific evidence which identified impacts on Burrup rock art from industrial emissions associated with LNG production was factually incorrect.</p>	<p>(5) Woodside assessment: Woodside supports further research on the impacts of emissions on rock art and is taking reasonable and practicable measures to minimise emissions. Woodside response: Woodside advised it was not clear what “recent referred scientific publications” referred to but provided an online link to compliance data for the Pluto LNG facility. Woodside noted that it had also advised FARA that reports published in relation to the Murujuga Rock Art Monitoring Program did “not permit</p>	<p>(5) The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.</p>

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	any firm conclusions to be drawn about trends in rock surface condition and any relationship to air quality over time”.	
(6) Murujuga Rock Art Monitoring Program: Summary Monitoring Studies Report 2023 findings regarding the PH of rock surfaces.	(6) Woodside assessment: Woodside considers that no meaningful conclusions can be drawn from this data at this time, given the Summary Monitoring Studies Report notes “data collected in the first year of observation do not permit any firm conclusions to be drawn about trends in rock surface condition and any relationship to air quality over time”. Woodside response: Woodside noted that the report cautioned against drawing conclusions from the data during the first year of observation, and that it was incorrect to state that the publications supported the hypothesis that industrial emissions were impacting rock art through increased acidification.	(6) The potential impacts from indirect emissions associated with onshore processing of Scarborough gas are assessed in Section 6.7.7 of the EP.
(7) Requests by FARA and others for Woodside to install scrubber technology in its Burrup facilities.	(7) Woodside assessment: Woodside assesses wet scrubber technology as a potential control in the EP. Woodside response: Woodside noted that design of onshore processing facilities was outside the scope of this EP, and it was not aware of instances where SCR was retrofitted to LNG mechanical drive turbines. Woodside also noted that while SCR might result in a reduction of NOx and SOx, it resulted in ammonia emissions which were of concern to MRAMP. Woodside advised that as a result of feedback, it had assessed SCR as a potential control in the EP.	(7) Based on feedback, assessment of SCR technology as a potential control has been included in Section 6.7.7 of the EP.
(8) Impacts on Murujuga petroglyphs and cultural heritage landscape fell under the scope of indirect consequences that would result from the EP and must be assessed in accordance with the approved NOPSEMA Program under the EPBC Act.	(8) Woodside assessment: Impacts from indirect air emissions associated with the onshore processing of Scarborough gas are assessed as Negligible and of an ALARP and Acceptable level in the EP. Woodside response: Woodside confirmed indirect air emissions associated with the processing of Scarborough gas were assessed in the EP and were concluded to contribute only a minor portion of the overall industrial emission airshed load on the Burrup Peninsula. Atmospheric emissions within the Murujuga airshed	(8) Routine Atmospheric Emissions: Offshore, and Indirect Emissions from Gas Processing Onshore are assessed in Section 6.7.7 of the EP.
(9)	(9)	(9)

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<p>Impacts on the opportunities that exist for local communities and custodians in connection with the protection and maintenance of the World Heritage Values of the area.</p>	<p>Woodside assessment: There will be no additional impact associated with the processing of Scarborough gas.</p> <p>Woodside response: Woodside advised there would be no additional impact associated with the processing of Scarborough gas, which occurred within the footprint of existing Woodside LNG processing facilities.</p>	<p>Not required.</p>
<p>(10) Peer-reviewed evidence of how Woodside is assessing impacts on Murujuga’s Aboriginal cultural heritage.</p>	<p>(10) Woodside assessment: The EP contains a review of published literature and studies and Woodside continues to assess science on this topic.</p> <p>Woodside response: Woodside advised further information on the cultural features and heritage values had been included in the latest version of the EP, which also contained a thorough review of published studies. Woodside confirmed it would continue to assess science as it became available.</p>	<p>(10) The cultural features and heritage values of the Murujuga Cultural Landscape are described in Section 4.9.5 of the EP.</p>
<p>(11) Explanation as to how Woodside was mitigating the impacts of the project on [Individual 2]’s area of interest.</p>	<p>(11) Woodside assessment: Woodside does not agree there is conclusive scientific evidence that onshore emissions associated with processing of Scarborough as will impact Murujuga Rock Art.</p> <p>Woodside response: Woodside confirms it supports the MRAS and MRAMP. To comply with State regulatory conditions, operators were also required to implement a number of controls related to air emissions. Woodside also advised its Best Practice Report and Pluto AQMP had been approved as demonstrating the best available practicable and efficient technologies to minimise and monitor air emissions.</p>	<p>(11) Not required.</p>
<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside has assessed the merits of any objection or claim about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>The measures and controls described within this EP address the potential impact from the proposed activities on [Individual 2]’s functions, interests or activities.</p>

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with [Individual 2] for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given [Individual 2] sufficient information to allow [Individual 2] to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of [Individual 2] because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. [Individual 2] self-identified on 20 December 2023, marking the commencement of consultation on this EP. Woodside responded to [Individual 2]'s feedback on 12 January 2024 and provided a copy of the Consultation Information Sheet which set out:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Noted that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).
- Woodside has addressed all feedback, claims or objections raised by [Individual 2] in their 20 December 2023 letter in Woodside's 12 January 2024 response. Accordingly, Woodside has provided [Individual 2] with sufficient information for [Individual 2] to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- Woodside proactively reminded [Individual 2] about the ability to provide feedback on this EP and given [Individual 2]'s interest in climate-related matters, gave [Individual 2] information on Woodside's Climate Transition Action Plan and 2023 Progress Report (email of 7 March 2024).
- Woodside again reminded [Individual 2] that they could provide feedback on this EP and proactively provided [Individual 2] with a link to the full EP when it was published on NOPSEMA's website (email of 4 July 2024). Woodside also provided specific references within the EP that addresses areas of interest identified by [Individual 2].
- On 8 October 2024, Woodside also emailed [Individual 2] to confirm it would shortly resubmit the EP for assessment and reminded [Individual 2] that Woodside remained open to receiving feedback.

Reasonable Period

Woodside has allowed [Individual 2] a reasonable period for consultation in the preparation of this EP because:

- Consultation for this EP commenced 17 months ago when the Consultation Information Sheet for this EP was publicly available on the Woodside website. [Individual 2] has shown familiarity with the website and the activities to which this EP relates as evidenced in their consultation feedback to Woodside
- [Individual 2] self-identified on the final day of the extended 4.5-month consultation period, indicating awareness of the consultation period.
- As has been made clear during consultation with [Individual 2], Woodside is open to receiving feedback after EP submission and throughout the life of the EP.

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- [Individual 2] has not responded to any of Woodside's correspondence addressing their feedback or claims or objections. The consultation process must be pragmatic and able to be complied with. A titleholder is not required to wait forever for consultation to close.
- The above confirms a reasonable period has been provided.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with [Individual 2] is appropriate and adapted to the nature of interests of [Individual 2] because:

- [Individual 2] self-identified for this EP, demonstrating awareness of the activity and sufficient opportunity to gain an understanding of the social, economic and cultural features of the environment to make an informed assessment of the possible consequences of the activity on their functions, interests or activities.
- Woodside published 8 advertisements in national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity and also of consultation.
- Woodside consulted in the same way as [Individual 2] consulted, i.e., via email. Woodside has also provided an alternate method for [Individual 2] to provide feedback by offering meetings. The offer for meeting has not been taken up by [Individual 2].
- Following publication of the EP on NOPSEMA's website, Woodside proactively provided [Individual 2] with correspondence on climate-related matters and directed them to the sections of the EP which contain additional information relevant to what Woodside understands to be topics of interest to [Individual 2].

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- [Individual 2] provided feedback or objections or claims about the adverse impact of the proposed activities to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulation 24, Woodside has:
 - Responded to feedback from [Individual 2] and has assessed the merits of any objections or claim about the adverse impact of activities to which this EP relates.
 - Adopted appropriate measures (if any) because of consultation with [Individual 2].
 - Based on [Individual 2]'s feedback, assessed the feasibility of wet scrubber technology in Section 6.7.7. of the EP. No new measures were adopted as a result of [Individual 2]'s feedback. However, as a result of consultation, Woodside has updated its EP to include assessment of wet scrubber technology.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

Save Our Songlines (SOS) and / or [Individual 3] and / or [Individual 4]

Context

Woodside understands [Individual 4] is a Kuruma Mardudhunera woman and a Traditional Custodian of Murujuga. [Individual 3] is a Mardudhunera woman and a Traditional Custodian of Murujuga. SOS is an organisation formed by [Individual 4] and [Individual 3]. Woodside understands that the views expressed by SOS, [Individual 4] and [Individual 3] are the same, and has

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consulted with SOS, [Individual 4] and [Individual 3] on this basis since at least early 2022. This approach has not been disputed by SOS, [Individual 4], [Individual 3] or their legal representative.

- [Individual 4], [Individual 3] and SOS have been consulted in their individual Traditional Owner and NGO capacities. Notably:
 - [Individual 4], [Individual 3] and SOS have been consulted in their capacities as NGOs who have a fundamental objection to the Scarborough Project and seek to pause or stop the Scarborough Project or “Stop Scarborough Gas” (Ref for example SOS website; 14 March 2023 meeting; 4 October 2023 meeting; Individual 3’s protest outside the Woodside building December 2023; correspondence May 2024).
 - [Individual 4] has indicated she is a Kuruma Mardudhunera woman and [Individual 3] has indicated she is a Mardudhunera woman. Woodside has consulted with the Kuruma and Mardudhunera people including through consultation with MAC, Wirrawandi Aboriginal Corporation (WAC), Ngarluma Aboriginal Corporation (NAC) and Robe River Aboriginal Corporations. Both [Individual 4] and [Individual 3] have been consulted in their capacities as Traditional Custodians of Murujuga in so far as their interests relate, in accordance with Indigenous tradition, to spiritual and cultural heritage and values. Further, the results from an ethnographic heritage assessment undertaken for the Scarborough Project development footprint identified no ethnographic sites, values or traditional interests relevant to this EP or the Scarborough Project (Ref MAC consultation).
- As to individual interests:
 - Woodside has addressed in this EP, topics expressed to be of interest to [Individual 4] and [Individual 3]. Controls that Woodside has either updated or implemented as a result of consultation with [Individual 4] and [Individual 3] have been discussed with them and their views have been provided on them.
 - [Individual 4] has been invited to all consultation meetings and has been provided opportunity to consult. Despite this, she has not engaged in consultation in person since 25 July 2023 and, despite being invited, did not attend consultation meetings on 12 September 2023 or 4 and 5 October 2023. Woodside has made enquiries directly to [Individual 4] by email, phone calls and text messages and has sought confirmation from [Individual 3] and the lawyers Woodside understood were acting for [Individual 4]. [Individual 4] has declined to attend meetings.
 - During correspondence, in Court affidavits and at meetings with [Individual 4] and [Individual 3] (in so far as [Individual 4] attended those meetings), [Individual 4] and [Individual 3] have expressed a deep and emotional interest in topics they have covered. They have provided information to Woodside about “visions” that come to them individually (Ref for example 14 March 2023 and 12 September 2023 meetings), information that comes to them from ancestors from the grave [Ref for example 4 October meeting], messages that are communicated to them individually from Murujuga rocks [Ref for example 14 March 2023 meeting] and to their ability to listen and speak on behalf of all plants and animals [Border Affidavit 7 Sept 2023]. Stories about Songlines have been communicated to Woodside as being “my stories” and Songlines have been expressed as being personal, as expressed in consultation [for example 4 October 2023]. Songlines have also been expressed to Woodside as having been recent and individually held, rather than ancient, group Songlines, passed down in community [25 July 2023 meeting]. For example, [Individual 4], [Individual 3] and SOS expressed words to the effect that the whales is a “big dreaming story [they] just finished” [25 July 2023 meeting]. This may have been what was referenced as a being a first proposed response by video of storytelling generally and of storytelling on-Country [Ref EDO emails 25 July 2023 and 9 August 2023]. [Individual 4], [Individual 3] and SOS later declined to provide the videos. In addition, a whale Songline was expressed to Woodside as having been recently envisioned by [Individual 3] when she was doing certain activities at a recent visit to Rosemary Island [Ref for example 12 September and 4 October meetings – sensitive woman’s only information]. Information has been expressed along the lines of being “my story”, “my Songline” [Ref 12 September and 4 October 2023 meetings].
 - In circumstances where it has been expressed to Woodside that these stories and interests are deeply personal and personally emotionally connected to [Individual 4] and [Individual 3], they are interests that are individual. They have not been expressed by [Individual 4] and [Individual 3] as being stories or connections that are communal or are held more broadly by Traditional Owner groups. Indeed, other Traditional Owner groups consulted by Woodside have indicated a position to the effect that it is very unlikely that cultural stories and values can be known only to individuals within a community. This is consistent with the sentiment expressed in [Individual 3]’s statements from 2017 when she was on the Board of MAC to the effect that: “MAC has been embraced by the community as the body for cultural knowledge and guidance which allows the community to speak with one

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spiritual and cultural voice and with strong cultural integrity... [A]dvice given by individuals ... may not reflect the current and more valid cultural leadership ... [of MAC]”.

Ethnographic surveys undertaken by Traditional Owner groups, as well as continuing engagements with those groups, have similarly indicated there are no specific values and interests at risk of harm in the operational area or EMBA for this EP. In these circumstances, the interests conveyed by [Individual 4] and [Individual 3], while respected by Woodside appear to be individual interests and presented in an individual capacity, rather than interests held by a community.

- Consistent with the indications from other Traditional Owner groups, Woodside is not aware of any other individual interests of this nature (and no other individual First Nations persons have indicated to Woodside that they have any such individual or personal interests).
- Consistent with this position, [Individual 4], [Individual 3] and SOS have expressly stated to Woodside that their views and positions differ from that of MAC and other elders. In addition, Woodside has received communications, strong warnings and information from authorised Traditional Owner groups expressing a view that [Individual 4], [Individual 3] and SOS do not speak for them and [Individual 4], [Individual 3] and SOS views are not held by the communities. [Ref for example; emails from Woodside 3 October 2023].

Conduct in consultation:

- The process of consultation has limits. It is a statutory obligation that must be understood in a practical and reasonable way so that it is capable of performance. It cannot be one that is incapable of being complied with within a reasonable time. The consultation scheme must operate in a way that a titleholder will be able to, with reasonable diligence, discharge its obligation to consult. The consultation obligation is an obligation that must be capable of practical and reasonable discharge by the person upon whom it is imposed. Consultation does not require consent. In carrying out consultation, titleholders are not required to wait indefinitely for a response.
- During consultation, [Individual 4], [Individual 3] and SOS have made serious statements including that Woodside has caused delays in meetings, has misrepresented information, is disrespectful, discriminatory and has breached protocols. In each instance, Woodside has expressed concern that [Individual 4], [Individual 3] and SOS have formed these perceptions of consultation, and Woodside has taken time to address and clarify the issue in each instance. Despite challenging circumstances, Woodside personnel have maintained professionalism and integrity in genuine efforts to consult with [Individual 4], [Individual 3] and SOS during all consultation efforts, which have been occurring since at least 2022.
- Woodside has demonstrated a genuine openness to consult, provide and listen to information. In most instances, meetings have opened and closed amicably but, during the progress of the meeting, Woodside employees have often been subjected to hostile, offensive language and behaviours, placing Woodside personnel in unacceptable situations. This includes recent demands to meet on Rosemary Island, where cultural safety concerns were raised by the recognised Traditional Custodians. Woodside does not consider these outcomes to be aligned with the consultation requirement in circumstances where Woodside has fulfilled its obligations under regulation 25 of the Environment Regulations.
- Woodside has made clear to [Individual 4], [Individual 3] and SOS that consultation is not to be used by parties as a mechanism to stall and delay approvals [Ref Woodside 17 April 2023 letter], especially in circumstances where parties (as in this instance) have publicly stated a fundamental objection to the Scarborough Project and stated publicly an aim including one which is to stop or pause the Scarborough Project (most recently by email in May 2024).
- We note that [Individual 3] has actively been involved in public protests outside the Woodside building (for example December 2023).
- We also note that [Individual 3] has featured on Facebook posts made by the Australian Conservation Foundation indicating [Individual 3] has a connection with ACF.

This context, as well as the notes regarding historic consultation are important as they inform the way Woodside has approached consultation for this EP and demonstrate that the consultation process is appropriate and adapted and to nature of interests of SOS, [Individual 3] and [Individual 4].

Summary

Since at least 2022, Woodside has provided information to [Individual 4], [Individual 3] and SOS on the Scarborough Project to allow an informed assessment of the possible consequences of the activity on their functions, interests or activities in their Traditional Owner and NGO capacities. While activities related to this EP have been discussed during consultation since that time

(summarised in the table of feedback referred to in the bulleted list below), information specific to this EP has been provided to [Individual 4], [Individual 3] and SOS as set out below. This information has been sufficient to allow an informed assessment of the possible consequences of the activity on their functions, interests or activities via:

- The Consultation Information Sheet publicly available on the Woodside website since August 2023.
- PowerPoint slides about this EP were available for consultation at meetings on 25 July 2023, 12 September 2023, 4 and 5 October 2023 and the meetings cancelled by [Individual 4], [Individual 3] and SOS of 20 December 2023 and 16 February 2024.
- The Consultation Information Sheet and the Summary Information Sheets were provided to [Individual 4], [Individual 3] and SOS by email on 3 September 2023, 22 November 2023, 27 November 2023, 13 December 2023, 19 December 2023, 21 December 2023, 13 February 2024.
- The Consultation Information Sheet for this EP was provided to, and taken by [Individual 4], [Individual 3] and SOS at the face-to-face meeting in Karratha on 12 September 2023.
- To facilitate consultation on this EP, a table of topics of interest and feedback previously provided by [Individual 4], [Individual 3] and SOS on other Scarborough EPs and Woodside's assessment of relevance to this EP and proposed controls for comment and feedback by [Individual 4], [Individual 3] and SOS was provided to [Individual 4], [Individual 3] and SOS by email on 27 November 2023, 13 December 2023, 19 December 2023, 21 December 2023 and 13 February 2024.
- A video describing the floating production unit and the Scarborough Project was emailed to [Individual 4], [Individual 3] and SOS on 19 December 2023, 13 February 2024.

The method of consultation in relation to the broader Scarborough project including this EP has been informed by [Individual 4], [Individual 3] and SOS's preferences and has included consultation meetings held on-Country but also online when requested by [Individual 4], [Individual 3] and SOS. Most recently (in April 2024), SOS and [Individual 3] have stated that consultation is only to occur in writing. Since that time, Woodside has followed this preference.

Woodside has confirmed to SOS, [Individual 3] and [Individual 4] that Woodside been available to meet specifically in relation to this EP since 3 September 2023. When no response was received from SOS, [Individual 3] or [Individual 4], Woodside followed up to confirm Woodside is open to consult on this EP on 22 November 2023, 27 November 2023, 13 December 2023, 19 December 2023 seeking a time to meet. A meeting was agreed and confirmed for 20 December 2023. That meeting was cancelled by EDO (who we understand to be SOS, [Individual 3] and [Individual 4]'s lawyers) and [Individual 3] (during which EDO confirmed it was now only representing [Individual 3]).

Aside from the cancelled meeting for this EP, [Individual 3] and EDO had not taken up Woodside's offer for a face-to-face consultation meetings and have otherwise not made themselves available to meet. [Individual 4] and SOS have not provided any responses to Woodside's offers to consult or for notifications about consultation and Woodside's confirmation it is open to receiving feedback, claims and objections on the EP. Woodside repeatedly advised EDO, SOS, [Individual 3] and [Individual 4] that consultation for the preparation of this EP would close on 20 December 2023. Regardless of consultation closing, Woodside communicated availability to meet with SOS, [Individual 4] and [Individual 3] to discuss this EP or to receive and consider further claims or objections from SOS, [Individual 4] and [Individual 3]. Following further consultation correspondence, Woodside, SOS and [Individual 3] agreed to meet face-to-face with [Individual 4] and EDO on 16 February 2024. This meeting was also cancelled by EDO, SOS, [Individual 3] and [Individual 4] (Woodside had been advised [Individual 4] was attending the meeting despite EDO not representing her).

On a number of occasions, Woodside has confirmed to [Individual 4], [Individual 3] and SOS the purpose of consultation and has provided NOPSEMA's Brochure "Consultation on offshore petroleum environment plans", Guideline, "Guideline: Consultation in the course of preparing an environment plan" and Policy "Draft policy for managing gender-restricted information PL2098" [Ref for example: email 7 June 2023].

In meetings and correspondence:

- [Individual 4], [Individual 3] and SOS have confirmed that, since around 2022, they have received and read the Scarborough Project EP materials (most recently 4 October 2023).
- [Individual 4], [Individual 3] and SOS have raised specific issues and displayed an understanding of the activities under this EP as well as the broader Scarborough Project. (Ref Woodside 29 March 2023 email; 27 July 2023 email; meetings on 25 July 2023; 12 September 2023; 4 October 2023).

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 512 of 919

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- Since around 2022, [Individual 4], [Individual 3] and SOS have been represented by the Environment Defenders Office (EDO), a legal team with experience in oil and gas projects and EPs, who are experienced in representing clients who, in accordance with Indigenous tradition, have cultural and spiritual values and who wish to consult on environmental matters.
- Objections, claims and topics relevant to [Individual 4], [Individual 3] and SOS and addressed by Woodside, were initially focused on Murujuga and included a focus on land-based impacts to Murujuga rock art, removal of Murujuga rock art, air emission impacts on Murujuga rock art, restriction to sites on the Burrup Peninsula and to plants and animals of Murujuga (Ref letter to Woodside 6 June 2022; letter to NOPSEMA 26 September 2022). In 2023, their focus shifted to an interest in Sea Country and marine plants and animals (Ref for example Second Border Affidavit dated 7 September 2022). As of mid-September 2023, they have identified Rosemary Island (near the Burrup Peninsula, and not near the EMBA or operations area) as being a place of particular cultural significance. Notably, the Second Border Affidavit dated 7 September 2023 stated that [Individual 4], [Individual 3] and SOS have information to share with Woodside and this information “needs to be shared at the appropriate place, namely on-Country”. However, the Second Border Affidavit did not identify Rosemary Island as being a culturally significant location or the only location at which that information could be shared with Woodside.
- During consultation, objections, claims and topics have been unclear or inconsistent in some instances – in one meeting [Individual 3] indicated her concern was not pygmy blue whales (PBW) (a focus of EP noise controls due to PBW distribution and behaviour) but humpback whales (12 September 2023). At the next meeting, Woodside was criticised for reflecting a position that humpback whales were a topic of specific interest to [Individual 4], [Individual 3] and SOS (4 October 2023). Generally speaking, [Individual 3] has stated that whales carry important Songlines, the whale Dreaming, and connection between land and sea (Second Border Affidavit dated 7 September 2023). This EP contains several controls to manage potential risks and impacts to whales to ALARP and acceptable levels.
- Throughout consultation, it has been made clear to Woodside that [Individual 4], [Individual 3] and SOS hold a fundamental objection to the Scarborough Project and their preference is for the Scarborough Project to be stopped (Ref: 14 March 2023; 12 October 2023 meetings; SOS website; 9 May 2024 consultation correspondence).
- Throughout consultation, [Individual 4], [Individual 3] and SOS have continued to state that they have further information they wish to tell Woodside and that they say Woodside requires for its EPs. However, despite Woodside offering ample opportunities for consultation, including online and in person on-Country, [Individual 4], [Individual 3] and SOS have expressly refused to provide that information to Woodside (Ref most recently February 2024 consultation correspondence).
- On a number of occasions, [Individual 4], [Individual 3] and SOS have declined to provide the information to Woodside but have been prepared to provide the information publicly (Affidavits of Jessica Border September 2023) or offered to provide the information to others (Ref: letter to NOPSEMA 26 September 2022; letter to NOPSEMA 4 October 2023). Most recently, SOS and [Individual 3] have stated they will only provide information in writing (April 2024 consultation correspondence).
- Woodside has attended all meetings with SOS, [Individual 3] and [Individual 4] in listening mode to hear from [Individual 4], [Individual 3] and SOS and also in presentation mode, ready, willing and able to present and provide information on the activities proposed under the EP as well as on the broader Scarborough Project. In those meetings, Woodside has listened to items and topics raised by [Individual 4], [Individual 3] and SOS and has prepared and brought material in the form of presentations, tables, maps and video to share with [Individual 4], [Individual 3] and SOS. (Ref meetings on 14 March 2023; 25 July 2023; 12 September 2023; 4 October 2023 and presentations prepared for those meetings).
- During meetings, Woodside has discussed with [Individual 4], [Individual 3] and SOS, the controls Woodside has in place to manage topics relating to potential impacts and risks relating to spiritual and cultural connections and values that Woodside understands are relevant to [Individual 4], [Individual 3] and SOS. Woodside has also attended ready, willing and able to answer questions and provide additional information as appropriate and when requested. In a number of instances, despite confirmation that Woodside would present on all of the activities under the Scarborough Project, [Individual 4], [Individual 3] and SOS expressly told Woodside that they did not want to hear from Woodside on the Scarborough Project activities and instead directed Woodside to only discuss or present on specific aspects of each EP. Despite that direction, at some of those meetings, [Individual 4], [Individual 3] and SOS raised queries that related more broadly to other activities in the Scarborough Project. Woodside provided responses and information in relation to those questions (Ref: meetings and following correspondence on 14 March; 25 July; 12 September; 4 October 2023).

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 513 of 919

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- As part of consultation, Woodside has also taken time to show [Individual 4], [Individual 3] and SOS how the information [Individual 4], [Individual 3] and SOS have provided during consultation has been incorporated into Woodside's EPs and how Woodside has proposed control measures to manage potential impacts and risks to topics Woodside understands are relevant to them, including to request any input by [Individual 4], [Individual 3] and SOS into the proposed control measures or any other available measures. [Individual 4], [Individual 3] and SOS have provided input in some cases and have otherwise expressed views in relation to the control measures. In some instances, in response to queries seeking their views, [Individual 4], [Individual 3] and SOS have explicitly stated that they do not have any views to share with Woodside on the control measures (12 September; 4 October meetings).
- In a number of instances, [Individual 4], [Individual 3] and SOS have indicated an impossibility to provide information to Woodside – in that they cannot yet, or that it is not possible to provide the information. For instance they have made statements to Woodside to the effect that there is information that they do not yet know and that they don't know when they will know (for example, information that the Murujuga rocks have not yet disclosed to them) (Ref 14 March 2023) or information that they will find out from animals who speak to them (Second Border affidavit Sept 2023 para 11) as well as information that comes to them from time-to-time in visions (12 September 2023).
- During consultation, consistent with NOPSEMA's guidance and suggestions, Woodside has asked [Individual 4], [Individual 3] and SOS on a number of occasions whether there are other individuals who ought to be consulted. [Individual 4], [Individual 3] and SOS have made various references to MAC. In some instances, [Individual 4], [Individual 3] and SOS did not provide an answer to the question of their view on others Woodside ought to consult (email to EDO 3 August 2023 and EDO response 9 August 2023). In 2023, [Individual 4], [Individual 3] and SOS stated words to the effect that "it is not (their) responsibility to identify relevant persons on Woodside's behalf and to distribute information to them". Consultation with [Individual 4], [Individual 3] and SOS has not otherwise identified any other groups or individuals who, in accordance with Indigenous tradition, may have spiritual and cultural connections to the environment that may be affected by the activity, or whom may have other communally held functions, activities or interests (Ref example: Woodside email 15 Sept 2023 email; EDO email 19 September 2023).
- In correspondence and meetings, Woodside has questioned what it has perceived to be general statement by SOS and [Individual 3] that they have relevant information to provide Woodside and then, when given the opportunity, a general refusal by [Individual 4], [Individual 3] and SOS to provide information to Woodside, including at meetings where [Individual 4], [Individual 3] and SOS had confirmed they would provide information (25 July 2023; 12 September 2023; 4 October 2023; December 2023).
- Throughout consultation, [Individual 4], [Individual 3] and SOS have expressed a general dislike and mistrust of Woodside and a reluctance to provide Woodside with information, stating in a meeting in 2023 words to the effect: "I don't trust any of you. There is no trust here, trust me lady, there is nothing" (Ref 4th October 2023 meeting).
- Given those circumstances, and with a genuine aim of attempting to manage potential impacts and risks to [Individual 4], [Individual 3] and SOS and to more broadly understand their functions, interests or activities, as well as topics that might relate to a fundamental objection to the Scarborough Project and in accordance with Indigenous tradition, [Individual 4], [Individual 3] and SOS's potential spiritual cultural and connections and values; Woodside has reviewed publicly available information. This has included reviewing [Individual 3]'s statement made to the Commonwealth Senate Standing Committee on Environment and Communications (Ref Opening Statement from Miss [Individual 3], Chairperson Murujuga Aboriginal Corporation – Public Hearing, Perth – 20 April 2017), information provided by [Individual 4], [Individual 3] and SOS on their SOS website, submissions made by [Individual 4], [Individual 3] and SOS to various Commonwealth government bodies (Ref: February 2022 and 19 October 2022 s10 ATSIHP Act applications) the United Nations (Ref: UN letter 22 September 2022), the Woodside Board (Ref June 2022), various government bodies (Ref NOPSEMA letters including 22 September 2022), statements, questions and answers made at Annual General Meetings held by Woodside (Ref transcript Question time 19 May 2022; 2023 and 2024), in proceedings against NOPSEMA and Woodside in the Federal Court (Ref *[Individual 3] v NOPSEMA*; Border Affidavits dated August and September 2023) and in various Appeal Convenor processes. Topics, claims and objections in that information have been included in the EP where relevant and in brief, provide the following insights:
- Information set out in the publicly available information shows that [Individual 4], [Individual 3] and SOS have an understanding of the Scarborough Project and the activities involved in the Scarborough Project and this EP.
- [Individual 3] has expressed a view that MAC holds the key responsibility for the stewardship and management of the Land and Sea Country according to the Aboriginal Lore and Culture; MAC's work includes collecting environmental and heritage records to assist with compiling data (building a library) relevant to Law and Culture on sacred sites, including 42

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islands of the Dampier Archipelago; MAC has been embraced by the community as the body for cultural knowledge and guidance which allows the community to speak with one spiritual and cultural voice and with strong cultural integrity. This means that some decisions or advice given by individuals previously, may not reflect the current and more valid cultural leadership that governs today (Ref: 20 April 2017 Opening Statement). This position is at odds with the position being put forward by [Individual 4], [Individual 3] and SOS in consultation with Woodside.

- [Individual 4], [Individual 3] and SOS hold a fundamental objection to the Scarborough Project (for example: SOS website; consultation correspondence in April 2024).
- On a number of occasions, [Individual 4], [Individual 3] and SOS have declined to provide the information to Woodside and have instead provided information publicly (Affidavits of Jessica Border September 2023) or offered to provide the information to others (Ref: letter to NOPSEMA 26 September 2022; letter to NOPSEMA 4 October 2023). [Individual 3] has confirmed she has publicly protested against Woodside, outside the Woodside building (December 2023).

Consultation is complete:

- Consultation under regulation 25 of the Environment Regulations is complete because sufficient information, a reasonable period of time and reasonable opportunity have been provided to [Individual 4], [Individual 3] and SOS in their individual Traditional Owner and NGO capacities.
- The fact that relevant persons have requested further consultation does not mean that Woodside has not met its obligations under regulation 25 of the Environment Regulations. This is underscored in the current circumstances where further consultation is not reasonable and is not required in order to comply with Regulation 25.
- Persons being consulted have stated they have additional information they wish to share with Woodside for Woodside's EPs (Ref Federal Court proceedings) but then declined to share this information.
- Persons being consulted have stated that information has not yet been revealed to them, is not yet known to them, it will be revealed 'in time', but also they do not know when it will be revealed to or known by them (for instance where the wisdom of Murujuga rocks have not yet spoken to them; when animals have not yet provided information to them or where they at various times, receive information in visions) (Ref meetings on 14 March 2014 and 12 September 2023; Border Affidavit dated 17 August 2023).
- Persons have affirmed that information about certain matters can only be disclosed to people "born as biological female and living as a female in accordance with their beliefs and customary practices" (Ref Border Affidavit 7 September 2023 para 12). Woodside has provided [Individual 3] information about how it deals with culturally sensitive information and that protocol that has been followed.
- In December 2023, SOS and [Individual 3] noted that they would not provide information to Woodside. This was reiterated in correspondence on 28 March 2024 and 9 May 2024. As outlined in its response on 29 May 2024, Woodside has provided sufficient information, a reasonable period of time and opportunity to be heard and share concerns/ claims and/or objections, and to input on measures Woodside could implement to manage risks and impacts. Woodside also noted that information held by [Individual 3] had not been provided to Woodside despite numerous offers and opportunities to do so.
- On 13 August 2024, Woodside emailed EDO and reiterated that consultation for the purposes of preparation of this EP had closed and confirmed feedback could be provided for the life of an EP. Woodside provided an attachment with a summary of objections, claims and additional information raised by [Individual 3] in relation to this EP.
- In all of the circumstances, consultation under Regulation 25 of the Environment Regulations has been completed and Woodside has met its obligations under Regulation 25.

Historical Engagement:

2017 – September 2022

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Woodside has engaged with the Ngarluma and Mardudhunera communities on the Scarborough Project since 2018 through their representative organisations including Murujuga Aboriginal Corporation (MAC), Wirrawandi Aboriginal Corporation (WAC) and Ngarluma Aboriginal Corporation (NAC). This is relevant because, if [Individual 3] and [Individual 4] assert they have not been consulted, their communal interests have been represented by others who have been consulted.

Woodside understands [Individual 3] was a member of MAC since inception, was the Chairperson of MAC between 2016 and 2017, was a Board Member of MAC until 11 February 2022, and took part in discussions between Woodside and MAC on the Scarborough Project. During these two-way engagements, in the three years leading up to November 2021, Woodside was not made aware of any specific concerns of [Individual 4], [Individual 3], (Mardudhunera Traditional Owners) and [Individual 27], (Ngarluma Traditional Owner) around the Scarborough Project.

While a member of MAC, [Individual 3] expressed a view that MAC holds the key responsibility for the stewardship and management of the Land and Sea Country according to the Aboriginal Lore and Culture; MAC's work including collecting environmental and heritage records to assist with compiling data (building a library) relevant to Law and Culture on sacred sites, including 42 islands of the Dampier Archipelago; MAC has been embraced by the community as the body for cultural knowledge and guidance which allows the community to speak with one spiritual and cultural voice and with strong cultural integrity. This means that some decisions or advice given by individuals previously, may not reflect the current and more valid cultural leadership that governs today (Ref Opening Statement from Ms [Individual 3] , Chairperson Murujuga Aboriginal Corporation – Public Hearing, Perth – 20 April 2017).

The first time Woodside became aware of [Individual 4], [Individual 3] and SOS's concerns regarding the Scarborough Project was via a number of public statements on the SOS websites and on social media (November 2021).

After seeing the concerns, Woodside met or has attempted to meet with individuals involved in SOS to discuss the Scarborough Project in other capacities and on numerous occasions, including:

- On 15 December 2021, Woodside held a meeting at the MAC office in Dampier with the MAC Board (including [Individual 3]) and Circle of Elders, to provide an overview of the Scarborough and Pluto Train 2 projects (Evidence of this meeting supplied with the MAC correspondence in the Traditional Custodian part of this Table) (SI Report, reference 50.1).
- In February 2022, [Individual 4] and [Individual 3] wrote to the (then) Federal Environment Minister requesting an assessment under section 10 of the *Aboriginal Torres Strait Islander Heritage Protection Act 1984 (Cth)* regarding (SI Report, reference 50.2):
 - **(1)** “threats to the Murujuga Aboriginal heritage posed by proposed Scarborough LNG...”, the letter cited potential damage to Murujuga rock art due to “acid gas emissions from Woodside’s LNG processing operations on the Burrup” and climate change.
 - **(2)** The letter also claimed that members of MAC had been subject to a “gag clause”.
- On 21 March 2022, [Individual 4] and [Individual 3] sent an email addressed to the Woodside CEO, Meg O'Neill, requesting a meeting with Woodside on the morning of 21 March 2022 (SI Report 50.3).
- On 24 March 2022, there was an attempted virtual meeting over Microsoft Teams between Woodside, [Individual 4], [Individual 3] and [Individual 27] (SI Report, reference 50.4). On the same day, Woodside emailed [Individual 4], [Individual 3] and SOS:
 - Woodside noted that despite its representatives being online and waiting for 35 minutes, the meeting did not proceed due to technical issues.
 - Woodside advised that it remained keen to understand Traditional Custodian concerns, including those matters that [Individual 4], [Individual 3] and SOS had set out, and that Woodside remained available to meet.
- On 24 March 2022, [Individual 4], [Individual 3] and SOS also emailed Woodside to advise that:
 - They were waiting to join the virtual meeting but there was no response.
 - They were disappointed at this outcome and hoped to have a more formal meeting in times to come.

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- Emails exchanged later that day extended Woodside's offer to hold further meetings. By this stage, there had been four attempts by Woodside to meet and discuss issues with [Individual 4], [Individual 3] and SOS. This was in addition to the previous three years of consultation with [Individual 4] and [Individual 3] via MAC (SI Report, reference 50.5).
- On 6 June 2022, some seven months after SOS had launched its public campaign on social media, [Individual 4], [Individual 3] and SOS wrote to the Chairman and Board of Woodside regarding consultation on the NOPSEMA assessment of Scarborough offshore gas field development. The letter (sent with attachments) contained the following assertions, among others (SI Report, reference 50.6 and attachment 50.7):
 - **(1)** Grave concerns about the impacts on rock art through "gas processing operations, fertiliser production and other industry on the Burrup, all of which is facilitated by Woodside's Scarborough development".
 - **(1, 3)** Impacts by industrialisation on rock art through pollution, physical displacement of rock art, damage to other heritage site.
 - **(4)** Restriction of access to sites of cultural and spiritual significance. These impacts on cultural heritage will all be further exacerbated by the Scarborough gas developments and related activities. After being preserved and respected for at least 50,000 years of continuous cultural and spiritual practice, Traditional Owners and Custodians are now seeing this degradation occur within their own lifetimes.
 - **(4)** As a result, industrial activity on the Burrup is already impacting their ability to practice cultural traditions and pass on our culture to future generations in accordance with our cultural obligations.
 - **(5)** That SOS, [Individual 3] and [Individual 4] assert their rights to be consulted as 'relevant persons' in relation to cultural heritage impacts of the Scarborough gas development according to the OPGGS (E) regulations. [This relates to cultural values that are nationally protected as part of the Dampier National Heritage Place and values yet to be described as part of the proposed World Heritage Listing for the Burrup Peninsula and surrounds].
 - **(6)** Given the lack of previous assessment of cultural heritage impacts "of the cumulative impacts of gas-related industry" and the significant uncertainties regarding these impacts a precautionary approach must be taken according to the ESD Principles in Section 3A of the EPBC Act.
 - **(4)** Direct and indirect impacts on cultural heritage must be assessed now, and for all stages of the Scarborough development according to Section 527E of the Environmental Protection and Biodiversity Conservation (EPBC) Act and the EPBC Act Indirect Consequences Policy.
 - In order to comply with requirements to consult under the Regulations, disclosure of certain information is required from Woodside.
 - Woodside's own policy, the UNDRIP and other frameworks require that Traditional Owners are provided with the right of free, prior and informed consent regarding any cultural heritage impacts.
 - Impacts to heritage values and other potential impacts associated with the Scarborough gas development must be understood and assessed with reference to the cultural practices, beliefs and customs and unique understanding of these issues held by Murujuga's traditional knowledge holders.
 - **(7)** The Murujuga Aboriginal Corporation does not represent the interests of Traditional Owners seeking to protect cultural heritage and Woodside's limited consultation with MAC does not satisfy the requirement for free, prior and informed consent for cultural heritage impacts, or the requirements of 'relevant person' consultation according to the above regulations.
 - Woodside notes that in the opening paragraph of this letter [Individual 4] and [Individual 3] state that they are Murujuga Elders, Traditional Owners, Traditional Custodians and members of the Murujuga Aboriginal Corporation (MAC). MAC was established to preserve and protect the land, heritage and culture of the Burrup and Maitland Industrial Estate and is made up of a Circle of Elders who hold cultural authority and consist of representation from the 5 language groups.

- Included with the correspondence was an open letter signed by several Traditional Custodians requesting (among other things) that further investment on project on Murujuga be withheld and that any further investments decisions on the Scarborough Project be paused. The letter was titled 'Open letter from Traditional Owners and Custodians of Murujuga concerning the proposed Woodside Scarborough gas development'.
- On 22 July 2022, Woodside responded to the 6 June letter sent by [Individual 4] and [Individual 3]. The letter largely related to the Scarborough Seismic EP, but also stated that Woodside "is open to receiving feedback and to discussing issues raised in relation to each of its Scarborough Environment Plans" (SI report, 50.8).
- Throughout July and August 2022, the Ngarluma Yindjibarndi Foundation Ltd (NYFL) offered to engage [Individual 4] and [Individual 3] and to facilitate a series of up to three meetings between Woodside and [Individual 4] and [Individual 3] to discuss Scarborough and Pluto Train 2 projects and activities. Woodside accepted this invitation, including outlining payment for [Individual 3] and [Individual 4]'s time. The proposed meeting did not progress because of a lack of response from [Individual 4] and [Individual 3].
- On 2 August 2022, Woodside wrote to NYFL accepting NYFL's offer to facilitate SOS meetings (SI Report, reference 50.9).
- On 26 August 2022, Woodside wrote to [Individual 4], [Individual 3] and SOS providing an information sheet and links for other Scarborough Project EPs. The letter confirmed ethnographic surveys undertaken of the pipeline route concluded that the pipeline route is likely to have "low to nil" impacts to Indigenous archaeological values across the project footprint (SI Report, reference 50.10).
- On 26 September 2022, [Individual 4], [Individual 3] and SOS emailed a letter to NOPSEMA regarding the Scarborough D&C, SITI and Seismic EPs (SI Report, reference 50.11).
 - [Individual 4], [Individual 3] and SOS raised several issues relating to Woodside's consultation requirements under the Regulations.
 - [Individual 4], [Individual 3] and SOS stated that they have functions interests and activities within the EMBA's of the Scarborough EPs which might be directly affected by the proposed activity.
 - [Individual 4], [Individual 3] and SOS requested that NOPSEMA refrain from accepting the Scarborough EPs until Woodside had properly complied with regulation 11A (now regulation 25 of the Environment Regulations) in relation to their functions, interests or activities and in relation to the time provided for consultation.
 - [Individual 4], [Individual 3] and SOS offered to provide to NOPSEMA, further information about their functions, interests or activities that may be affected by activities under the Scarborough EPs.
 - **(8)** Information to be shared by SOS was to be treated sensitively and confidentially.
 - The letter stated that Woodside had not provided a "reasonable opportunity to provide our objections in relation to the Trunkline and Drilling EPs, and therefore cannot have responded to those objections".
 - **(9)** [Individual 4] and [Individual 3] offered to share information about their functions, interests or activities regarding these EPs to NOPSEMA. This is an indication that as early as September 2022, [Individual 4] and [Individual 3] had information and "objections" to share about all Scarborough EPs which, despite Woodside providing ample opportunity, they had not shared with Woodside.
- On 29 September 2022, Woodside emailed [Individual 4], [Individual 3] and SOS (SI Report, reference 50.12):
 - Woodside requested a meeting to share information in relation to the Scarborough Project. Woodside requested to hold this meeting prior to 10 October 2022.
 - Woodside advised it welcomed the opportunity to meet to discuss the matters raised in the letters of 6 June 2022 and 29 September 2022, to share information in relation to the Scarborough Project and demonstrate how items raised in the correspondence have been addressed in the relevant EPs.
 - Woodside proposed that the meeting would be attended by subject matter experts and project personnel as required, to answer any questions.
- On 6 October 2022, Woodside followed up with [Individual 4], [Individual 3] and SOS via email and phone/voicemail (SI Report, reference 50.13).

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- On 7 October 2022, [Individual 4], [Individual 3] and SOS responded to Woodside via phone to arrange a suitable date and time (SI Report, reference 50.14).
- On 7 October 2022, Woodside and [Individual 4], [Individual 3] and SOS discussed arrangements via phone to meet on 11 October 2022.
- On 7 October 2022, [Individual 4] and SOS contacted Woodside via phone to advise that [Individual 3] would be in touch to set up the meeting. [Individual 4] and SOS could not confirm if the 11 October 2022 meeting was proceeding as planned.
- On 10 October 2022, Woodside emailed [Individual 4], [Individual 3] and SOS noting it had not received any further contact or confirmation of the 11 October 2022 consultation meeting. Woodside advised it was still ready and available to proceed with a meeting (SI Report, reference 50.15).
- On 11 October 2022, Woodside flew personnel to Karratha to attend the meeting with [Individual 4], [Individual 3] and SOS and followed up with [Individual 4], [Individual 3] and SOS via phone and SMS (SI Report, reference 50.16).
- On 11 October 2022, [Individual 4], [Individual 3] and SOS advised Woodside via SMS that it was awaiting confirmation from its lawyers regarding the proposed meeting (SI Report, reference 50.16). Woodside notes:
 - Woodside did not receive further contact and, despite Woodside being ready in Karratha for the meeting as agreed, this meeting did not proceed.
 - Neither [Individual 4], [Individual 3] or SOS provided an explanation to Woodside as to their non-attendance at this meeting.
- On 8 November 2022, [Individual 4], [Individual 3] and SOS sent a letter to Woodside in relation to the Scarborough Project EP meeting. (SI Report, reference 50.17). In the letter:
 - [Individual 4], [Individual 3] and SOS referred to correspondence dated 29 September 2022 and 6 October 2022 and stated they had not been able to respond by the date requested. The letter further acknowledged their understanding that Woodside’s correspondence encompassed all activities associated with the Scarborough Project including D&C, SIT1, Seismic and the State EPs and (at the time) the forthcoming Subsea EP.
 - **(5)** [Individual 4], [Individual 3] and SOS reiterated that they were relevant persons for activities relating to these EPs and acknowledged the invitation to meet to discuss the EPs.
 - [Individual 4], [Individual 3] and SOS stated it was unfortunate that they had been unavailable to meet as requested, however they welcomed the opportunity to discuss their letters dated 6 June 2022 and 26 September 2022 and their concerns on the impacts and risks of the (above mentioned) activities. They acknowledged that Woodside may have an internal target date but that it was generally not practicable to arrange meetings with less than 4 weeks’ notice and requested that Woodside provide sufficient notice for any meeting opportunities.
 - [Individual 4], [Individual 3] and SOS offered several dates on which they were available to meet and shared their preference to meet on Murujuga.
 - [Individual 4] and [Individual 3] wrote to Woodside, stating “Unfortunately we have been unavailable to meet as requested...” but that “we acknowledge your invitation to meet... to discuss the Scarborough EPs and to answer any questions we may have” and that [Individual 4] and [Individual 3] “welcome the opportunity to discuss our letters of 6 June 2022 and 26 September 2022 and our concerns as to the impacts and risks of the above activities” (being the D&C, SIT1, Seismic and Subsea EPs). [Individual 3] and [Individual 4] therefore represented they were ready and able to discuss all Scarborough EPs. [Individual 4] and [Individual 3] also requested 4 weeks’ notice for meetings and proposed a meeting in late November 2022.
- On 22 November 2022, Woodside emailed [Individual 4], [Individual 3] and SOS (SI Report, reference 50.18).
 - Woodside acknowledged the letter addressed to Woodside on 8 November 2022 that was passed on via NOPSEMA.
 - Woodside confirmed its availability to meet in Karratha on 29 November 2022 or a date suitable to [Individual 4], [Individual 3] and SOS.
- On 24 November 2022, [Individual 4], [Individual 3] and SOS wrote a letter to Woodside regarding the proposed meeting date. Despite recording in their correspondence on 26 September 2022 and 8 November 2022 that they had information and “objections” they were ready to share regarding the Scarborough Project, [Individual 4] and [Individual 3] now

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stated they would not proceed with consultation until there was clarification around the scope and purpose of the meeting and until Woodside confirmed their status as “relevant persons” and Woodside provided requested information. [Individual 4] and [Individual 3] stated, “We will not be in a position to provide substantive information about our functions, interests or activities at the first meeting you have proposed”, but still committed to discussing all Scarborough EPs. In particular [Individual 4], [Individual 3] and SOS sought confirmation on the following items (SI Report, reference 50.19):

- **(5)** Acknowledgement from Woodside as to relevant person status for all EPs associated with the Scarborough Project.
- Provision of necessary information about the proposed activities and the anticipated impacts to allow for informed comment and input to be made as part of the relevant person consultation process. As a minimum they requested draft copies of the Scarborough EPs and associated technical and other information and any studies, research or other information held by Woodside relating to:
 - **(4)** Cultural values (not limited to ethnographic sites) including marine fauna of cultural significance.
 - **(1)** Impacts and risks of industrial pollution from gas processing on cultural heritage at Murujuga.
 - Purpose of meeting, indicating they would be happy to meet when information requested in points above was received and they understood Woodside’s assessment of them as relevant persons. They indicated that the initial meeting would be for introductions and an opportunity for [Individual 4], [Individual 3] and SOS to ask questions and obtain information they require to determine the consequences, impacts and risks of the proposed activities so that consultation could commence.
 - **(8)** The issue of protocols around gender restricted information was raised and they stated that they would not be able to provide substantive information about their functions, interests or activities at the first meeting proposed.
- On 2 December 2022, Woodside emailed [Individual 4], [Individual 3] and SOS and included responses to address the items raised on 24 November 2022, where appropriate. Woodside reiterated its availability to meet and provided an option for any date in December 2022. [Individual 4], [Individual 3] and SOS did not respond to this offer (SI Report, reference 50.20).
 - **(9)** Woodside reiterated that it is open to continue consulting, receiving feedback and discussing concerns in relation to Woodside’s Scarborough EPs. Consultation is ongoing and feedback will continue to be accepted throughout the life of the EP, including while it is being prepared, while it is under assessment as well as after acceptance, while the EP remains in force.
 - **(9)** Woodside confirmed its arrangements to meet and consult that have been ongoing since November 2021, and it remains open to continue consulting in relation to the Scarborough EPs.
 - Woodside advised it is available to meet with [Individual 4], [Individual 3] and SOS on any date in December 2022 in Karratha. Woodside requested confirmation of availability to meet by 9 December 2022.
 - Woodside again provided a link to the Consultation Information Sheets for the Scarborough D&C, SITI, Seismic and Subsea EPs, to assist in preparing for the meeting.
 - Woodside noted there has been ample time and information available to inform feedback on EPs to date. Woodside requested [Individual 3], [Individual 4] and SOS provide feedback on those Scarborough EPs no later than at the proposed meeting in December 2022.
 - **(8)** Woodside noted the letter dated 24 November 2022 made reference to arrangements which would enable [Individual 4], [Individual 3] and SOS to share relevant information such as matters that are restricted to women or men only. Woodside requested for [Individual 4], [Individual 3] and SOS to confirm what arrangements are required to enable them to share this information by 9 December 2022.
 - **(9)** Despite Woodside being available to meet any time in December and the date of December 9 being suggested, there was no response from [Individual 4], [Individual 3] and SOS so a meeting could not proceed.

- On 4 January 2023, Woodside emailed [Individual 4], [Individual 3] and SOS to follow-up on its meeting request Woodside reiterated its availability to meet and provided an option for any date in January 2023 (SI Report, reference 50.21).
- On 13 January 2023, [Individual 4], [Individual 3] and SOS emailed Woodside (SI Report, reference 50.22).
 - [Individual 4], [Individual 3] and SOS confirmed it would like to meet with Woodside, but reiterated its requests contained within its 24 November 2022 correspondence.
 - [Individual 4], [Individual 3] and SOS stated it can advise of its availability for a meeting once the information requested is provided.
- On 19 January 2023, Woodside emailed [Individual 4], [Individual 3] and SOS. Woodside included the following responses to address the items raised, where appropriate (SI Report, reference 50.23):
 - (5) Woodside reiterated it is open to continue consulting with [Individual 3], [Individual 4] and SOS, receiving feedback and discussing their concerns in relation to Woodside’s Scarborough EPs in Commonwealth and State waters (collectively referred to as the Scarborough EPs).
 - (9) That consultation on the Scarborough EPs began when Woodside provided [Individual 3], [Individual 4] and SOS with consultation information on the Scarborough EPs. Information on the Seismic EP has been provided directly to [Individual 3], [Individual 4] and SOS since at least July 2022 (Ref Woodside letter 22 July 2022).
 - (9) That Woodside has made every effort to meet with [Individual 3], [Individual 4] and SOS to understand their claim of relevance and to develop a comprehensive understanding of potential impacts to their functions, interests or activities.
 - (9) That Woodside has been trying to arrange a meeting with [Individual 3], [Individual 4] and SOS since November 2021 to discuss the Scarborough EPs, including a representative travelling to Karratha for a planned meeting on 11 October 2022 and making representatives available for a meeting on 29 November 2022.
 - Woodside reiterated its availability to meet and provided an option for any date in January or early February 2023.
- On 8 February 2023, Woodside was copied into correspondence sent from the Environmental Defender’s Office (EDO) to the WA State Minister for Mines and Petroleum regarding a separate EP under State Regulations. Copies of previous correspondence between Woodside and [Individual 3], [Individual 4] and SOS were attached to the email. This included a detailed response from Woodside dated 5 January 2023 which responded to claims and objections made in relation to spiritual and cultural values. On the same day, the EDO (acting on behalf of SOS) emailed Woodside, referred to the email and correspondence sent to the Minister and advised that its client’s earliest availability to meet would be the weeks commencing 13 and 20 March 2023 (SI Report, reference 50.24).
- On 15 February 2023, Woodside emailed [Individual 3], [Individual 4] and SOS. Woodside reiterated its availability to meet and, based on dates suggested within the 8 February correspondence, provided [Individual 3], [Individual 4] and SOS with confirmation it was available to meet on the suggested dates in March 2023 (SI Report, reference 50.25).
- On 24 February 2023, Woodside sent [Individual 3], [Individual 4] and SOS a follow-up email. Woodside reiterated its availability to meet (SI Report, reference 50.26).
- (10) On 24 February 2023, the EDO (acting on behalf of [Individual 3], [Individual 4] and SOS) emailed Woodside requesting that correspondence to [Individual 4] and [Individual 3] was sent to the EDO as well as [Individual 4] and [Individual 3]. The EDO further advised its clients were available to meet on 13 and 14 March 2023 and requested that Woodside nominated a female staff member who could receive “highly sensitive” cultural information at the meeting, which Woodside took to mean that [Individual 3], [Individual 4] and SOS intended to share cultural information at the meeting (SI Report, reference 50.27).
- On 28 February 2023, the EDO (acting on behalf of [Individual 3], [Individual 4] and SOS) emailed Woodside to follow-up on the request to secure a meeting (SI Report, 50.28).
- (8) On 1 March 2023, Woodside emailed [Individual 3], [Individual 4] and SOS (and cc. to EDO) to propose the meeting time and location for 14 March 2023. Woodside also nominated a female staff member to receive cultural information (SI Report, reference 50.29).

- On 7 March 2023, the EDO (acting on behalf of [Individual 3], [Individual 4] and SOS) emailed Woodside to confirm the meeting time and location for 14 March 2023 (SI Report, reference 50.30).
- **(9)** On 8 March 2023, Woodside emailed the EDO, [Individual 3], [Individual 4] and SOS with a proposed agenda for the 14 March 2023 meeting and requested they advise if there were any particular issues they wished to discuss during the meeting (SI Report, reference 50.31).
- **(8)** On 10 March 2023, Woodside emailed EDO, [Individual 3], [Individual 4] and SOS with further logistic and meeting protocol details for the proposed meeting on 14 March 2023. The agreed meeting protocol, based on a discussion between Woodside and [Individual 4], included that attendees would be all female, would attend with open hearts, deep listening and seeking a respectful conversation and open to sharing knowledge about the environment that may be affected, including the heritage of places. It was also agreed that there would be no audio or video recording of the meeting to respect privacy, safety and cultural values (SI Report, reference 50.32).
- On 13 March 2023, the female nominated by Woodside to receive sensitive information called [Individual 3], [Individual 4] and SOS to check in and confirm the meeting would go ahead.
- **(4, 9) MEETING:** On 14 March 2023 (summarised in email on 16 March 2023), Woodside met with the EDO, [Individual 4], [Individual 3] and SOS on-Country and discussed the Seismic EP, Subsea EP, D&C EP, SITI EP (Cth and State). Maps and pictures of Scarborough Project footprint were shown. Despite Woodside's continued efforts and offers to meet since at least September 2022, this meeting represented the first time Woodside and [Individual 3], [Individual 4] and SOS had met in person since the establishment of SOS in November 2021.
 - Woodside provided an overview of the Scarborough activities (D&C, SITI, Seismic, Subsea EP (Cth and State)). Discussion was also held regarding the FPU.
 - Feedback from [Individual 3], [Individual 4] and SOS (at the on-Country meeting):
 - When told about the pipeline route, borrow grounds and pipelay, [Individual 4], [Individual 3] and SOS spoke of concerns to the effect of the earth and world breaking apart when the project got underway and raised specific concerns about the pipeline passing near contaminated waters near the Montebello islands. They also discussed topics relating to whales and other sea animals related to the installation of the Scarborough Trunkline.
 - **(11)** When asked for their views on how the activities could be managed by Woodside to reduce risks and impacts to their interests, [Individual 4], [Individual 3] and SOS told Woodside that the proposed activities gave them a sick feeling and the activities should be stopped. [Individual 4], [Individual 3] and SOS also informed Woodside that, in their view, there is nothing that could be done by Woodside to progress with the proposed Scarborough activities in a way that could minimise impact to [Individual 4], [Individual 3] and SOS's functions, activities and interests or that would be respectful to its culture and country. Woodside response (at the on-Country meeting):
 - ❖ **(8)** Woodside agreed to keep confidential to women and to not otherwise share cultural details which were shared at the 14 March 2023 meeting.
 - ❖ **(10)** [Individual 4] and [Individual 3] noted there is information that is not yet known to them as the rocks have not yet told them (for instance, wisdom that Murujuga rocks have for the past and future) and they are not sure when it will be known.
- On 16 March 2023, Woodside emailed EDO, [Individual 4], [Individual 3] and SOS to advise that (SI Report, reference 50.33):
 - It appreciated the request for Woodside to attend the meeting with open hearts, deep listening and respectful conversation and that it would intend to continue this approach to engagement.
 - **(9)** Woodside's consultation process is ongoing through the environmental approval process and when an activity is being performed and that Woodside looks forward to continuing its discussions with [Individual 4], [Individual 3] and SOS in the future.
 - **(9)** Woodside is open to consulting further with [Individual 4], [Individual 3] and SOS on the proposed Scarborough activities and are open to the continuing engagements regarding the Scarborough activities. Woodside noted this was notwithstanding comments made at the meeting by [Individual 4] and [Individual 3] that the proposed activities gave them a 'sick feeling' and should be stopped.
- Woodside provided responses to specific actions taken during the meeting, including:

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- A request for Woodside to provide background information on the “why” behind the Scarborough activities. Woodside responded that the Scarborough Project helps play a role in the global energy transition, including helping neighbouring Asian countries take action on emissions reduction and advised there is further information on Woodside’s website.
- **(12)** A request for Woodside to check with MAC whether MAC’s ethnographic survey can be shared with [Individual 4], [Individual 3] and SOS.
- **(12)** Woodside advised that the ethnographic survey is held by MAC and Woodside does not have permission to share it.
- **(13)** A request for Woodside to confirm whether fracking would occur in relation to the Scarborough activities.
- **(13)** Woodside confirmed that no fracking would be undertaken as part of the proposed Scarborough activities.
- On 17 March 2023, Woodside emailed [Individual 4], [Individual 3] and SOS acknowledging SOS correspondence to Woodside dated 6 June 2022, 26 September 2022 and 24 November 2022 and the discussion with Woodside on 14 March 2023. Woodside included an attachment containing responses to relevant objections, claims and additional information raised in the correspondence stated to relate to the Scarborough Seismic EP although some responses related to Scarborough activities under other EPs as the matters raised were about the Scarborough Project as a whole. (SI Report, reference 50.34). Woodside stated:
 - **(4)** Woodside has conducted an ethnographic survey to support the development of EPs for the Scarborough Project which have not identified any heritage places, objects or values which will be impacted.
 - **(2)** None of Woodside’s agreements with Traditional Custodians include “gag clauses” or restrictions on voicing opinions on Woodside projects.
 - Regarding the principles of FPIC: Woodside is guided by UNDRIP under our Indigenous Communities Policy and has consulted representative institutions including MAC for a number of years.
 - **(9)** Woodside has made several attempts since November 2021 to engage with [Individual 4], [Individual 3] and SOS. There was a meeting held on Tuesday 14 March 2023. Woodside is open to receiving feedback.
 - **(1)** Regarding impacts on rock art through pollution, emissions from the activities covered by the Seismic EP is not relevant, but these “may be evaluated in other Scarborough EPs”.
 - Regarding the proposed removal of rock art from the Perdaman site, Woodside stated it is not appropriate for Woodside’s EPs to address or seek to regulate the activities of third parties progressing separate projects.
 - Woodside has resourced Traditional Custodian representative institutions to access relevant information and independent expert advice so that they are enabled to provide informed and considered feedback on the broader Scarborough activities.
 - **(12)** A number of documents containing cultural heritage information, including heritage assessments, contain the intellectual property of Traditional Custodians or sensitive information that may be culturally restricted. For these reasons, Woodside does not disclose this information. This information is held by representative institutions and may be disclosed by them where they consider it appropriate to do so. The Scarborough Project Cultural Heritage Management Plan is a publicly available document and can be found on Woodside’s website.
 - **(7)** Woodside continues to consult with MAC on all relevant aspects of this EP prior to and during the execution of activities.
 - **(1)** Regarding impacts and risks on Aboriginal heritage sites on and around Murujuga, Woodside has undertaken archaeological assessments and ethnographic surveys to identify cultural heritage that may be impacted by Scarborough activities.
 - **(9)** Woodside considers the time it has provided to consider information prior to meetings to be more than suitable to inform [Individual 3], [Individual 4] and SOS’s feedback on Woodside’s proposed Scarborough EPs.

- **(9)** Woodside confirms as per Woodside's ongoing consultation approach, feedback and comments received continue to be assessed and responded to, as required, through the life of an EP, including during EP assessment and throughout the duration of the accepted EP, in accordance with the intended outcome of consultation.
- On 24 March 2023, the EDO (acting on behalf of [Individual 4], [Individual 3] and SOS) provided a letter to Woodside which copied NOPSEMA, DEMIRS and the WA Minister for Mines and Petroleum (SI Report, reference 50.35). The letter:
 - Acknowledged that Woodside had provided information on all relevant Scarborough EPs (D&C, SITI, Seismic and Subsea), and confirmed that [Individual 4] and [Individual 3] raised "particular concerns about the impacts that underwater activities that form part of the EP activities might have on their functions, interests and activities". This confirmed that the parties were consulting on all EPs.
 - Detailed a response to the 14 March 2023 meeting and Woodside's 16 March 2023 email, and covered the range of Scarborough EPs (Seismic, D&C, SITI, Subsea and State EPs). The EDO noted its client's concerns relating to:
 - **(7)** The summary of the meeting, stating the functions, interests or activities of their client were distinct from those of Murujuga Aboriginal Corporation and that their stories were not told as a part of any consultation with MAC.
 - **(1)** Concerns about the impact of underwater activities, impacts related to greenhouse gas and Murujuga industrialisation.
 - **(10)** Clarification of its client's position, that Woodside had mischaracterised their clients' position. Their view is that Woodside should not undertake the Scarborough Project because of the harm it will cause and that is different to the conclusion that there is 'nothing that can be done' to minimise impacts or be respectful to our clients, their culture and their country. Their clients regard genuine consultation on the proposed EP activities an important demonstration of their respect for their functions, interests or activities.
 - Asserted that they considered that the consultation process has just commenced.
 - **(5)** Communication of relevant person status – the EDO stated that its clients should be recognised as relevant persons individually and not only SOS, (the foundation its clients founded).
 - Acknowledgement of response to questions arising at the meeting of 14 March 2023. The letter:
 - ❖ **(12)** Noted that Woodside had followed up their requests and provided a link to Woodside's publicly available website and advised that the ethnographic survey was held by MAC and Woodside did not have permission to share it.
 - ❖ **(9)** Noted that the EDO's clients would review the consultation information provided, and that it anticipated its clients would require approximately six weeks to do this.
 - ❖ Requested Woodside not submit the draft EP until consultation was complete.
- On 28 March 2023, Woodside emailed the EDO, [Individual 4], [Individual 3] and SOS (cc. to NOPSEMA) in response to the 24 March 2023 letter. Woodside reiterated its responses to topics raised during the meeting and in previous correspondence, relevant to the proposed activity (SI Report, reference 50.36). The response included the following:
 - In regard to additional or new information:
 - Woodside advised it has a process in place for the life of an EP that allows the EP to be updated to include additional or new information or feedback that is received after an EP is submitted. This is done through a "Management of Knowledge" process. This means that feedback or information provided in future meetings can still be taken into account and, where appropriate, can be incorporated in the EP during the life of the activity.
 - Woodside advised that following the meeting, based on the information provided, no updates were required to the EP via the Management of Knowledge process.
 - In regard to functions, interests or activities:

- (7) Woodside acknowledged that it had been advised that [Individual 3], [Individual 4] and SOS's functions interests and activities are distinct from those of MAC and that it was interested to learn about this further.
 - (11) In response to a request for the ethnographic survey undertaken by MAC, Woodside reiterated that it has no authority to provide this information. Given [Individual 3]'s previous role with MAC at the time the ethnographic survey was being undertaken, Woodside suggested that [Individual 3] may have contacts at MAC to request a copy of that survey.
 - (9) Woodside advised that as to [Individual 4], [Individual 3] and SOS's functions, interests or activities, it continues to invite these to be shared with Woodside so it can consider the likely impacts and risks of the EP activities on these functions, interests or activities and what Woodside can do to lessen or avoid those impacts.
 - (9, 10) Woodside confirmed that as [Individual 4], [Individual 3] and SOS were not prepared to share some information with Woodside, it remains open to hearing from them when this is known, and it is ready to be shared.
 - (1) Regarding minimising impacts to functions, interests or activities, Woodside reshared its interpretation of the take-aways from the meeting in relation to underwater activities, GHG emissions and industrialisation of Murujuga.
- (14) In the meeting of 14 March 2023, there was a discussion about potential impacts of activities on whales.
 - (1) Emissions from the activities covered by the Commonwealth EPs are of a scale that no credible impact pathway to their onshore cultural interests is foreseen. This has been the subject of separate correspondence.
 - (9, 10) In relation to the detail of the EPs and information accessed and provided, the meeting provided an overview of the Scarborough Project and followed volumes of previous correspondence on the Scarborough Project. Previous correspondence indicated that a large volume of information on the Scarborough Project had been accessed, read and considered. The correspondence showed an informed and thorough understanding of the various Scarborough activities and the Scarborough Project.
 - (9) In relation to consultation in general, Woodside advised it has continued to consult with [Individual 4], [Individual 3] and SOS and continues to invite further consultation.
 - (5) In relation to relevant persons, Woodside advised that the Commonwealth approval process requires Woodside to consult with "relevant persons". Further:
 - (5) Woodside has previously explained the approval process relating to the concept of "relevant persons" and noted that, at the relevant time consultations are included under a category of "relevant persons" in EPs. Woodside generally applies this category at a stage when they are trying to understand more about a person's functions, interests or activities and also the impacts of Woodside's activities on them.
 - (5) Woodside reiterated that there is no need for it to categorise persons as relevant in order to consult with them.
 - (5) In relation to ongoing consultation, Woodside advised that once an EP is accepted, Woodside continues ongoing consultations with relevant persons. Is open to continuing consultation to understand how the proposed Commonwealth EP activities relevantly affect [Individual 4], [Individual 3] and SOS.
 - (9, 10) In relation to further consultation, Woodside noted [Individual 4], [Individual 3] and SOS's correspondence, that it would like to organise another meeting and will require approximately six weeks to read into materials and prepare for a meeting.
 - Woodside requested for [Individual 4], [Individual 3] and SOS to advise its preferred times for the next meeting, noting the time taken to arrange the previous meeting.
 - Woodside advised it was available to meet in the week commencing 8 May 2023 or earlier.
 - The agreed meeting protocol was shared again, including there being no audio or visual recording of meetings.
- On 29 March 2023, the EDO responded acknowledging receipt of Woodside's email, noted the invitation for further consultation and advised it was seeking instructions and would respond in due course (SI Report, reference 50.37).

- (8) On 17 April 2023, Woodside responded by email to a letter from the EDO dated 6 April 2023 addressed to NOPSEMA and copied to Woodside about a different activity. In the email (SI Report, reference 50.38):
 - Woodside provided notes including in relation to Woodside's repeated and protracted attempts to meet, engage and consult with [Individual 4] and [Individual 3] and SOS on the Scarborough Project.
 - Woodside reiterated the process for consultation remains open post EP approval and that it has consistently offered an open invitation to [Individual 4] and [Individual 3] and SOS to provide feedback to allow Woodside to consider the potential impacts and risks of the activities on functions, interests or activities and to provide input on things Woodside can do to mitigate those potential impacts and risks on all Scarborough EPs.
 - Woodside included a 5 page attachment sent with this response to NOPSEMA sets out the history of Woodside's extensive engagements with [Individual 4] and [Individual 3] and SOS. It states that since June 2018, Woodside has undertaken 82 substantial engagements relating to the Scarborough Project including 32 meetings with Traditional Custodians and their representatives.
 - Woodside provided further context and highlighted relevant engagements with [Individual 4] and [Individual 3] and SOS, and stated Woodside's position i.e. having regard to all of the circumstances of the consultation undertaken with [Individual 4] and [Individual 3] and SOS, and in light of the concepts of "reasonable time", "reasonable diligence", a consultation obligation that "must be capable of practical and reasonable discharge ... that must be capable of performance", NOPSEMA can be reasonably satisfied that an appropriate level of consultation has taken place with [Individual 4] and [Individual 3] and SOS.
 - Woodside outlined details about correspondence and the opportunities and invitations Woodside has attempted to provide for consultation to occur and questioned why these have not occurred.
 - Woodside closed the letter by stating Woodside would be pleased to discuss the notes contained in this letter and the issues raised in the Letter from EDO with NOPSEMA.
- On 8 May 2023, the EDO emailed Woodside to advise they had not had any response to date, and were writing again to enquire whether Woodside wished to propose dates that can put to their clients for consultation regarding another Scarborough EP (SI Report, reference 50.39).
- (8) On 9 May 2023, Woodside emailed [Individual 4], [Individual 3], and SOS via the EDO reiterating Woodside's willingness to engage in ongoing consultation on Scarborough EPs; On proposed meeting dates in May, noting that Woodside was awaiting response on [Individual 4], [Individual 3] and SOS availability and that Woodside was open to meeting either on-Country or remotely, noted draft guidance from NOPSEMA regarding Managing gender-restricted information, and included a draft agenda (SI Report, reference 50.40).
- On 9 May 2023, Woodside emailed [Individual 4], [Individual 3] and SOS (and cc. the EDO) with respect to the Scarborough SITI EP and included responses to relevant objections (some of which are broadly applicable to the entire Scarborough Project including activities under the other Scarborough EPs), claims and additional information raised on 6 June 2022, 26 September 2022 and 24 November 2022 (SI Report, reference 50.41). In the email:
 - (4, 7) Woodside confirmed it has conducted an ethnographic survey to support the development of EPs for the Scarborough Project (Mott 2019, UWA 2021, McDonald and Phillips 2021, Nutley 2022a and 2022). An ethnographic survey determines the cultural values which are associated with a particular area, feature or object. Representatives from the Mardudhunera, Ngarluma, Yaburara, Yindjibarndi and Wong-Goo-Tt-Oo Peoples—all five Indigenous groups represented by MAC—participated in these surveys (Mott 2019, McDonald and Phillips 2021). Participants were not restricted in the types of heritage or other values they were encouraged to identify, but typical results from surveys of this nature might include Songlines, ceremonial places such as 'thalu' sites for managing environmental resources, or places where activities such as birthing, initiation or other significant activities are performed.
 - (4) Woodside advised Archaeological assessments have been made over the ancient landscape, being the extent of the continental shelf, which was previously exposed during human occupation. This includes an Australian-first assessment of the archaeological perspectivity along the trunkline route conducted with the support and consultation of

Traditional Custodians (UWA 2021). An executive summary is available on Woodside's website at <https://www.woodside.com/docs/default-source/sustainability-documents/indigenous-peoples/cultural-heritage/scarborough-pipeline-cultural-heritage-assessment-exec-summary.pdf>.

- (4) Woodside advised it has had all of its submerged heritage work assessed by an expert underwater archaeologist for gaps in our processes (Nutley 2022a), as well as a review of Side Scan Sonar data to confirm whether archaeological sites could be identified on the seabed (Nutley 2022b).
- (2) Woodside reiterated that none of Woodside's agreements with Traditional Custodians include "gag clauses" or restrictions on voicing opinions on its projects. Woodside has resourced Traditional Custodian representative institutions to access relevant information and independent expert advice so that they are enabled to provide informed and considered feedback on the Scarborough project.
- (7) Woodside advised that the principles of Free, Prior and Informed Consent (FPIC) are based in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) where it is envisaged as a communal right of Indigenous communities and secured through consultation with representative institutions utilising traditional decision-making mechanism such as deferring to MAC's Circle of Elders. Woodside is guided by UNDRIP under its First Nations Communities Policy and has consulted representative institutions including MAC for a number of years.
- (4) Several documents containing cultural heritage information, including heritage assessments, contain the intellectual property of Traditional Custodians or sensitive information that may be culturally restricted. For these reasons, Woodside does not disclose this information. This information is held by representative institutions and may be disclosed by them where they consider it appropriate to do so.
- (4) Woodside provided a link to the Scarborough Project Cultural Heritage Management Plan which is a publicly available document and can be found at: https://www.woodside.com/docs/default-source/our-business---documents-and-files/burup-hub---documents-and-files/scarborough---documents-and-files/scarborough-cultural-heritage-management-plan.pdf?sfvrsn=162e353a_3.
- (7) Woodside advised it continues to consult with MAC on all relevant aspects of this EP prior to and during the execution of activities.
- Woodside advised it considers the adequate time and information it has provided, including the meeting on Tuesday 14 March 2023, to be more than suitable to inform feedback on Woodside's proposed Scarborough EPs.
- Woodside confirmed that as per Woodside's ongoing consultation approach, feedback and comments received continue to be assessed and responded to, as required, through the life of an EP, including during EP assessment and throughout the duration of the accepted EP, in accordance with the intended outcome of consultation.
- On 10 May 2023, the EDO (acting on behalf of [Individual 4], [Individual 3], and SOS) emailed Woodside to query the date of previous correspondence (SI Report, reference 50.42).
- On 15 May 2023, Woodside emailed the EDO confirming that the May 2023 correspondence refers to emails dated 9 May 2023 with the subject line "RE: Scarborough Environment Plans – Consultation (SI Report, reference 50.43).
- On 1 June 2023, the EDO emailed Woodside confirming [Individual 4], [Individual 3], and SOS were available to meet in Karratha on 13 June 2023 (SI Report, reference 50.44).
- On 6 June 2023, Woodside emailed [Individual 4], [Individual 3], and SOS with respect to the Scarborough Drillings and Completions EP. Acknowledging and in response to the SOS correspondence of 6 June 2022, 26 September 2022, 24 November 2022, correspondence via EDO of 6 April 2023, 18 April 2023 and during meeting on 14 March 2023, with information much the same as that sent on 9 May 2023 (SI Report, reference 50.45).
- On 7 June 2023, Woodside emailed the EDO requesting the email be forwarded to [Individual 4], [Individual 3], and SOS (SI Report, reference 50.46). Woodside confirmed availability to meet in Karratha on 13 June 2023 to continue consultation on the Scarborough EPs; proposed an agenda; confirmed meeting protocols and advised Woodside attendees. Woodside requested to know who would be attending on behalf of SOS and confirmation of other meeting details. The agenda included the sharing of interests, the functions of [Individual 4], [Individual 3] and SOS, a walk-through of Scarborough EPs, and a description of the Scarborough Project and activities to be undertaken under each EP. The same meeting protocol

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agreed prior to the March meeting was shared, including female only meeting, attendance with open hearts and prepared for deep listening and respectful conversation and to share knowledge about the environment including the heritage of places. In addition, it was agreed there would be no audio or visual recording.

- On 9 June 2023, because it had not received confirmation of the meeting and because of past history of Woodside turning up for meetings without [Individual 4], [Individual 3] or SOS attending, or meetings that did not proceed, Woodside emailed the EDO, [Individual 4], [Individual 3], and SOS requesting confirmation of the meeting scheduled for Tuesday 13 June 2023 and its time and location (SI Report, reference 50.47). Confirmation was sought by 5pm on 9 June 2023 as there were a number of flight and other logistics that needed to be confirmed by 5pm in order for that meeting to progress. If the meeting could not proceed, Woodside requested the provision of alternative meeting dates (SI Report, reference 50.46). Later that day a further email was sent correcting the proposed meeting date to 13 June 2023 instead of 14 June 2023 (SI Report, reference 50.48).
- On 9 June 2023 (after 5pm), the EDO emailed Woodside confirming availability for a morning meeting on 13 June 2023 (SI Report, reference 50.49).
- On 9 June 2023, Woodside emailed the EDO advising it was no longer available to meet on 13 June 2023 due to flights and other logistics having timed out (SI Report, reference 50.50).
- On 10 June 2023, the EDO emailed Woodside to advise [Individual 4], [Individual 3] and SOS were available to meet on 13 June 2023 on-Country with the EDO and provided a phone number to discuss logistics. The EDO did not object to the agenda or the meeting protocol (including no recording being taken) (SI Report, reference 50.51).
- On 12 June 2023, the EDO on behalf of its clients [Individual 4], [Individual 3] and SOS emailed Woodside advising availability to meet on 13 June 2023 at Hearson Cove. Despite its previous position committing to consulting on all Scarborough EPs, and confirmation that [Individual 4], [Individual 3] and SOS had information to share on all Scarborough EPs and the Scarborough Project generally (see correspondence dated 26 September 2022, 8 November 2022 and 24 November 2022) the EDO for the first time stated (SI Report, reference 50.52):
 - **(15)** It did not think it was appropriate to deal with all 4 EPs in one meeting. EDO did not raise any concern with the meeting protocol, including no recording being taken.
- On 12 June 2023, Woodside emailed [Individual 4], [Individual 3], SOS and the EDO regarding meeting arrangements and a draft agenda. Woodside requested next available dates for a meeting with [Individual 4], [Individual 3], SOS and the EDO (SI Report, reference 50.53).
- On 12 June 2023, the EDO emailed Woodside to advise that [Individual 4], [Individual 3] and SOS wanted to keep the existing arrangement for a consultation meeting on 13 June 2023 in Karratha (SI Report, reference 50.54).
- On 14 June 2023, the EDO emailed Woodside to advise that their clients, [Individual 4], [Individual 3] and SOS were still willing to meet at the times specified in the previous email while the EDO solicitors were going to be available in Karratha and that Woodside could join by phone or video conference if needed (SI Report, reference 50.55).
- On 14 June 2023, Woodside emailed the EDO and [Individual 4], [Individual 3] and SOS to advise that Woodside was not available to meet the week of 13 June 2023 and proposed 5 alternative dates in June 2023 for a meeting to be held in Karratha or remotely via Microsoft Teams. These dates allowed for Woodside to follow the agreed protocols (including having a female only team) (SI Report, reference 50.56).
- On 14 June 2023, the EDO emailed Woodside to advise it would revert back once instructions had been received from their clients (SI Report, reference 50.57).
- **(9)** On 20 June 2023, the EDO emailed Woodside to advise the EDO will not be in a position to arrange any in-person consultation meetings for the week of 20 June 2023 and the EDO is awaiting instructions as to preferred dates and next steps for consultation. In the meantime, Woodside could let the EDO know if Woodside had any questions (SI Report, reference 50.58).
- **(9, 10)** On 21 June 2023, Woodside emailed the EDO, [Individual 4], [Individual 3] and SOS, thanking them for their email and advising that Woodside was looking forward to hearing from them when ready. Woodside offered for comments/queries/requests to be emailed in the meantime if more efficient (SI Report, reference 50.59).

- **(9,10)** On 28 June 2023, the EDO on behalf of its clients, [Individual 4], [Individual 3] and SOS, emailed a letter to NOPSEMA and copied Woodside urging NOPSEMA not to accept the 4 Scarborough EPs Woodside had submitted as Woodside had failed to comply with its consultation obligations under regulation 25 of the Environment Regulations (SI Report, reference 50.60). The EDO stated:
 - Woodside had not notified their clients that the EPs had been submitted nor the dates of submission.
 - A meeting scheduled for 13 June 2023 did not proceed; plans to reschedule were ongoing.
 - Woodside had not explained the activities of the Scarborough EPs and the associated impacts and risks in a way the SOS can understand and how this will impact their functions, interests or activities. Also, [Individual 4], [Individual 3] and SOS had not been provided with sufficient information and a reasonable period for consultation.
- On 3 July 2023, Woodside emailed the EDO and copied NOPSEMA in response to the EDO's letter to NOPSEMA dated 28 June 2023 (copied to Woodside) (SI Report, reference 50.61). Woodside clarified:
 - **(5, 9)** Woodside had consulted [Individual 4], [Individual 3] and SOS while preparing the 4 Scarborough Project EPs since March 2022. Woodside reaffirmed [Individual 4], [Individual 3] and SOS's relevant persons status.
 - **(9, 10)** Consultation between Woodside and [Individual 4], [Individual 3] and SOS had been extensive and over an extended period. As at 13 April 2023, consultation had included 5 meetings, 2 attempted meetings, 19 emails, 7 phone calls and 10 letters [Ref letter to NOPSEMA, copied to EDO dated 17 April 2023].
 - **(8, 9, 10)** At a meeting on 14 March 2023, Woodside provided an overview of the Scarborough Project to [Individual 4], [Individual 3] and SOS to provide further understanding of the activities to be carried out under the Scarborough EPs. Woodside agreed to keep the full details of the meeting confidential at the request of the EDO's clients on the basis that some matters included secret women's business.
 - **(9,10)** Following this meeting, a suite of correspondence was exchanged where Woodside further explained the activities to enable [Individual 4], [Individual 3] and SOS to make an informed assessment of the possible consequences of the activities on their functions, interests or activities. This was in addition to consultation material previously provided since August 2022 and the publicly accessible Scarborough EPs published on NOPSEMA's website.
 - **(9, 10, 11)** During the meeting, without expressing to Woodside what their functions, activities and interests were (which remained (at the date of this letter) unexpressed by the EDO or its clients), [Individual 4], [Individual 3] and SOS informed Woodside that nothing could be done by it to progress with the activities to be carried out under the Scarborough EPs in a way that could minimise the effects of those activities on their undisclosed functions, interests or activities. Nonetheless, Woodside had continued to continue to consult with [Individual 4], [Individual 3] and SOS in the event they had any matters they wished to communicate to Woodside that could be relevant to the Scarborough EPs.
 - Woodside had been prepared to meet and had continued to correspond with the EDO's clients and the EDO.
 - Woodside considered it had met regulation 25 of the Environment Regulations.
 - Woodside remained open and available to meet and proposed a meeting date from 3 July 2023.
- On 17 July 2023, the EDO emailed Woodside with 4 potential video conference meeting dates in July. The EDO also acknowledged receipt of Woodside's letter of 3 July 2023 and advised it would revert in due course (SI Report, reference 50.62).
- On 17 July 2023, Woodside emailed the EDO advising it would revert with meeting details (SI Report, reference 50.63).
- On 18 July 2023, Woodside emailed the EDO confirming it was available for a video conference meeting on 25 July 2023 and asked for confirmation. A draft agenda was proposed and the agreed protocols were included that were previously agreed. This included female only attendees, an agreement to attend with open hearts and ready for deep listening and

respectful conversation and an agreement to share knowledge of the environment including the heritage of places. It also included an agreement that there would be no audio or video recordings (SI Report, reference 50.64).

- On 19 July 2023, Woodside again provided the EDO with NOPSEMA consultation documents (brochure, guideline and policy) and again asked they be provided to [Individual 4], [Individual 3] and SOS ahead of the meeting (SI Report, reference 50.65).
- On 19 July 2023, the EDO advised Ms Jess Border and Ms Alina Leikin of EDO have taken over carriage of the matter and they will respond to the latest emails from Woodside (SI Report, reference 50.66).
- On 19 July 2023, the EDO responded to Woodside confirming the meeting on 25 July 2023 and provided a revised agenda which was the agenda that was agreed ahead of the 13 June 2023 Karratha meeting that did not proceed. The EDO made no objection to the agreed meeting protocol, including no audio or video recordings (SI Report, reference 50.67).
- **(8)** On 20 July 2023, Woodside responded to the EDO agreeing to the meeting time and date, stating that the proposed agenda would be reviewed internally, and requesting confirmation on specific protocols to be adhered to in the meeting would be aligned with those previously set by SOS (SI Report, reference 50.68).
- **(8)** On 21 July 2023, Woodside emailed the EDO notifying arrangements had been made for the planned meeting on 25 July 2023, that Woodside was comfortable with the proposed agenda and that Woodside would provide information on the broader Scarborough Project and EPs currently being assessed rather than a single EP. This would give [Individual 4], [Individual 3] and SOS an opportunity to discuss and ask questions on the other Scarborough EPs currently being assessed. Woodside also sought confirmation that previously mentioned protocols would be followed (SI Report, reference 50.69).
- **(8, 15)** On 24 July 2023, the EDO emailed Woodside to inform that a presentation of broader information on the Scarborough Project and EPs was acceptable and requested that the meeting be recorded but paused for discussion of culturally sensitive matters. This was raised a day before the meeting, despite Woodside circulating the agreed protocol for comment several times since the March 2023 meeting. The EDO had also confirmed that the existing protocols would be appropriate (SI Report, reference 50.70).
- On 25 July 2023, Woodside emailed the EDO to state that Woodside intends to adhere to the protocols already agreed, including that attendees are welcome to take written notes however there will be no other recording of meetings. Woodside stated that it does not consent to the meeting being recorded (SI Report, reference 50.71).
- On 25 July 2023, [Individual 4], [Individual 3] and SOS's lawyers confirmed they were running late to the meeting (SI Report, reference 50.72).
- On 25 July 2023, Woodside acknowledged the EDO's email and stated it looked forward to meeting for the consultation (SI Report, reference 50.73).
- MEETING: On 25 July 2023, Woodside met with the EDO and SOS, [Individual 4] and [Individual 3] via video conference (SI Report, reference 50.74). The meeting included the following:
 - **(8)** Introductions: The EDO stated that for the meeting to proceed the meeting had to be recorded. It was stated that if the meeting was not recorded, [Individual 3], [Individual 4] and SOS would not participate in the meeting. [Individual 4], [Individual 3] and SOS were emphatic on this point.
 - **(8)** As this had not been agreed between the parties, around 40 minutes after the planned start time of the meeting, the meeting paused while arrangements were discussed. As noted above, the EDO raised this as an issue on 24 July, the day before the meeting. EDO, [Individual 4], [Individual 3] and SOS had an opportunity to object to the agreed meeting protocol at any time between the March and July meetings, including when Woodside circulated the agreed protocol on several occasions (SI Report, reference 50.75 and 50.76).
 - **(8)** Following the pause in the meeting to consider recording, Woodside emailed EDO to inform that following an internal discussion, Woodside agreed to rejoin the meeting and the meeting being recorded under certain conditions. The issue around recording ultimately delayed the meeting by approximately 1 hour.

- **(9, 15)** When the meeting recommenced, Woodside provided the meeting with a PowerPoint presentation covering Scarborough D&C, SIT1, Seismic and Subsea EPs and presented on regulatory context and provided an overview of the Scarborough Project including the FPU and trunkline operation. In accordance with emails exchanged before the meeting, Woodside came to the meeting ready, willing and able to address all Scarborough activities and to hear from [Individual 4], [Individual 3] and SOS on their knowledge and concerns.
- **(9, 15)** Woodside opened the presentation by describing the Scarborough Project and the 430km trunkline route and the use of the trunkline including that gas will be pumped through it and exported back to the Pluto Gas Plant. On behalf of [Individual 4], [Individual 3] and SOS, the EDO intervened on several occasions during the meeting and told Woodside words to the effect that [Individual 4], [Individual 3] and SOS did not want the opportunity to hear the presentation on any other EP, stating that their client was only there to consult on one EP (Seismic EP). This was despite the EDO confirming in its email on 24 July 2023 that Woodside had said it would provide information on the Scarborough Project and other EPs. Woodside presented on the Seismic EP including by describing the activity in detail and talking through potential risks and impacts of the proposed activity and controls in place to manage them. Woodside also attempted to provide information on the D&C, SIT1 and Subsea EPs and the broader project and gave an opportunity to hear [Individual 4], [Individual 3] and SOS (as agreed in the meeting agenda) but was declined.
- Woodside provided an overview of the Scarborough Project and the offshore infrastructure. Despite a direction to only discuss the Seismic EP, [Individual 3] asked a question relating to the Drilling EP regarding the depth of the Scarborough wells. Woodside noted the wells will be drilled in approximately 900-950 m water depth, however the wells themselves are drilled a lot deeper to get to the reservoir. Woodside noted they would take an action to provide specific accurate water depths and target reservoir depths and provided this detail as part of their correspondence on 27 July 2023. [Individual 4], [Individual 3] and SOS also asked questions relating more broadly to the other Scarborough EPs.
- Woodside provided an overview of the Scarborough Seismic survey activity. [Individual 3] asked about the spatial extent of the Operational Area and the larger Environment that May Be Affected (EMBA). Woodside provided an overview of the spatial extent of the environment that may be affected for the Scarborough Project and how it is driven by the highly unlikely event of a hydrocarbon spill from a vessel collision. [Individual 3] enquired as to:
 - **(16)** the unplanned risk of an oil spill, particularly querying who determines the credible spill scenario. Woodside offered to explain or to note the question and respond after the presentation, though EDO lawyers said they would make a list of questions to go through after.
- At this point. EDO lawyers again required that the meeting would only discuss the Seismic EP. When the topic of drilling and well depth was raised later in the meeting [Individual 3] indicated she didn't want to skip past and wanted to go through the 'whole lot', and, despite this, EDO lawyers again suggested the meeting was to only discuss the seismic EP.
- **(9, 10)** [Individual 4], [Individual 3] and SOS provided feedback and asked questions some which related to all of the Scarborough EPs. [Individual 4], [Individual 3] and SOS stated at the meeting words to the effect that no new cultural information was provided relevant to any of the Scarborough activities. [Individual 4], [Individual 3] and SOS declined to provide further detail about the nature of their cultural values at the meeting.
- **(16)** [Individual 4], [Individual 3] and SOS raised queries relating to the oil spill modelling Woodside undertakes to determine the EMBA. Woodside gave an overview of oil spill modelling and the stochastic nature of the model. The EDO requested Woodside to provide the underlying information for the oil spill modelling about how the risk is determined i.e., worst case hydrocarbon spill scenario. Woodside provided a response to this request as part of their correspondence on 27 July 2023.
- **(14, 17)** [Individual 4], [Individual 3] and SOS stated that they are broadly concerned about impact on the whales and other animals, the Songlines (unspecified) and the energy lines (unspecified).
- **(7)** [Individual 4], [Individual 3] and SOS stated that only they know the Songlines and other Traditional Custodians did not, including MAC.
- The meeting agreed outstanding questions for Woodside to revert on. Woodside also pointed [Individual 4], [Individual 3] and SOS to the Summary Consultation Information sheets which are designed to explain highly complex content in a more readily understood manner.

- **(10)** Woodside asked whether [Individual 4], [Individual 3] and SOS could share information about themselves and SOS, in particular the communal and/ or individual interests held. [Individual 4] declined to do so and suggested that this meeting was not the time for that. [Individual 4] stated the focus of herself, [Individual 3] and SOS at that time was to understand the activities, and that this information could be shared at a later time when they are ready.
- Woodside pointed out that [Individual 4], [Individual 3] and SOS had told Woodside that they would provide information at the meeting and had not done so. Woodside asked for honesty going forward so that information would be provided to Woodside where [Individual 4], [Individual 3] and SOS had told Woodside they would provide it.
- **(8)** Woodside offered to establish fortnightly meetings to provide [Individual 4], [Individual 3] and SOS opportunities to provide the information to Woodside. [Individual 4], [Individual 3] and SOS stated they would be unavailable for the next 6 weeks.
- SOS stated that they did not regard consultation had commenced until today. Woodside did not agree and this contradicts previous correspondence from [Individual 4], [Individual 3] and SOS, where their 24 March 2023 letter stated consultation had just commenced.
- The parties agreed to share the recording of the meeting.
- On 25 July 2023, the EDO emailed Woodside (SI Report, reference 50.77):
 - Requesting a copy of the recording from the earlier meeting.
 - **(18)** Requesting a response to six follow-up questions from [Individual 4], [Individual 3] and SOS which are relevant to this EP relating to the depth of wells, freshwater, migratory patterns of whales, dugongs and turtles, seagrass distribution, and the worst case spill scenario and modelling.
 - **(19)** Informing Woodside of [Individual 4], [Individual 3] and SOS's desired approach for response to the meeting on 25 July 2023 and further engagements, including that [Individual 4], [Individual 3], SOS would provide a preliminary response to the meeting in video format on-Country, which may need to be supplemented. This video has never been provided to Woodside.
 - **(15)** Proposing a sequence of meetings and responses be adopted on a per-EP basis.
- On 25 July 2023, Woodside emailed the EDO notifying that Woodside will discuss the points raised and respond accordingly, and agreeing to provide the recording of the meeting (SI Report, reference 50.78).
- On 25 July 2023, the EDO emailed Woodside requesting the meeting recording be provided via SharePoint, confirming that it would be passed on to its clients (SI Report, reference 50.79).
- On 26 July 2023, Woodside provided a recording of the meeting held on 25 July 2023 to the EDO via a secure file transfer system and requested that it be passed on to SOS (SI Report, reference 50.80).
- On 27 July 2023, Woodside responded to the EDO's email on 25 July 2023 (SI Report, reference 50.81):
 - Confirming that a copy of the meeting recording from 25 July 2023 had been sent to the EDO.
 - **(18)** Providing responses to the follow-up questions from [Individual 4], [Individual 3] and SOS.
 - **(10)** Noting that despite agreement prior to the meeting that cultural interests and feedback would be discussed at the meeting, this was not shared.
 - **(19)** Describing previous offers of meetings, noting that these were declined and confirming Woodside availability to meet on-Country.
 - **(15)** Describing why it is it Woodside's preference to consult on the Scarborough Project as a whole rather than on a per-EP basis, and noting that during the meeting [Individual 4], [Individual 3] and SOS asked questions about various Scarborough Project EPs.

- **(8)** Describing how requirements of regulation 25 of the Environment Regulations have been met, however Woodside remains open to continued consultation with SOS in good faith.
- Noting that an offer to meet fortnightly to support consultation had been made, which was declined.
- On 3 August 2023, Woodside emailed the EDO requesting that a message be passed on to SOS (SI Report, reference 50.82):
 - Following up on Woodside's offer to meet on-Country and whether SOS would be available.
 - Informing that a separate Scarborough EP had been accepted by NOPSEMA with conditions requiring Woodside to seek further input and requesting that SOS inform Woodside if it has input or information to provide.
 - Providing links to information about EP consultation and describing the purpose of EP consultation.
 - **(8)** Informing SOS that gender-restricted or culturally sensitive information is managed carefully and attaching NOPSEMA's "Policy for Managing Gender-Restricted Information".
- On 9 August 2023, the EDO emailed Woodside (SI Report, reference 50.83):
 - Confirming that the recording of the meeting from 25 July 2023 had been received and passed on to SOS.
 - **(9, 10)** Reiterating its clients had said they were not ready to provide Woodside with information following the presentation. This was contrary to previous correspondence where [Individual 4] and [Individual 3] confirmed they had information to share on all Scarborough EPs and the Scarborough Project generally (see correspondence dated 26 September 2022, 8 November 2022 and 24 November 2022).
 - **(9)** Stating that approaching consultation in good faith requires flexibility, that a fortnightly meeting arrangement is not appropriate and that a proposed date for another meeting will be part of a separate email.
 - **(15)** Reiterating that SOS, [Individual 4] and [Individual 3] intend to consult on EPs individually and consecutively, rather than concurrently, despite the previous position that consultation was occurring across all Scarborough EPs and the Scarborough Project generally.
 - Stating that SOS do not consider that requirements of the Regulations have been met, and that a response following the meeting on 25 July 2023 is in preparation.
- On 16 August 2023, Woodside emailed the EDO to clarify if the EDO were acting for [Individual 4] and [Individual 3] (SI Report, reference 50.84).
- On 17 August 2023, the EDO confirmed they represented both [Individual 4] and [Individual 3] (SI Report, reference 50.85).
- On 21 August 2023, Woodside emailed the EDO seeking consultation regarding the Seismic EP. In the email, Woodside also reiterated previously agreed upon consultation conditions and reaffirmed its readiness and willingness to meet and consult with [Individual 4], [Individual 3] and SOS, and requested available dates to meet (SI Report, reference 50.86).
- On 21 August 2023, a letter was sent to the EDO to inform that Woodside's position is that it had complied with the Regulations, and that Woodside is prepared to meet with [Individual 4], [Individual 3] and SOS at any time or place suitable to them so that they could provide any information they consider relevant. That letter attached a table confirming consultation undertaken with [Individual 4], [Individual 3] and SOS, relevant to all Scarborough EPs (SI Report, reference 50.87)
- On 22 August 2023, the EDO emailed Woodside informing that they would obtain further instructions from their clients regarding available dates for consultation and would email soon. The EDO also reiterated that SOS remains willing to consult (SI Report, reference 50.88).
- On 25 August 2023, the EDO emailed Woodside with two dates and location options available for consultation with their clients (SI Report, reference 50.89).
- On 25 August 2023, Woodside emailed the EDO seeking clarification on the two dates and information regarding payment for [Individual 4]'s airfare to and from the consultation location (SI Report, reference 50.90).
- On 25 August 2023, the EDO emailed Woodside confirming both date options (SI Report, reference 50.91).

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- On 25 August 2023, Woodside emailed the EDO confirming receipt of the email and responding that they would revert with availability (SI Report, reference 50.92).

Summary of information provided and record of consultation for this EP:

- **(8, 9, 10, 19)** On 29 August 2023, Woodside emailed the EDO with a preferred consultation meeting date of 12 and 13 September 2023. The purpose of the meeting was to engage in ongoing consultation in relation to Woodside's EPs (including this EP). Woodside re-affirmed that these consultations would take place on a no-admission basis in relation to whether Woodside has satisfied regulation 25 of the OPGGS (E) Regulations given that EDO's clients hold a different view. It was also stated in the email that Woodside is proceeding on the basis that previously agreed protocols apply. Woodside also enquired about receipt of a video taken on Murujuga that was expected to be forwarded from [Individual 4], [Individual 3] and SOS (SI Report, reference 50.93).
- On 30 August 2023, the EDO emailed Woodside confirming receipt of the email and advised they would respond soon (SI Report, reference 50.94).
- On 1 September 2023, Woodside emailed the EDO following up a confirmation for consultation on the 12 and 13 September 2023, for a 2-day on-Country workshop with SOS (SI Report, reference 50.95).
- On 3 September 2023, Woodside emailed SOS specifically regarding consultation on this EP. The email provided an overview of the activity, and requested feedback on how it could impact functions, interests or activities or cultural values and concerns about the proposed activity and what SOS proposed to be done to mitigate these concerns, and whether there are other individuals or groups that Woodside should speak to. The email included a Summary Information Sheet about the proposed activity and requested a response by 30 September 2023 (Record of Consultation, reference 1.21).
- On 4 September 2023, the EDO emailed Woodside responding to the email sent on 29 August 2023 (SI Report, reference 50.96). The EDO:
 - Stated it understood that the consultation would take place on a no-admission basis given the diverging issues of the parties and reiterated its client's position that consultation had not occurred as per the Regulations. Provided instructions on how the 2-day consultation meeting was to proceed including separating the two days over time.
 - Asked for the first meeting (to be held on 12 September 2023) to focus on the Seismic EP and the second meeting (to be held sometime after the 29 September 2023), to be held on-Country with the intention of visiting the islands off Murujuga. As noted above, this was contrary to the initial position taken by [Individual 4], [Individual 3] and SOS that they would consult on all Scarborough EPs and had information to share on each Scarborough EP. The EDO expressed their client's interest in meeting a third time to discuss appropriate measures to be put in place for the Seismic EP.
 - The EDO asked Woodside to confirm that audio recordings at the meeting are permissible, as agreed on 25 July 2023; that the consultation is to take place with only women and responded to Woodside's query about the on-Country Murujuga video stating that their clients no longer intend to provide that video.
- On 7 September 2023, the EDO emailed Woodside asking for confirmation of the meeting for 12 September 2023 for planning purposes (flights and accommodation) (SI Report, reference 50.97).
- On 7 September 2023, Woodside emailed the EDO confirming the meeting for 12 September 2023 along with a proposed location in Karratha. Woodside restated the previously agreed upon protocols and listed the female Woodside employees that would be attending the meeting. Woodside confirmed the consultation would be conducted on a non-admission basis given the different view of the parties as to whether consultation had occurred in accordance with Environment Regulations (SI Report, reference 50.98).
- On 7 September 2023, the EDO emailed Woodside agreeing to the location, outlining dietary requirements and listing the attendees on their side (SI Report, reference 50.99).
- **(17)** On 7 September 2023, as part of the Federal Court proceedings, a second affidavit of Ms Border was filed. This affidavit sets out information relating to [Individual 4], [Individual 3] and SOS. It contains information that [Individual 4], [Individual 3] and SOS have declined to previously provide to Woodside in the course of consultation, communications and meetings that have taken place since around 2022. The affidavit contained information about [Individual 4], [Individual 3] and SOS's interests, including in relation to whale dreaming and Songlines. This information is publicly accessible in an online court file. This information was not provided to Woodside in previous consultation and was asserted it could not be provided

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due to cultural sensitivity and as a result of a lack of information about the Scarborough EPs and their impacts on [Individual 3]'s interests. Woodside was therefore surprised to see the information for the first time being provided in a public forum when Woodside has been asking for and consulting with [Individual 4], [Individual 3] and SOS in order to hear and discuss the information for at least a year.

- On 11 September 2023, the EDO emailed Woodside confirming the 12 September 2023 meeting and asked Woodside to confirm that the purpose for the meeting was to discuss the Seismic EP only and to better understand the nature of the activities and ask questions to Woodside (SI Report, reference 50.100).
- **(9, 10, 15)** On 11 September 2023, Woodside emailed the EDO (SI Report, reference 50.101):
 - Confirming that the meeting proposed is to go over the Seismic EP as well as the Scarborough Project and answer any further questions their clients have.
 - Asking [Individual 4], [Individual 3] and SOS to provide questions in advance so that Woodside can have answers ready to share.
 - **(9, 15)** Stating that they would like to provide a refresher on other Scarborough activities with the aim to consult and provide [Individual 4], [Individual 3] and SOS the opportunity to discuss their interests and any claims and objections that they may have on the broader Scarborough Project footprint.
 - Restating Woodside's commitment to ongoing consultation with [Individual 4], [Individual 3] and SOS as part of its commitment to ongoing consultation during the life of an EP.
- MEETING: On 12 September 2023, Woodside met with [Individual 3], SOS and EDO in Karratha (SI Report, reference 50.102). [Individual 3] told Woodside that [Individual 4] sent her apologies as she could not make it and asked for the meeting to go ahead without her. At that meeting, Woodside provided and [Individual 3] took copies of Consultation Information Sheets for Scarborough EPs including this EP. Slides relating to this EP were also included in the presentation. Culturally sensitive and gender restricted content was discussed and has been provided to NOPSEMA separately in accordance with NOPSEMA's Managing Gender Restricted Information. The meeting covered all of the Scarborough activities to the extent that is described or discussed below (SI Report, reference 50.102). During the meeting:
 - EDO and [Individual 3] opened the meeting by stating that [Individual 3] would like to learn more about the activities covered under the Seismic EP and that she would then revert to Woodside to share her story.
 - **(18)** Woodside provided a recap of the previous meeting on 25 July 2023 and advised how Woodside had addressed the topics raised during that meeting. Woodside shared the control measures that had been adopted in the Scarborough EPs as a result of consultation with [Individual 4], [Individual 3] and SOS. [Individual 3], SOS and EDO queried whether any control measures have been removed from the Scarborough EPs overtime and what mitigation measures were considered and not implemented in the EPs. Woodside explained that principles of the ALARP process underpin environmental impact and risk assessment, and that the process generally means building in and improving environmental controls over time.
 - The trunkline and pipeline route were mentioned a number of times and in the context of topics of concern to [Individual 4], [Individual 3] and SOS.
 - Throughout the meeting, [Individual 4], [Individual 3] and SOS raised concerns and questions, which are summarised below, and were addressed during the meeting:
 - **(20)** How Woodside determines that the potential impacts from an activity are ALARP and acceptable.
 - **(14, 18)** A concern about the potential impacts from the Seismic EP on whales and emphasised the importance of whales and their deep connection to them.
 - **(12)** Who conducted the MAC ethnographic surveys, and whether [Individual 3] and SOS could be provided with the full report.
 - How Marine Fauna Observers (MFOs) are able to spot whales from the vessels.
 - A request for further information on the Jupiter Fields. Woodside noted that all the Scarborough gas fields are covered in the Scarborough OPP and that this information could be provided to [Individual 4], [Individual 3] and SOS.

- **(11)** In response to these concerns and questions, Woodside asked [Individual 3] and SOS whether there was anything that Woodside might be able to do to help minimise any impacts to cultural values. [Individual 3] and SOS stated words to the effect that the only thing Woodside could do is stop the project.
- **(9, 10, 12)** Woodside encouraged [Individual 3] and SOS to take some time and read through materials provided including the Consultation Information Sheet for this EP. Woodside asked whether [Individual 3] and SOS had any information from her own history and her own knowledge and information that she could share, including the kinds of issues that Woodside should be looking at that are of importance to her. [Individual 3] and SOS again stated that she could not share any further information until she is provided with the cultural heritage surveys Woodside has had completed. Woodside advised they would share the publicly available content from the report, and repeated that [Individual 3] and SOS would need to speak to MAC if they wanted access to the full report.
- **(19)** [Individual 3] and SOS indicated a desire to take Woodside employees out to Rosemary Island for an on-Country meeting. Woodside enquired as to the logistics including whether they would need to travel by boat and how long the boat ride would take.
- **(9, 10)** Woodside shared that there were consultation meetings happening in Karratha in relation to this EP, Port Hedland and Roebourne the following week, and that [Individual 4], [Individual 3] and SOS were welcome to attend and ask any questions or share anything then.
- Woodside concluded the meeting noting the information that Woodside had committed to providing [Individual 4], [Individual 3] and SOS and checking whether there were any other documents to be provided.
- **(8)** On 13 September 2023, the EDO thanked Woodside by email for the meeting on the 12 September 2023. The EDO also stated they were looking forward to receiving the requested information and listed the specific requests in the email. The EDO also reiterated that it expected that certain cultural information divulged in the meeting remained confidential and gender-restricted, referring to the agreed upon consultation protocols. This was not expected by Woodside because at all times, [Individual 3] and SOS had control to stop a recording and point out that culturally sensitive information was being shared. It was not apparent during the meeting that the information was culturally sensitive and [Individual 3] at no time asked for the recording to be stopped. In any event, Woodside acknowledged the position and undertook to manage the information sensitively (SI Report, reference 50.103).
- **(8)** On 13 September 2023, as part of the Federal Court proceedings, a third Border affidavit was filed. This affidavit confirmed that [Individual 3] “has not been consulted and wishes to be consulted in relation to the Drilling EP (and other EPs relevant to the Scarborough Project that are not the subject of these proceedings”).
- On 17 September 2023, Woodside emailed [Individual 4], [Individual 3] and SOS (SI Report, reference 50.104) acknowledging its request relating to confidential and gender-restricted information, audio recordings, and to agree a way forward to finalise consultation on the Scarborough EPs.

Summary – Correspondence leading to 4 and 5 October 2023 meeting:

A significant amount of correspondence was exchanged between Woodside and [Individual 4], [Individual 3] and SOS from 15 September 2023 in relation to Woodside’s offer to meet on 4 and 5 October 2023 to give another opportunity for [Individual 4], [Individual 3] and SOS to provide and discuss information they said they had and that Woodside needed for the Scarborough EPs.

A summary of the correspondence is as follows:

17 September – 2 October 2023

- On 17 September 2023, Woodside emailed [Individual 4], [Individual 3] and SOS to agree a way forward to finalise consultation on the Scarborough EPs with the utmost expedition and in a culturally appropriate way (SI Report, reference 50.105). In the email:
 - **(8, 9, 10)** Woodside confirmed the urgency around consultation and offered an opportunity to attend a meeting on-Country every day (including weekends) during the next week. Woodside also confirmed it was open to discussing and receiving any and all information on all Scarborough EPs. This was acknowledged by the EDO (Ref email 19 September 2023 and 20 September 2023).
 - Woodside confirmed that information provided at [Individual 4], [Individual 3] and SOS’s request relating to the DSDMP, CHMP, UWA study and OPP was already publicly available.

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- The information has been previously provided to [Individual 4], [Individual 3] and SOS or is information they were previously aware of. Reading that information is not a reason to delay consultation on the Scarborough Commonwealth EPs.
- On 18 September 2023, given the urgency and that there was no response, the email was followed by phone calls, voice mail and text messages to [Individual 4] and [Individual 3] on 18 September 2023.
- On 19 September 2023, the EDO emailed Woodside and noted that [Individual 3] was unable to meet due to personal circumstances, because her lawyers were heavily occupied with the Federal Court proceedings related to another Scarborough EP and because of the large amount of information provided following the 12 September 2023 meeting (SI Report, reference 50.106).
- On 20 September 2023, Woodside emailed the EDO and reiterated [Individual 3] had stated that she already knew the information she wished to provide to Woodside, had received information on each Scarborough EP since at least 2022, through questions and information had shown an understanding of each of the EPs and had been provided with the opportunity to discuss each of the EPs at each meeting this year (in 2023). Woodside requested a meeting by 6 October 2023 at the latest (SI Report, reference 50.107).
- On 20 September 2023, the EDO emailed Woodside confirming [Individual 4], [Individual 3] and SOS were available for a meeting on 4 and 5 October 2023, that they would like to visit the islands off Murujuga during this part of consultation and asked Woodside to coordinate logistics. A concern was expressed regarding the amount of information that would need to be reviewed prior to the meeting (SI Report, reference 50.108).
- **(9, 10, 15)** On 21 September 2023, Woodside emailed the EDO agreeing to a meeting on 4 and 5 October 2023 and agreed to investigate logistics regarding a trip to Rosemary Island. Woodside appreciated the confirmation that consultation would occur on all Scarborough EPs on those 2 meeting dates. Woodside also confirmed that there was no reason for concern regarding information that would need to be reviewed prior to the meeting because [Individual 3] had stated that the information, she and SOS wanted to share with Woodside was currently known to them given she and SOS had stated that they had information they wanted and were ready to share with Woodside. Woodside also reiterated that [Individual 4], [Individual 3] and SOS had had that information since at least 2022 and had shown an understanding of the content. Woodside asked [Individual 4], [Individual 3] and SOS to confirm items so that Woodside could investigate logistics associated with arranging the meeting, including hiring a boat and a venue for the meetings (SI Report, reference 50.109).
- On 25 September 2023, the EDO emailed Woodside to confirm that [Individual 3] wished to visit Rosemary Island as part of the consultation meeting, that [Individual 4]'s attendance was not yet confirmed, and that further logistics would be confirmed the next day (SI Report, reference 50.110).
- On 27 September 2023, Woodside emailed the EDO to follow-up as it had still not had confirmation from [Individual 4], [Individual 3] and SOS regarding the items that Woodside needed to be confirmed in order for the meetings and vessel hire to have progressed. Woodside set out a proposed agenda for the 4 and 5 October 2023 meetings and some logistical issues. One issue was that the vessel Woodside was investigating had limited space but could accommodate [Individual 3] and 3 other attendees [Individual 3] selected. Woodside respectfully also notified [Individual 4], [Individual 3] and SOS that the crew of the vessel was likely to be male and that there were potentially ways to manage the culturally sensitive information out of earshot of the male crew (SI Report, reference 50.111).
- **(8,10)** On 28 September 2023, the EDO provided some information regarding travel to Rosemary Island including that [Individual 3] would potentially bring eight other attendees with her on the boat to Rosemary Island and requiring Woodside to arrange a larger vessel. [Individual 3] noted that Rosemary Island is a culturally significant place and she had included two males to attend for the purposes of cultural safety. She also suggested that a third-party Appeals Convenor should be included in the trip. She also noted that she did not anticipate there would be any need for the Appeals Convenor or Woodside to share confidential or culturally sensitive information during or on the trip to Rosemary Island (SI Report, reference 50.112).
- On 29 September 2023, Woodside emailed the EDO advising that the recording of 12 September 2023 would be shared with NOPSEMA and confirming that culturally sensitive and gender restricted information would be managed appropriately, in accordance with NOPSEMA's "Draft Policy for Managing Gender Restricted Information" (SI Report, references 50.113 and 50.114).

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- On 29 September 2023, the EDO emailed Woodside regarding meeting logistics for the 4 and 5 October 2023 meeting (SI Report, reference 50.115).
- On 29 September 2023, Woodside emailed the external boat provider to arrange a meeting to undertake a risk assessment (including for health and safety) for the proposed travel by boat to Rosemary Island (SI Report, reference 50.116).
- On 29 September 2023, Woodside emailed the EDO to advise that it had received broader cultural advice that Rosemary Island has high cultural significance and that Woodside has been strongly cautioned against convening a meeting at that location because of cultural sensitivity and safety concerns. Woodside suggested Hearson Cove as an alternative meeting location for [Individual 4], [Individual 3] and SOS to share any and all remaining information on the Scarborough EPs. Woodside also stated that it did not think it would be appropriate for the Appeals Convenor to attend, given the purpose of the meeting and questioned why three EDO lawyers needed to be in attendance (SI Report, reference 50.117).
- On 2 October 2023, the EDO emailed Woodside advising it was seeking instructions regarding the matters raised and would revert as soon as possible (SI Report, reference 50.118).
- On 2 October 2023, the EDO emailed Woodside expressing [Individual 3]'s disappointment at Woodside's decision regarding Rosemary Island and confirming arrangements for the meeting on 4 and 5 October 2023 (SI Report, reference 50.119).
- On 2 October 2023, Woodside emailed the EDO regarding the meeting on 4 and 5 October 2023 explaining the decision not to progress with the meeting on Rosemary Island. The email also conveyed that Woodside's priority was to understand the cultural values that [Individual 4], [Individual 3] and SOS asserted that Woodside needed to know for Scarborough EPs (SI Report, reference 50.120).
- (8) On 4 October 2023, Woodside emailed the EDO confirming that it takes cultural safety very seriously and confirmed that Ngaarda Ngarli community leaders have strongly discouraged Woodside from attending Rosemary Island. Other meeting items and logistics were confirmed (SI Report, reference 50.121).

Meeting on 4 and 5 October 2023

- MEETING: On 4 October 2023, Woodside met with [Individual 3] and SOS in Karratha (50.122):
 - Rosemary Island Trip
 - (8) There was discussion regarding [Individual 3]'s preference to travel to Rosemary Island and Woodside's position that it could not attend due to the strong cautions given to Woodside with regard to spiritual and cultural health and safety reasons.
 - Woodside's aim was to maintain integrity and respect for all First Nations people with whom it consults and to present the information in a balanced manner. [Individual 3] stated that she found Woodside's change in position on attending Rosemary Island to be disrespectful. In particular, [Individual 3] was offended by the fact that Woodside had spoken to other person(s) about her consultation with them.
 - During the meeting, [Individual 3] and SOS shared their perspective on matters leading up to the meeting, including their disappointment about the cancellation of the Rosemary Island trip. Woodside confirmed it was following meeting protocols and showing respect to the Traditional Custodian groups for the area. Woodside suggested alternative meeting locations and other options, as at a previous meeting [Individual 4], [Individual 3] and SOS had indicated that they would tell their story at Hearson Cove. The offer to meet at another place or meet at an alternative location on-Country of cultural significance where Woodside could receive the information was rejected by [Individual 3] and SOS - all options suggested by Woodside were rejected including:
 - ❖ A suggestion was made by Woodside that they use the boat Woodside had secured to circumnavigate Rosemary Island (but not disembark onto Rosemary Island), allowing [Individual 3] and SOS to share her information. [Individual 3] and SOS agreed that this could be a compromise. Woodside contacted the external boat provider during the meeting to see if a boat was available for 5 October 2023 that could circumnavigate Rosemary Island to allow for consultation on Sea Country to proceed, without embarking on the Island. The external boat provider confirmed it had a suitable vessel available and made special efforts to stand-up a marine crew. When Woodside confirmed this was available, [Individual 3] rejected the offer and declined to meet.

- ❖ Another option suggested was that [Individual 3] and SOS visited Rosemary Island and produced an audio recording of her story; and
 - ❖ A meeting at Hearson Cove, as Hearson Cove had previously been identified as culturally safe by [Individual 4], [Individual 3] and SOS and a place where they had (in March 2023) shared information with Woodside.
- Presentation and discussion on Scarborough EPs.
- **(14, 21, 22)** During the meeting, Woodside presented on Scarborough EPs (D&C, SITI, Seismic and Subsea) and controls suggested to demonstrate how Woodside had addressed each of the topics and cultural values previously raised by [Individual 4], [Individual 3] and SOS and the relevant controls in place for each of the Scarborough EP activities. Woodside displayed a table on-screen during the meeting which contained the previously expressed areas of interest to [Individual 4], [Individual 3] and SOS and controls pertaining to each of these interests. The EDO questioned why controls were being discussed, and not EP overview/content. In reviewing the newly adopted controls that were able to be covered, [Individual 3], SOS and the EDO provided views on some controls including the cultural awareness crew training control that had been included in all Scarborough EPs. [Individual 3] and SOS's feedback on the control was adopted.
 - **(10, 14,)** While Woodside was presenting on the controls implemented for humpback whales, [Individual 3] recognised the words were those she had said in the previous meeting with Woodside and noted that she was pleased that her words were used to describe the controls in the EP. [Individual 3] and SOS noted that all marine animals are important, not just whales. Woodside asked [Individual 3] and SOS to clarify, as in the previous meeting on 12 September 2023 [Individual 3] and SOS had specified humpback whales as being of particular importance. [Individual 3] and SOS stated that she had always said all animals and plants have importance, but whales and turtles are more apparent due to their size.
 - **(15)** On request of [Individual 3] and SOS, Woodside presented on Scarborough activities (D&C, SITI, Subsea, and Seismic), showing the presentation that had been prepared for the 25 July 2023 meeting including the Floating Production Unit (FPU) in the project overview, when Woodside was ready to present on all EPs and was directed to only discuss the Seismic EP.
 - Woodside described the trunkline route, the FPU, and proximity to existing infrastructure and controls protecting the environment during installation. [Individual 3] and SOS had various questions, including:
 - ❖ **(16)** [Individual 3] stated she had watched a lot of spills and was concerned that they didn't get contained.
 - ❖ **(16)** Woodside responded that gas released at 900m (Scarborough well depths) would dissolve in the water column and would not result in a typical oil spill scenario, but that the greater risk for the Scarborough activities including this from a spill perspective was diesel spill from vessels caused by vessel collisions, for example. Woodside provided an overview of a credible spill scenario from a vessel collision and discussed the Environment that May be Affected (EMBA).
 - ❖ **(16)** Whether NOPSEMA approves the oil spill preparedness and response plans, Woodside confirmed that these plans were assessed and approved as part of the EP assessment process.
 - ❖ Whether the FPU meant that Woodside had a version of the Karratha Gas Plant on the bottom of the ocean. Woodside explained the FPU in detail, how it was moored in place and connected by flow lines and umbilicals to the wells.
 - Woodside provided an overview of the proposed trunkline and explained the process for selecting the trunkline route and trunkline construction methodology. [Individual 3] and SOS spent some time looking at the figures showing where the trunkline passed through the Montebello MUZ and the various marine park classifications around the Montebello Islands and sought to understand that further. Woodside provided an overview of the dredging activity for the offshore borrow ground area, and explained the logic behind the focus on environmental impacts from dredging in that EP.
 - Woodside emphasised again a willingness to listen to [Individual 3]'s and SOS's story and keenness to ensure cultural values are protected.

- **(10,19)** Towards the end of the meeting, Woodside confirmed that a boat was available to circumnavigate Rosemary Island on 5 October 2023 as was the agreed compromise position. [Individual 3] said words to the effect that this was not good enough, and after a brief discussion on the logistics of the boat trip to Rosemary Island, the meeting ended.
- **(9)** After the close of the meeting, Woodside informed the EDO lawyers that another option available for [Individual 4], [Individual 3] and SOS to share [Individual 3]'s story was to share it directly with NOPSEMA.
- On 5 October 2023, Woodside attended the Red Earth Arts Precinct ready, willing, and able to engage in consultation on 5 October 2023. Despite Woodside confirming it was ready for the meeting, [Individual 3] and the EDO declined to attend.

Correspondence following the 4 October 2023 meeting:

A summary of the correspondence is as follows:

Woodside and the EDO exchanged emails following the meeting, noting that accounts and take-aways from the meeting differed.

- On 4 October 2023, the EDO emailed Woodside stating that each of the Scarborough EPs were not discussed “substantively” with [Individual 3] before the meeting that day (4 October 2023), other than the Seismic EP discussed at the 25 July 2023 meeting, and that it was the first time Woodside had provided a “substantive” presentation describing the activities described in the D&C, SIT1 and Subsea EPs (SI Report, reference 50.123):
 - **(21)** Through the EDO, [Individual 3] emphasised the importance of understanding the impacts and controls relating to animals affected by the activities.
 - **(8,9,10,19)** The EDO stated that [Individual 3] did not agree to meet again on 5 October 2023 in Karratha and [Individual 3] could not proceed with the proposed agenda, as she could not share the story she wanted to share with Woodside from anywhere other than on Rosemary Island. [Individual 3] wished to engage in consultation and share information about her story and how her functions, interests or activities may be affected, and she did not wish to meet in those circumstances.
 - **(19)** The EDO re-emphasised the importance of attending Rosemary Island for purposes of [Individual 3] sharing information.
- **(8, 9, 10, 19)** On 5 October 2023, Woodside emailed the EDO acknowledging the email sent on 4 October 2023 and stated that Woodside's understanding of the meeting differed. Woodside enquired if there were alternative approaches for [Individual 3] to share her story from Rosemary Island, such as recording her story or inviting the Regulator to attend and that they remained open to understanding how the issue could be progressed (SI Report, reference 50.124).
- On 5 October 2023, the EDO emailed Woodside stating that [Individual 3] and the EDO would not be attending the meeting that day (SI Report, reference 50.125). [Individual 3] considered Woodside had seriously damaged the relationship of trust and confidence required for consultation. The EDO were instructed to say that [Individual 3] was open to the prospect of future meetings if the relationship was able to be repaired.
- **(8, 9, 10, 19)** On 5 October 2023, Woodside emailed the EDO sharing their disappointment that [Individual 3] and SOS would not be attending the meeting that day. Woodside confirmed employees were at the Red Earth Arts Precinct centre in Karratha as agreed, and were keen for the meeting to go ahead and for Woodside to hear further information [Individual 3] wished to share on the Scarborough EPs. Woodside re-iterated that there was no disrespect intended towards [Individual 3]. Woodside stated that there was a limit where consultation could be held in circumstances where there were unacceptable health and safety risk, as was the case in the instance of Woodside employees going onshore for a meeting with [Individual 3] and SOS at Rosemary Island when it was advised not to. Woodside reiterated that Woodside employees had received strong advice on cultural safety and did not have cultural permission to convene a meeting with [Individual 3] or SOS on Rosemary Island and asked again if there were alternatives available for [Individual 3] to share her information. A link to the NOPSEMA draft policy for managing gender restricted information was also provided (PL2098) was provided (SI Report, reference 50.126).
- **(8, 9, 10, 19)** On 5 October 2023, the EDO sent a letter on behalf of [Individual 3] to NOPSEMA, and copied Woodside (SI Report, reference 50.127), which:
 - Acknowledged that, in [Individual 3]'s view, consultation with Woodside began in October or November 2022.

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- Noted that [Individual 3] believed Woodside had shared information regarding consultation with individuals not involved in the consultation.
- Stated that Woodside presented on matters outside of the agreed agenda, noting there was discussion on control measures Woodside had adopted in each of its EPs following the 12 September 2023 meeting.
- Stated that [Individual 3] felt the trust and respect had been damaged and was not conducive to her sharing her knowledge.
- Sought to arrange a meeting with female representatives of NOPSEMA at Rosemary Island or another place of her choosing, where she is able to share her information in a culturally safe manner.
- **(8, 9, 10, 19)** On 9 October 2023, Woodside emailed NOPSEMA stating that Woodside disagreed with a number of statements contained within the EDO letter sent to NOPSEMA (of 5 October 2023) and, accordingly, wished to correct the record and provide context. Woodside had consistently provided opportunities for [Individual 4], [Individual 3] and SOS to share information and engage in two-way dialogue and had attempted to accommodate the varied consultation requests made by [Individual 4], [Individual 3] and SOS. The email attached further supporting information (SI Report, reference 50.128).
- On 22 November 2023, Woodside emailed [Individual 4], [Individual 3] and SOS following up specifically on consultation for this EP, the email re-attached the email sent to [Individual 3], [Individual 4] and SOS on 3 September 2023. The email provided an overview of the activity and a Summary Information Sheet and requested feedback prior to 8 December 2023 (SI Report, reference 50.129).
- On 27 November 2023, Woodside emailed [Individual 4], [Individual 3] and SOS advising that consultation would close for this EP on 20 December 2023 and offered to meet between 4 and 20 December 2023. In order to facilitate and better enable consultation, Woodside's email included a table of topics of interest to SOS, [Individual 3] and [Individual 4] as well as feedback previously provided by [Individual 4], [Individual 3] and SOS on other Scarborough EPs and Woodside's assessment of relevance to this proposed activity and proposed controls for comment. The email notified that consultation on this EP would close on 20 December 2023 (SI Report, reference 50.130).
- **(1, 9, 16, 20)** On 6 December 2023, the EDO emailed Woodside, following up on information requested during October on spill modelling and impacts to species for each Scarborough Project activity. A request was made for a further consultation meeting in relation to this activity and that information on impacts and mitigation measures on a number of issues be provided prior to the proposed meeting (SI Report, reference 50.131). The email contained a list of preferences for consultation (including that certain subject matter experts be present and others not attend).
- **(9)** On 13 December 2023, Woodside emailed the EDO, attaching copies of consultation emails previously sent, including the information that had been requested and sent, and noting that the EDO subscribed to the Woodside website and receives Information Sheets and updates on consultation through that means. Woodside confirmed that the FPU was previously discussed, including on 4 October 2023 where [Individual 3] made direct reference to it along the lines of it being a gas plant in the middle of the ocean. Woodside considered the preferences expressed in the 6 December 2023 email and noted that Woodside would meet on terms best suited to the purposes of consultation. Woodside noted that [Individual 4], [Individual 3] and SOS have shown understanding of the project as demonstrated by questions and issues raised and the various mechanisms through which Woodside has sought and welcomed feedback. Woodside noted that consultation has limits and that a titleholder is not obliged to wait indefinitely for a response or gain consent. Woodside also requested the EDO respond as to who their client was (SI Report, reference 50.132).
- On 13 December 2023, the EDO emailed Woodside, confirming that [Individual 3] was available to meet Woodside on 20 December 2023 and wanted a meeting in Perth, requesting that Woodside coordinate a suitable venue (SI Report, reference 50.133).
- On 18 December 2023, the EDO emailed Woodside, confirming that the EDO was currently acting only for [Individual 3], not [Individual 4] or SOS. EDO requested copies of audio recordings of previous meetings and suggested another meeting date in January 2024 (SI Report, reference 50.134).
- **(9)** On 19 December 2023, Woodside emailed the EDO noting disappointment that [Individual 3] was unable to meet on 20 December 2023, offering another alternative date to meet during December. Woodside noted that as previously advised, consultation would close on 20 December 2023 and that Woodside intended to conclude consultation under regulation 25

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of the Environment Regulations as soon as possible so that feedback, claims and objections can be best considered prior to EP submission. Woodside re-attached the information requested in the 13 December 2023 email, noting the information had been provided twice before. Woodside provided a video describing the FPU and the Scarborough Project (SI Report, reference 50.135).

- **(9, 10)** On 19 December 2023, Woodside emailed the EDO, noting that Woodside had previously provided a recording of the meeting held on 25 July 2023. Woodside stated that the EDO and Woodside had both made its own individual recordings of meetings on 12 September 2023 and 4 October 2023, and as previously requested, Woodside desired copies of EDO's recordings to cover inaudible sections in Woodside's version so that transcripts could be finalised (SI Report, reference 50.136).
- **(9, 10)** On 20 December 2023, the EDO emailed Woodside, stating that given the planned commencement of the activity, consultation prior to the EP being submitted should be delayed. It also stated that [Individual 3] has not had the opportunity to consider the proposed activity or provide feedback and, despite Woodside employees specifically noting [Individual 3] picked up an information sheet on this EP and had previously asked questions about it and shown an understanding of it, she did not recall being provided with any information about this EP at previous meetings. The email further noted that onshore processing and GHG emissions are a potential risk or impact which should be addressed in the EP and had not been discussed at previous meetings. The EDO requested availability to meet and offered to share the EDO's recording of the consultation meeting on 4 October 2023, but stating that the EDO did not have a recording of the meeting on 12 September 2023 (SI Report, reference 50.137).
- On 20 December 2023, given the EDO's email of 18 December 2023, Woodside also separately emailed [Individual 4] and SOS making reference to the 3 September 2023 email sent to [Individual 4], [Individual 3] and SOS and asking whether they would like to separately meet regarding this EP (SI Report, reference 50.138). In addition Woodside:
 - Referenced an email sent on 22 November 2023 seeking feedback by 8 December 2023 and another email sent on 27 November 2023 advising consultation would be closing on 20 December 2023 and offering to meet between 4-20 December 2023.
 - Advised that as of 20 December 2023, consultation had closed under regulation 11A (now regulation 25 of the Environment Regulations).
 - Noted that consultation could still occur and Woodside was open to receiving feedback throughout the life of an EP.
 - Attached the Summary Information Sheet (which had been taken by [Individual 3 at the September 2023 meeting], a table of information and topics previously provided by SOS, sent by Woodside on 27 November 2023.

Ongoing engagement:

- **(9)** On 21 December 2023, Woodside emailed the EDO, notifying that as previously communicated, consultation under regulation 25 of the Environment Regulations for the EP closed on 20 December 2023 and that [Individual 3] has had a reasonable period of time to consider the activities and provide feedback about how these activities affect her functions, interests or activities (SI Report, reference 50.138). The email noted:
 - That the FPU was discussed at face-to-face meetings on 14 March 2023, 25 July 2023, 12 September 2023 and 4 October 2023.
 - Woodside sent [Individual 3] an email attaching the Summary Information Sheet for the activity on 3 September 2023, requesting feedback by 30 September 2023.
 - At the face-to-face consultation meeting on 12 September 2023, [Individual 3] and SOS took hard copies of the Consultation Information Sheet and Summary Information Sheet for this EP. A photo of these Information Sheets available at the meeting was provided.
 - Woodside again sent [Individual 3] an email attaching the Summary Information Sheet for the activity on 22 November 2023, requesting feedback by 8 December 2023.
 - On 27 November 2023, Woodside emailed [Individual 3] advising that consultation would close on 20 December 2023 and suggested a range of meeting dates in December 2023. To assist, this email attached a table summarising a review of previous feedback provided by [Individual 4], [Individual 3] and SOS since at least 2022 on other Scarborough EPs, in the context of this proposed activity.

- **(11)** [Individual 3] attended a protest at the Woodside buildings on 7 December 2023, indicating her availability around that time to participate in consultation, however selected the final date for consultation (20 December 2023) to meet, a date for which she subsequently told Woodside that she was not available to attend.
- **(9, 10, 11)** A radio interview [Individual 3] had on 3CR, on 17 December 2023, where she stated that she had done everything she could in terms of providing information to Woodside as part of the consultation process and that significant information had been provided.
- **(9, 10)** On 22 December 2023, the EDO emailed NOPSEMA (and copied Woodside) (SI Report, reference 50.140). The email:
 - Informed NOPSEMA that Woodside had closed consultation on 20 December 2023, and attached an email chain in which [Individual 3] requested a consultation meeting after 24 January 2024. The EDO stated that [Individual 3] considered this request reasonable, given that the activities in the EP are not proposed to begin until 2025.
 - Noted that [Individual 3] has not yet met with Woodside in relation to this EP, and that the EP covers activities that will have impact that goes beyond the scope of what has previously been discussed.
 - Stated that consultation on the EP had not occurred with [Individual 3] in accordance with regulation 25 of the Environment Regulations, and urged NOPSEMA to ask Woodside to provide further information so that NOPSEMA can be satisfied that consultation in accordance with the Regulations had occurred.
- **(9)** On 19 January 2024, Woodside emailed the EDO in response to an email sent to Woodside by the EDO on 21 December 2023 and an email sent to NOPSEMA by the EDO on 22 December 2023, confirming consultation had closed for the preparation of this EP on 20 December 2023 (SI Report, reference 50.141). In addition:
 - Despite this, as per previous requests from the EDO on 18 December 2023 for [Individual 3] to meet with Woodside after 24 January 2024, Woodside proposed a meeting between 22 January 2024 and 11 February 2024. The purpose of the meeting would be to hear anything further [Individual 3] may have to provide by way of feedback in relation to this EP. Woodside reiterated it could also speak to a slide pack on the FPU and Operations scopes.
- On 24 January 2024, the EDO emailed Woodside thanking Woodside for its email and stating the EDO were currently seeking instructions from [Individual 3] and will revert as soon as possible (SI Report, reference 50.142).
- **(8, 9)** On 8 February 2024, the EDO emailed Woodside thanking it for Woodside's patience while they obtained instructions from [Individual 3]. A date for a meeting in Karratha was suggested with other logistical details. The EDO requested a slide presentation on this activity to be provided prior to the meeting and the same protocols as previously agreed. The EDO again requested a transcript from previous meetings (SI Report, reference 50.143). The EDO also:
 - **(23)** Noted compliance with the existing meeting protocol but also noted a change in protocols in that any cultural information resulting from consultation with [Individual 3] is not to be communicated to any third parties.
- On 9 February 2024, Woodside emailed the EDO and advised it was available to attend the 16 February 2024 meeting, face-to-face in Karratha and it would revert with further responses (SI Report, reference 50.144).
- On 9 February 2024, the EDO emailed Woodside and advised it had made travel arrangements (SI Report, reference 50.145).
- On 12 February 2024, Woodside emailed the EDO advising that due to a pilots' strike Woodside attendees had been waitlisted for flights and proposed alternate arrangements so that the meeting could still take place. For example, Woodside offered for the meeting to take place over Microsoft Teams or in Perth if [Individual 3] and [Individual 4] were intending to fly to Karratha (SI Report, reference 50.146).
- On 13 February 2024, the EDO emailed Woodside twice discussing logistics details and suggesting availability for alternative dates and advised they would seek instructions and revert to Woodside (SI Report, reference 50.147 and 50.148).
- On 13 February 2024, Woodside emailed the EDO confirming logistics to meet (SI Report, reference 50.149). In addition:

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- Woodside asked for confirmation as to who the EDO was representing at the meeting and if [Individual 4] was attending as a Traditional Owner, representative of SOS and/or representation of the Australian Conservation Foundation.
- (8, 23) Woodside agreed to comply with the meeting protocol, except for a new addition about not sharing cultural information with third party Traditional Owner groups, Woodside noted that due to the communal aspect of culture it may be necessary that certain information would require testing broad acceptance with an appropriate cultural authority.
- (9, 10) Woodside confirmed the purpose of the meeting was to consult on this EP and to hear anything further [Individual 3], SOS and [Individual 4] may have to provide by way of feedback in relation to this EP. Woodside would also speak to a slide pack on this EP and the Floating Production Unit and Operations scopes.
- (10) Woodside attached the following for pre-read:
 - The summary of claims made by [Individual 3], [Individual 4] and SOS during previous Scarborough consultation and how they relate to this EP, previously sent on 27 November 2023 and 13 December 2023.
 - The Summary Information Sheet (prepared with Traditional Owner input), that had been provided to [Individual 3], [Individual 4], SOS and the EDO via email in September 2023, November 2023, and December 2023. [Individual 3] collected a Consultation Information Sheet in person at the meeting of 12 September 2023.
 - A video which provided an overview: Scarborough and Pluto Train 2 – YouTube.
- (9, 10) Woodside requested an indication of the topics, issues and questions that [Individual 3], [Individual 4] and SOS would be interested in being discussed at the meeting.
- (9, 10) Woodside advised it was looking forward to the opportunity to discuss and engage in dialogue on the EP and in particular to hearing objections or claims about the adverse impact of each activity to which the EP relates.
- Woodside thanked the EDO for providing its recording for the 4 October 2023 meeting which now enabled a full transcript to be prepared (which was then attached to the email).
- Woodside noted it was still awaiting provision of the EDO recording from the 12 September 2023 meeting and attached Woodside's recording of the meeting.
- (23) On 14 February 2024, the EDO emailed Woodside noting [Individual 3] did not wish to go ahead with the meeting previously agreed for February 2024. This was because she did not believe her cultural information would be properly handled by Woodside. The EDO noted that [Individual 3] might share information in a written or other format rather than in a meeting. No further information has been received by Woodside (SI Report, reference 50.150).
- On 15 February 2024, Woodside emailed the EDO noting disappointment at the cancellation of the meeting again, but that it looked forward to receiving written feedback on this or any other EP from [Individual 3] at any time (SI Report, reference 50.151). Regarding confidentiality Woodside:
 - Reconfirmed the position set out by the Judge in the *Munkara v Santos* decision regarding the need for a titleholder to validate cultural information provided by individuals by providing that information to cultural authorities.
 - (8) Reiterated that as per the agreed protocol, cultural details would be kept confidential amongst females. Woodside again confirmed it has not disclosed any cultural details to the public and again reiterated that SOS, [Individual 3] and [Individual 4] have put a great deal of information (including cultural information) into the public arena of their own accord.
 - (23) Reiterated its position regarding the proposed trip to Rosemary Island and cultural advice received by Woodside. Woodside further reiterated its position regarding sharing of cultural information.
 - (22) Noted information is on the public record through evidence presented in *Cooper v NOPSEMA* (Federal Court VID647/2023), in affidavits, open court, through assertions online and in the media and other public forums.
- (23) On 21 March 2024, the EDO emailed Woodside disagreeing with Woodside's assessment of *Munkara v Santos* and suggesting Woodside had changed its approach to consultation shortly before the proposed February 2024 meeting (SI Report, reference 50.152).

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- **(23)** On 28 March 2024, Woodside emailed EDO again reiterating that it was appropriate for Woodside to take advice from Murujuga Elders on cultural matters and offering once again to meet with [Individual 3] at her earliest convenience for consultation on this EP (SI Report, reference 50.153).
- **(23)** On 10 April 2024, the EDO emailed Woodside again disagreeing with the *Munkara v Santos* assessment and claiming Woodside were not answering [Individual 3]'s questions (SI Report, reference 50.154). The EDO also stated:
 - **(23)** [Individual 3] would only provide information in writing and it would not contain culturally sensitive information. This means Woodside may not have complete information about how all relevant persons' functions, interests and activities may be affected.
 - **(23)** [Individual 3] also noted Woodside had not informed her of with whom it shared information about the Rosemary Island trip.
- On 29 April 2024, SOS and/or [Individual 3] emailed Woodside advising Woodside [Individual 3] would only engage in consultation in a written format going forward (SI Report, reference 50.155). Woodside has respected this position and has consulted in writing since that time.
- On 9 May 2024, SOS and/or [Individual 3] emailed Woodside (SI Report, reference 50.156) in response to another activity, with comments relating to this EP and the other activity. The response noted there was no culturally sensitive information included and outlined an overview of [Individual 3]'s functions, interests and activities including:
 - [Individual 3]'s connection to Murujuga and cultural responsibilities.
 - **(11)** [Individual 3]'s opposition to all industry on Murujuga.
 - **(10)** That [Individual 3] holds information that is critical for Woodside to understand the impacts of its activities and that [Individual 3] may also have feedback on proposed mitigation measures.
 - **(1)** [Individual 3]'s concern that the sacred rock art at Murujuga is at risk from emissions from the Pluto and Scarborough facilities.
 - **(24)** That Woodside's proposed mitigation/management measures to reduce GHG emissions does not focus on the protection of the environment.
 - **(4)** [Individual 3] is concerned about the cumulative impacts of any industry on Murujuga which:
 - Restricts access to Murujuga.
 - Affects cultural practices.
 - Contributes to cultural genocide by creating irreplaceable, irreversible cultural damage.
 - Affects the environment.
 - **(28)** That climate change should be considered as an impact.
 - **(25)** That activities are offshore from culturally significant islands, including Rosemary Island which is a women's island to which [Individual 3] has a significant connection and that Rosemary Island:
 - Holds a connection to songlines
 - Is a main breeding ground and habitat for turtles, which are culturally significant
 - Erosion on the island caused by climate change, vessel traffic and fishing prevent turtles laying eggs and incubating properly
 - Can only be protected by stopping the Scarborough project, and asks how Woodside will protect the island and the species reliant on the island.
 - **(26)** That consultation of relevant persons needs to be consistent. Specifically:

- Offering the same level of support
- Consulting in two stages: information provision, then response
- Providing assurance that culturally sensitive information will not be shared.
- **(17)** That the environment and cultural values are one, that Dreaming stories come from the animals depicted on the rock art and will live forever, that the connection and Songlines are being disrupted.
- **(27)** That there are other individuals that Woodside should speak to about these activities but [Individual 3] is not comfortable identifying these people.
- On 14 May 2024, Woodside emailed SOS and/or [Individual 3] to thank them for their feedback, confirm that Woodside would reply shortly, and request an attachment that was missing from the original email (SI Report, reference 50.157).
- On 16 May 2024, the EDO on behalf of [Individual 3] emailed Woodside with a copy of the body of the Border Affidavit attached (SI Report, reference 50.158).
- **(25)** On 23 May 2024, Woodside responded to the 9 May 2024 correspondence from SOS and/or [Individual 3] to advise that some of their feedback for this EP related to a WA State EP, and provided information relating to Rosemary Island, turtles and other matters relating to activity in State waters (SI Report, reference 50.159).
- On 29 May 2024, Woodside emailed SOS and/or [Individual 3] with a response to their feedback of 9 May 2024 (SI Report, reference 50.160). The response addressed:
 - Woodside's understanding of [Individual 3]'s connection to Murujuga.
 - How Woodside deals with culturally sensitive information and the protocol that has been followed.
 - **(11)** [Individual 3]'s opposition to the existence of all industry on Murujuga.
 - The process by which consultation has taken place, including:
 - Providing sufficient information, and a reasonable period of time and opportunity to be heard and share concerns, claims and/or objections, and to input on measures Woodside could implement to manage risks and impacts
 - **(10)** That information held by [Individual 3] and described as relevant to Woodside's activity had not been provided, despite numerous offers and opportunities to do so
 - **(26)** That Woodside consults consistently with relevant persons, while making consultation bespoke where appropriate
 - **(26)** That consultation is designed to enable effective engagement and the method of consultation is led by the Traditional Custodians (where appropriate)
 - **(27)** That Woodside identifies relevant persons for consultation and advertises publicly to allow others to self-identify.
 - **(1)** [Individual 3]'s concerns relating to Murujuga rock art including:
 - The regulations relating onshore processing facilities.
 - The processes around monitoring industrial emissions and studies relating to Murujuga rock art.
 - The inconclusive nature of research to date and Woodside's support of further research including involvement in the Murujuga Rock Art Monitoring Program.
 - **(3)** That activities described in this EP do not involve the movement or disturbance of any heritage sites including rock art.
 - **(24)** Mitigation and measures to reduce direct GHG emissions to ALARP.
 - **(28)** The consideration in the EP of climate change.
 - The assessment and controls of the highly unlikely potential impact of seabed disturbance.

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- (25) [Individual 3]'s connection to Rosemary Island, and the unlikely impact of this activity on the Island and its turtles.
- (17) The connection of culture and environment and recording of cultural values.
- (1, 11, 24) On 23 July 2024, Woodside emailed the EDO on behalf of [Individual 3] (SI Report 50.161). In the email Woodside:
 - Confirmed this EP was now available on the NOPSEMA website.
 - That the EP contained information about climate change, greenhouse gas and atmospheric emissions as well as control measures to manage the risks and impacts of activities to as low as reasonably practicable and an acceptable level.
 - Provided details on where previously issues raised during consultation could be found in the EP.
- On 30 July 2024, the EDO on behalf of [Individual 3] emailed Woodside a letter in response to Woodside's email of 23 July 2024. (SI Report, reference 50.162). The letter noted the following on behalf of [Individual 3]:
 - (29) Woodside had not assessed relevant impacts and risks to cultural values. This was because there had been no female Mardathoonera representatives on the Circle of Elders since 2015.
 - (30) The risks to rock art set out in the EP were not acceptable and have not been reduced to ALARP. There was insufficient consideration in the EP of impacts and risks to Murujuga rock art associated with the use of Scarborough gas at the proposed Perdaman facility.
 - (31) [Individual 3] has concerns about the processes by which approvals have been given to industrial projects on Murujuga by regulators in the past as reliance on the Murujuga Rock Art Strategy (MRAS) and Murujuga Rock Art Monitoring Program (MRAMP) was insufficient.
 - (32) Woodside should consider documents tabled in Parliament (Attachment A to this email) and revise its assessment of the risks and impacts of the EP on Murujuga rock art.
 - (33) Woodside has not met regulations about evaluation of environmental impacts and risks.
- On 13 August 2024, Woodside emailed the EDO/[Individual 1] a response to the 30 July 2024 letter (SI Report, reference 50.163). In the letter Woodside:
 - Reiterated that consultation for the purposes of preparation of the EP closed on 20 December 2023.
 - Confirmed feedback could be provided for the life of an EP.
 - Provided an attachment with responses to information raised by [Individual 3] These included:
 - (29) MAC is the authorised representative body to speak on behalf of Murujuga Country. Woodside respects MAC's cultural determination of the governance structures necessary and appropriate to manage Murujuga. MAC is responsible for the management and protection of Murujuga's cultural values. Woodside disagrees with the assertion that Woodside has not assessed relevant impacts because there had been no Mardathoonera representative on the Circle of Elders since 2015. This includes because Woodside understands that there is currently a female Mardudhunera Yaburara representative on the Circle of Elders.
 - (30) Section 6.7.7 of the EP provides an examination of research relating to impacts to rock art from industrial emissions. Woodside has reviewed information provided in Attachment A and no revisions to this section are required.
 - (31) The Murujuga Rock Art Monitoring Program (MRAMP) is a joint initiative of MAC and the WA Government. Woodside does not propose to undermine the process or to intervene in the exchange of information between the WA government, researchers and MAC. In the absence of MRAMP's final results, there remains no conclusive scientific research on the level of emissions which theoretically may affect rock art. Woodside is taking reasonable and practicable measures across its operations and growth projects to minimise emissions. Woodside does not run MRAMP or influence its methodology or results. Woodside will not intervene in the management of the program.

<ul style="list-style-type: none"> ▪ (32) Woodside has reviewed the documents tabled in Parliament (Attachment A). Attachment A appears to challenge the MRAMP and bring into question its operation. In answer to this, Woodside refers to the previous answer regarding MRAMP. Woodside also confirms that it does not utilise results from this study in the impact assessment of potential impacts to rock art. This is because reports produced to date from MRAMP caution against drawing conclusions about trends in rock surface condition and any relationship to air quality over time. ▪ (33) Woodside disagrees with the assertion that the EP does not contain relevant details required under the Regulations. This is because Sections 6.7 <i>Planned Activities</i> and Section 6.8 <i>Unplanned activities</i> contain an analysis and valuation of impacts and risks. Table 1-2 contains a summary of each of the components of Regulation 34 and where in the EP each of these requirements has been met. Information pertaining to Regulation 25 is in Section 5 of the EP. <ul style="list-style-type: none"> • On 7 October 2024, the EDO emailed Woodside about an administrative matter relating to correspondence (SI Report, reference 50.164). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Threat posed to Murujuga rock art due to acid gas emission from Woodside's LNG processing operations on the Burrup and climate change.</p>	<p>(1) Woodside Assessment: Potential impact from indirect emissions onshore are assessed in the EP. Woodside Response: The EP assesses direct emissions and Indirect atmospheric emissions (Sections 6.76, 6.77). Gas will be processed and exported onshore. Woodside will implement relevant feasible recommendations of the Murujuga Rock Art Monitoring Program (MRAMP).</p>	<p>(1) The potential impacts from indirect emissions associated with downstream processing of Scarborough gas are assessed in Section 6.7.7 of the EP.</p>
<p>(2) MAC is subject to gag clauses.</p>	<p>(2) Woodside Assessment: None of Woodside's agreements with Traditional Custodians include gag clauses or restrictions on voicing opinions on its projects. Woodside Response: Woodside supports Traditional Custodian representative institutions to access relevant information and independent expert advice so that they are enabled to provide informed and considered feedback during consultation. (For example, emails from Woodside 5 Jan 2023, 6 June 2023 and letter dated 17 April 2023). In any event, Woodside notes that to the extent that this assertion is considered an objection or claim by [Individual 4], [Individual 3] or SOS, the objection or claim relates to consultation, and not to an adverse impact of an activity to which the EP relates.</p>	<p>(2) Not required.</p>
<p>(3)</p>	<p>(3)</p>	<p>(3) Not required.</p>

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<p>Threat posed to Burrup by movement of rock art and damage to other heritage.</p>	<p>Woodside Assessment: No rock art will be moved by Woodside during the Scarborough Project.</p> <p>Woodside Response: Woodside advised that no rock art will be displaced as a result of the Scarborough Project (For example, email from Woodside 5 Jan 2023 letter dated 17 April 2023 and on 6 June 2023).</p>	
<p>(4) Cultural heritage impacts both direct and indirect (restriction of access to sites of cultural and spiritual significance impacts to cultural obligations).</p>	<p>(4) Woodside Assessment: Woodside accepts that access restrictions to the Operational Area apply, as detailed in Section 6.7.1 of the EP, noting the distance offshore for the Operational Area.</p> <p>Woodside Response: Woodside EPs assess cultural heritage impacts, including both direct and indirect impacts and risks associated with PAPs.</p>	<p>(4) Existing controls considered sufficient as described in Section 6.10 of the EP.</p>
<p>(5) [Individual 4], [Individual 3] and SOS stated their desire to be consulted as relevant persons.</p>	<p>(5) Woodside Assessment: Woodside acknowledges [Individual 4], [Individual 3] and SOS as relevant persons for this EP.</p> <p>Woodside Response: Woodside has consulted with [Individual 4], [Individual 3] and SOS on both the proposed activity and the broader Scarborough Project and has responded to requests for further information.. In any event, as above at (2), Woodside notes that to the extent that this assertion is considered an objection or claim by [Individual 4], [Individual 3] or SOS, the objection or claim relates to consultation, and not to an adverse impact of an activity to which the EP relates.</p>	<p>(5) Not required.</p>
<p>(6) Precautionary approach taken for gas related industry.</p>	<p>(6) Woodside Assessment: Woodside assesses emissions against a range of scenarios including the IEA NZE. Woodside has undertaken work to estimate the direct and indirect emissions from the Scarborough project that may impact the Murujuga petroglyphs. There are no credible impacts to Murujuga cultural landscape including impacts on rock art in relation to air emissions produced at the FPU, and potential impacts from onshore processing of Scarborough gas are assessed in the EP.</p> <p>Woodside Response: Gas will be processed and exported onshore. Woodside will implement relevant feasible recommendations of the MRAMP. A description of the existing environment is provided in Section 4 of the EP.</p>	<p>(6) Existing controls considered sufficient as described in Section 6 of the EP. A description of the existing environment is provided in Section 4 of the EP. GHG Emissions are assessed ins Section 6.7.6 of the EP. The potential impacts from indirect emissions associated with downstream processing of Scarborough gas are assessed in Section 6.7.7 of the EP.</p>

<p>(7) MAC does not represent the interests of [Individual 4], [Individual 3] or SOS. [Individual 4], [Individual 3] and SOS have interests that are separate and distinct from those of MAC.</p>	<p>(7) Woodside Assessment: Woodside deals individually with each relevant person/group that Woodside accepts as relevant for any EP, including the Scarborough Project and this activity. Woodside Response: Woodside has consulted with [Individual 4], [Individual 3] and SOS separately from MAC and other relevant representative bodies (See consultation record). In any event, as above at (2), Woodside notes that to the extent that this assertion is considered an objection or claim by [Individual 4], [Individual 3] or SOS, the objection or claim relates to consultation, and not to an adverse impact of an activity to which the EP relates.</p>	<p>(7) Not required.</p>
<p>(8) Sensitive information shared by [Individual 4], [Individual 3] and SOS was to be treated with high sensitivity and confidentiality. Meeting protocols agreed by both parties should be met.</p>	<p>(8) Woodside Assessment: Woodside respects that relevant persons share sensitive information, including gender specific information and that information is respected and protocols are adhered to. Woodside Response: Sensitive information has been appropriately handled by Woodside in accordance with agreed protocols. Woodside has agreed with requests from [Individual 4], [Individual 3] and SOS in relation to meeting protocols. This has included significant efforts by Woodside to allocate female subject matter experts to prepare and attend meetings with [Individual 4], [Individual 3] and SOS where matters are otherwise managed by male subject matter experts for Woodside (for example, see emails setting up meetings on 14 March 2023, 25 July 2023, 12 September 2023 and 4 October 2023. See emails on 3, 4 and 5 October 2023). In any event, as above at (2), Woodside notes that to the extent that this assertion is considered an objection or claim by [Individual 4], [Individual 3] or SOS, the objection or claim relates to consultation, and not to an adverse impact of an activity to which the EP relates.</p>	<p>(8) Not required.</p>

<p>(9) [Individual 4], [Individual 3] and SOS have not been afforded reasonable opportunity or sufficient information for consultation.</p>	<p>(9) Woodside Assessment: Since at least 2022, Woodside has provided information to [Individual 4], [Individual 3] and SOS on the broader Scarborough Project. Information and discussions on the FPU have occurred in face-to-face meetings since around March 2023. Information to allow an informed assessment of the possible consequences of the activity on their functions, interests or activities in their Traditional Owner and NGO capacities has been provided and available for at least 12 months for this activity. [Individual 4], [Individual 3] and SOS have been provided a reasonable time and opportunity to consult in relation to this EP and all of the Scarborough EPs. (Please see consultation record). Woodside Response: The information provided by Woodside meets the requirements of regulation 25 of the Environment Regulations for the reasons set out above. In any event, as above at (2), Woodside notes that to the extent that this assertion is considered an objection or claim by [Individual 3], [Individual 4] or SOS, the objection or claim relates to consultation, and not to an adverse impact of an activity to which the EP relates.</p>	<p>(9) Not required.</p>
<p>(10) [Individual 4], [Individual 3] and SOS have interests they wish to share with Woodside, for consideration in Woodside's Scarborough EPs.</p>	<p>(10) Woodside Assessment: Woodside has provided a reasonable period of time and ample opportunity for [Individual 3], [Individual 4] and SOS to provide the information that they say Woodside requires for its EPs. Despite providing that reasonable period of time and opportunity, [Individual 4], [Individual 3] and SOS have not provided the information. Throughout consultation, [Individual 4], [Individual 3] and SOS have continued to state that they have additional information they wish to tell Woodside and that they say Woodside requires for its EPs, and, despite Woodside offering ample opportunity, to provide that information to Woodside, it has not occurred. (Ref, for example, 3, 4 and 5 October 2023, as well as correspondence in December 2024 and January 2025). In the past, on several occasions, [Individual 4], [Individual 3] and SOS have declined to provide the information to Woodside and have instead provided information publicly [Affidavits of Jessica Border September 2023] or offered to provide the information to others [Ref letter to NOPSEMA 26 September 2022, letter to NOPSEMA 4 October 2023]. Woodside Response: There is a limit to consultation. Woodside is not required to wait indefinitely to receive information. In any event, as above at (2), Woodside notes that to the extent that this assertion is considered an</p>	<p>(10) Not required.</p>

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	<p>objection or claim by [Individual 4], [Individual 3] or SOS, the objection or claim relates to consultation, and not to an adverse impact of an activity to which the EP relates. Woodside engages in ongoing consultation throughout the life of an EP.</p>	
<p>(11) Objection to the Scarborough Project, including the view that no controls could be implemented to minimise potential impacts to cultural values.</p>	<p>(11) Woodside Assessment: Based on engagements with [Individual 4], [Individual 3] and SOS, they have expressed a fundamental objection to the Scarborough Project, including this EP. Despite this, Woodside continues to engage in good faith to understand what could be done to minimise any potential impacts to cultural interests and values held by [Individual 4], [Individual 3] and SOS. (Ref, for example, consultation record and discussions with [Individual 4], [Individual 3] and SOS on their views regarding controls in place to manage topics of concern to them –4 October 2023 meetings and consultation correspondence in December 2023 and January 2024]. Woodside Response: Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2).</p>	<p>(11) Impact potential to Cultural Features and Heritage Values are assessed in Section 6.10 of the EP with appropriate controls adopted including Management of Change and New Knowledge processes to capture new cultural values or information provided during consultation, application of the Woodside Unexpected Finds Procedure, training of relevant vessel and ROV crew in what to do in the case of an Unexpected Find, compliance with the ATSIHP Act, Management of vessel speeds in the humpback and pygmy blue whale BIAs during migration seasons(s) and Ministerial Statement obtainment by onshore processing facilities.</p>
<p>(12) Request for MAC ethnographic survey results to be shared with [Individual 4], [Individual 3] and SOS. Requests to know who from MAC participated in the ethnographic surveys.</p>	<p>(12) Woodside Assessment: Woodside has resourced Traditional Custodian representative institutions to access relevant information and independent expert advice so that they are enabled to provide informed and considered feedback on the broader Scarborough activities. A number of documents containing cultural heritage information, including heritage assessments, contain the intellectual property of Traditional Custodians or sensitive information that may be culturally restricted. For these reasons, Woodside respects this position and does not disclose this information. This information is held by representative institutions and may be disclosed by them where they consider it appropriate to do so. Woodside Response: Woodside has provided [Individual 4], [Individual 3] and SOS with the outcomes of these surveys to the extent that these can be shared publicly, consistent with the information in the public domain (i.e., where culturally appropriate). (Ref, for example, 14 March 2023 and following correspondence). In any event, as above at (2), Woodside notes that to the extent that this assertion is considered an objection or claim by [Individual 4], [Individual 3] or SOS, the objection or claim relates to</p>	<p>(12) Not required.</p>

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	consultation, and not to an adverse impact of an activity to which the EP relates.	
(13) Whether the Scarborough activity included fracking.	(13) Woodside Assessment: No fracking will occur in the Scarborough Project for any of the activities. Woodside Response: Woodside confirmed that no fracking would be undertaken as part of Scarborough activities	(13) Not required.
(14) Cultural features associated with whales.	(14) Woodside Assessment: Woodside understands that some species hold spiritual and cultural importance to [Individual 4], [Individual 3] and SOS. Woodside discussed with [Individual 4], [Individual 3] and SOS controls that Woodside has put in place to manage impacts and risks relating to their spiritual and cultural connection to the environment. (Ref, for example, 25 July 2023 meeting and following correspondence, 12 September 2023 meeting and following correspondence as well as 4 October 2023 meeting). Woodside Response: Woodside has implemented controls to reduce potential risks and impacts to ecological and cultural values to ALARP and to an acceptable level.	(14) Control 4.8 has been adopted which requires the management of vessel speeds in the humpback and pygmy blue whale migration BIA(s) during migration season(s) – within the Trunkline Operational Area – to ≤ 10kn
(15) It is not appropriate for Woodside to consult on the Scarborough Project as a whole in each meeting.	(15) Woodside Assessment: [Individual 4], [Individual 3] and SOS originally sought to consult on all Scarborough EPs at once and confirmed they have information and “objections” to share on all Scarborough EPs as early as September 2022. (Ref correspondence and information in the public domain from around February 2022, July 2022, 26 August 2022 and 4 January 2023). From about June 2023, this position changed, and [Individual 4], [Individual 3] and SOS expressly directed Woodside to consult on individual EPs. Woodside has been ready, willing and able to consult on all Scarborough EPs (including this EP) since consultation commenced, and prepared materials to consult on all EPs – and attempted to present these materials. Consultation on this EP commenced in at least July 2023 and extended in February 2024. Woodside Response: In any event, as above at (2), Woodside notes that to the extent that this assertion is considered an objection or claim by [Individual 4], [Individual 3] or SOS, the objection or claim relates to consultation, and not to an adverse impact of an activity to which the EP relates.	(15) Not required.

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<p>(16) How credible spill scenarios are determined and who determines these.</p>	<p>(16) Woodside Assessment: Woodside aligns with industry guidance in assessing these scenarios. A quantitative hydrocarbon spill modelling using a three-dimensional hydrocarbon spill trajectory and weathering model was undertaken. Many replicate model simulations are completed to understand the potential behaviour of the worst-case release under various wind, wave and current conditions and these are combined to create an overall EMBA. Woodside Response: The EMBA for this activity is determined by a highly unlikely release of marine diesel as the result of damage to the production facility or vessel collision. Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Section 6.8 of the EP.</p>	<p>(16) Credible spill scenarios are described in Section 6.8.2 and 6.8.3 of the EP. Woodside has addressed oil spill preparedness and response strategy in Appendix H of the EP. No additional measures or controls are required-</p>
<p>(17) Cultural features associated with Songlines, dreaming and energy lines.</p>	<p>(17) Woodside Assessment: Woodside understands that Songlines and energy lines hold personal spiritual and cultural value individually (rather than communally) to [Individual 4], [Individual 3] and SOS. Woodside has consistently sought to understand the nature of these values so that impacts to these values can be minimised. [Individual 4], [Individual 3] and SOS have declined to provide further information on these values. Woodside Response: In any event, Woodside has sought to include controls that seek to reduce risks and impacts to ALARP and acceptable levels and has sought [Individual 4], [Individual 3] and SOS's views on the proposed controls. (Ref, for example, 12 September 2023 meeting and following correspondence, 4 October 2023 meeting and consultation correspondence in December 2023 and January 2024).</p>	<p>(17) Woodside has considered [Individual 4], [Individual 3] and SOS's feedback and updated Section 4.9 to record topics of interest and cultural values, including Songlines and energy lines. These are assessed in Section 6.10 with appropriate controls implemented. At this stage, Woodside has not been provided with specific information on these potential values to enable a more fulsome assessment. In lieu of additional information on these values, Woodside has implemented a control that inductions for all relevant marine crew will include information on cultural values, including tangible and intangible cultural heritage (C 24.3). This control was updated further during the 4 October 2023 meeting based on feedback received during the meeting that the control should be timebound (updated to state this should occur prior to the individual undertaking the activity)-</p>

<p>(18) Demonstrated an interest in marine mammals, seagrass, the meeting of freshwater and saltwater.</p>	<p>(18) Woodside Assessment: [Individual 4], [Individual 3] and SOS have not expressly confirmed their interests, rather, have raised topics of interest to them. Woodside has considered [Individual 4], [Individual 3] and SOS's topics of interest and shared relevant information with [Individual 4], [Individual 3] and SOS relating to these interests, including controls put in place to manage risks and impacts to them, during meetings and subsequent emails (Ref, for example, 25 July 2023 meeting and following correspondence, 12 September 2023 meeting and following correspondence, and 4 October 2023 meeting). Woodside Response: Woodside has updated Section 4.9 of the EP to record the interests and assessed them in Section 6.10 implementing appropriate controls.</p>	<p>(18) Woodside has considered topics raised by [Individual 4], [Individual 3] and SOS's interests and updated Section 4.9 to record these. These are assessed in 6.10 with appropriate controls implemented. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural features or heritage values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2).</p>
<p>(19) Need for [Individual 4], [Individual 3] and SOS to share their cultural knowledge and story on-Country.</p>	<p>(19) Woodside Assessment: Woodside has consistently sought to make arrangements for [Individual 3], [Individual 4] and SOS to be able to share their cultural knowledge and stories in a culturally appropriate manner, including offering and attending several on-Country meetings (Ref offers to consult on country – December 2023 and January 2024). Woodside also sought to meet the requests of [Individual 3] and SOS to attend an on-Country meeting at Rosemary Island in 2023 but was cautioned by the relevant cultural authority that Woodside did not have cultural permissions or spiritual protection to do so. Woodside and [Individual 3] reached a compromise relating to circumnavigating Rosemary Island rather than going on shore. [Individual 3] later declined this compromise and refused to share information [Ref meeting on 4 October 2023]. Woodside Response: In any event, as above at (2), Woodside notes that to the extent that this assertion is considered an objection or claim by [Individual 4], [Individual 3] or SOS, the objection or claim relates to consultation, and not to an adverse impact of an activity to which the EP relates.</p>	<p>(19) Not required.</p>

<p>(20) Environmental impacts from Scarborough activities and how Woodside determines that environmental impacts are at an ALARP and acceptable level.</p>	<p>(20) Woodside Assessment: Principles of the ALARP process underpin environmental risk assessment. Woodside Response: As required by the Environment Regulations, the EP will demonstrate that environmental impacts and risks will be reduced to ALARP and acceptable levels. Woodside explained this process</p>	<p>(20) The ALARP process is described in Section 2 of the EP.</p>
<p>(21) The need for Woodside to consider all animals in EP impact assessments.</p>	<p>(21) Woodside Assessment: Woodside has confirmed that consideration is given to all marine animals in the EP preparation process, Woodside has also stepped through these issues during consultation meetings (Ref, for example 12 September 2023 and 4 October 2023 meetings). Woodside Response: Marine fauna that may credibly be impacted by both direct and/or indirect activities are considered in the impact assessment in this EP (Section 6).</p>	<p>(21) Credible impacts from planned and unplanned activities are assessed in Section 6 of the EP.</p>
<p>(22) Cultural values publicly available in the Affidavits of Ms Border (September 2023) and Concise Statement (Ref. Section 4.9.4): Murujuga Rock art Caring for Country Bungarra Eagle Kangaroo</p>	<p>(22) Woodside Assessment: Through the publicly available Affidavits of Ms Border (August and September 2023) and Concise Statement, Woodside has been made aware that [Individual 4], [Individual 3] and SOS may hold cultural and spiritual values associated with Caring for Country, bungarra, eagle and kangaroo. Bungarra, eagles and kangaroos have not been identified as species credibly impacted by either direct or indirect activities associated with this proposed activity. Woodside has assessed potential risk/impact of the activity on receptors raised. Woodside has not been provided with any additional detail regarding values associated with Caring for Country. Woodside Response: Woodside has updated Section 4.9 of the EP to record topics of interest and cultural values and assessed them in Section 6.10 with appropriate controls implemented. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2).</p>	<p>(22) Woodside has considered [Individual 4], [Individual 3] and SOS's feedback and updated Section 4.9 to record indicated topics of interest and cultural values. These are assessed in Section 6.10, with appropriate controls implemented.</p>

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<p>(23) Expectation that there will be no communication with third parties about individual cultural values raised during consultation.</p>	<p>(23) Woodside Assessment: The Federal Court case of Munkara v Santos confirms that the communal aspect of the cultural beliefs and values requires validation that individual beliefs are broadly representative of other members of the group. Woodside Response: Woodside has consistently confirmed, since around October 2023 that, if Woodside is informed that a belief is cultural it must be respectfully taken back to the relevant cultural authority to understand whether it is broadly accepted. Gender sensitive information would follow the relevant gender protocols.</p>	<p>(23) Not required.</p>
<p>(24) That proposed mitigation/management measures to reduce GHG emissions does not focus on the protection of the environment.</p>	<p>(24) Woodside Assessment: The Scarborough Operations EP estimates and assesses Greenhouse Gas Emissions (GHG) from relevant sources including operational flaring exhaust emissions from fuel combustion, fugitive emissions from the FPU, exhaust emissions from internal combustion engines on project vessels and helicopters as well as GHG emissions associated with onshore processing of Scarborough gas (including third party transportation, regasification and combustion by end users). Woodside Response: The Scarborough FPU facility has been designed to reduce direct GHG emissions to ALARP, by implementing a number of GHG abatement opportunities in design and operational planning. The EP includes a range of controls to reduce impacts to ALARP and Acceptable levels. A comprehensive list of controls to protect the environment from emissions impact potential was provided in Woodside's response to [Individual 3], along with technology employed in the FPU facility design to reduce and minimise emissions.</p>	<p>(24) Not required, existing controls sufficient.</p>

<p>(25) The significance of offshore islands, including Rosemary Island, which is a women's island. That Rosemary Island has:</p> <ul style="list-style-type: none"> • a place to which [Individual 3] has a significant spiritual connection • a connection to Songlines • is a breeding ground for turtles which are a culturally significant species • erosion due to climate change and vessel traffic that prevents turtles from laying eggs. • Can only be protected by stopping the Scarborough project. 	<p>(25) Woodside Assessment: Woodside notes the assertion regarding connection to Rosemary Island and acknowledges the significance of the area around Rosemary Island to various turtle species. This EP does not cover activities in State Waters, where Rosemary Island is located. Woodside Response: Woodside has responded in writing to the issues raised, advising that the area around Rosemary Island relates to the Scarborough Trunkline Operations (State Waters) EP, and invited further feedback be provided for the relevant EP if required.</p>	<p>(25) Not required.</p>
<p>(26) That consultation should be consistent with all relevant persons.</p>	<p>(26) Woodside Assessment: Woodside endeavours to consult consistently while still making consultation bespoke, where appropriate. Relevant persons are provided with Consultation Information Sheets and First Nations relevant persons are provided with an additional Summary Information Sheet. Relevant persons are asked their preferred method of consultation and it is accommodated as far as is reasonable in the circumstances. Woodside Response: Consultation undertaken with Traditional Custodians considers how they would like to be engaged and support is tailored to the needs of the specific relevant person and requests for support as far as is reasonable in the circumstances.</p>	<p>(26) Not required.</p>
<p>(27) That there are other individuals who should be consulted but [Individual 3] is not comfortable identifying them.</p>	<p>(27) Woodside Assessment: Woodside seeks to engage with relevant persons it has identified as well as those who self-identify. Woodside Response: Woodside applies its methodology for the identification of relevant person for consultation and advertises publicly to invite comment from others who self-identify. Woodside notifies the relevant cultural authorities under statute, such as the Registered Native Title Bodies Corporate recognised under the Native Title Act 1993 (Cth) and the Murujuga Aboriginal Corporation included under the Aboriginal Heritage Regulations 1974 (WA), and seeks advice as to individuals who should be</p>	<p>(27) Woodside's Consultation Approach is outlined in Appendix F.</p>

	consulted and asks them to forward our notifications to their membership and the Traditional Owners they represent, if appropriate.	
<p>(28) That Woodside consider climate change as an impact of its activities and how climate change will affect Murujuga, the rock art, and Country more broadly.</p>	<p>(28) Woodside Assessment: The Environment Plans do assess Climate Change in the context of emissions (direct and indirect). Woodside Response: The EP does consider climate change. The Scarborough Operations EP assesses Routine and Non-routine Greenhouse Gas Emissions as well as Offshore and Indirect Emissions from Gas Processing Onshore, including potential to impact accelerated weathering of Murujuga rock art.</p>	<p>(28) Woodside assesses emissions and potential impacts and controls in Section 6.7.6 and Section 6.7.7. of the EP. No additional measures or controls are required-</p>
<p>(29) Woodside had not assessed relevant impacts and risks to cultural values. This was because there had been no female Mardathoonera representatives on the circle of Elders since 2015.</p>	<p>(29) Woodside Assessment: Woodside rejects this assertion. MAC is the authorised representative body to speak on behalf of Murujuga Country. MAC is responsible for the management and protection of Murujuga's cultural values. MAC has been consulted for this EP. Woodside Response: MAC is the authorised representative body to speak on behalf of Murujuga Country. Woodside respects MAC's cultural determination of the governance structures necessary and appropriate to manage Murujuga. Woodside understands that there is currently a female Mardudhunera Yaburara representative on the Circle of Elders. Woodside also consults with WAC, the approved PBC that holds and manages the native title rights and interests of the Mardudhunera and Yaburara people.</p>	<p>(29) Not required.</p>
<p>(30) The risks to rock art set out in the EP were not acceptable and have not been reduced to ALARP There was insufficient consideration in the EP of impacts and risks to Murujuga rock art associated with the use of Scarborough gas at the proposed Perdaman facility.</p>	<p>(30) Woodside Assessment: Woodside rejects this assertion. Woodside has assessed potential impacts to rock art from industrial emissions. Woodside Response: Section 6.7.7 of the EP – <i>Routine Atmospheric Emissions: Offshore and Indirect Emissions from Gas Processing Onshore</i> includes information and an assessment relating to impacts to rock art. Woodside has reviewed information provided by SoS (Attachment A) and has concluded that no revisions to this section are required.</p>	<p>(30) Section 6.7.7 of the EP addresses the potential contribution of gas processing onshore to accelerated weathering of Murujuga rock art.</p>

<p>Woodside has addressed objections and claims as noted above.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on [Individual 4], [Individual 3] and SOS's functions, interests or activities.</p>
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Summary Report: Consultation Complete

Please see summaries at the beginning of this consultation record.

Woodside has consulted in accordance with regulation 25 of the Environment Regulations with [Individual 4], [Individual 3] and SOS by providing them with sufficient information, a reasonable period of time and a reasonable opportunity to make an informed assessment of the possible consequences of the activities on their functions, interests or activities in their individual Traditional Owner and NGO capacities.

Woodside has addressed each objection or claim made by [Individual 4], [Individual 3] and SOS, and has implemented controls in response to topics raised by them during consultation as well as in response to objections and claims they have made. Woodside has consulted [Individual 4], [Individual 3] and SOS both individually and together, providing opportunities for any and all topics relating to their functions, interests or activities – and potential risks or impacts to their functions, interests or activities – to be discussed, including those relating to a fundamental objection to the Scarborough Project as well as those relating, in accordance with Indigenous tradition, to spiritual and cultural heritage and values.

For completeness, it is also noted that [Individual 4] and [Individual 3] have also, from time to time, been members of Aboriginal corporations who have been separately consulted as relevant persons by Woodside. This is relevant because it confirms that cultural values or interests of those groups have been consulted on.

As demonstrated in the summary above consultation with [Individual 4], [Individual 3] and SOS complies with regulation 25 of the Environment Regulations and is complete.

Research Institutes and Local Conservation Groups or Organisations

University of Western Australia (UWA)

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 9 August 2023, Woodside emailed UWA advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1). 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Assessment of Merits of Feedback, Objection or Claim and Woodside's Response</p>	<p>Inclusion in Environment Plan</p>
<p>No feedback, objection or claim about the adverse impact of the activity received despite follow-up.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing</p>	<p>No additional measures or controls are required.</p>

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consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with UWA for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given UWA sufficient information to allow UWA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to UWA on 9 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description activity, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA’s brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed UWA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to UWA advising of consultation as well as when consultation would close for the purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside’s methodology allows a 30-day consultation period and Woodside allowed UWA with 30 days for consultation. For consultation on EPs, 30 days is the usual period for UWA.
- In this context, Woodside allowed UWA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside’s approach to consultation with UWA is appropriate and adapted to the nature of UWA:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

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- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside sent a follow-up consultation email on 30 August 2023, reminding UWA of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as UWA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on UWA's functions, interests or activities.

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Summary of information provided and record of consultation for this EP:

- On 11 August 2023, Woodside emailed CSIRO advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.7).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with CSIRO for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given CSIRO sufficient information to allow CSIRO to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to CSIRO on 11 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed CSIRO a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to CSIRO advising of consultation as well as when consultation would close for the purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed CSIRO with 30 days for consultation. For consultation on EPs, 30 days is the usual period for CSIRO.
- In this context, Woodside allowed CSIRO a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with CSIRO is appropriate and adapted to the nature of CSIRO:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In line with NOPSEMA's guideline for engagement with Commonwealth government departments or agencies, Woodside used email for its consultation with CSIRO.
- Woodside sent a follow-up consultation email on 30 August 2023, reminding CSIRO of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as CSIRO did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on CSIRO's functions, interests or activities.

Curtin University

Summary of information provided and record of consultation for this EP:

- On 11 August 2023, Woodside emailed Curtin University advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.7).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with Curtin University for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient information

Woodside has given Curtin University sufficient information to allow Curtin University to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Curtin University on 11 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans*.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Curtin University a reasonable period for consultation in the preparation of this EP because:

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- A consultation period was notified in the initial correspondence to Curtin University advising of consultation as well as when consultation would close for the purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Curtin University with 30 days for consultation. For consultation on EPs, 30 days is the usual period for Curtin University.
- In this context, Woodside allowed Curtin University a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Curtin University is appropriate and adapted to the nature of Curtin University:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside sent a follow-up consultation on 30 August 2024, reminding Curtin University of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Curtin University did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Curtin University's functions, interests or activities.

Cape Conservation Group (CCG)

Historical Engagement:

- In correspondence sent to Woodside on 13 March 2023 in relation to another Woodside EP, CCG stated:
 - Due to previous Woodside consultations being unsatisfactory, CCG efforts in this space would be directed towards the regulators, government and media. Woodside noted CCG's feedback and will continue to provide consultation information to CCG where CCG is assessed as a relevant person.

Summary of information provided and record of consultation for this EP:

- On 11 August 2023, Woodside emailed Cape Conservation Group advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with CCG for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient information

Woodside has given CCG sufficient information to allow CCG to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to CCG on 11 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed CCG a reasonable period for consultation in the preparation of this EP because:

- A consultation period was notified in the initial correspondence to CCG advising of consultation as well as when consultation would close for the purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed CCG with 30 days for consultation.
- In this context, Woodside allowed CCG a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with CCG is appropriate and adapted to the nature of CCG:

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- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside sent a follow-up consultation email on 30 August 2023 reminding CCG of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as CCG did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on CCG's functions, interests or activities.

Protect Ningaloo

Summary of information provided and record of consultation for this EP:

- On 11 August 2023, Woodside emailed Protect Ningaloo advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations, and consultation with Protect Ningaloo for the purpose of regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient information

Woodside has given Protect Ningaloo sufficient information to allow Protect Ningaloo to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because:

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since August 2023. Woodside provided this information to Protect Ningaloo on 11 August 2023, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
 - The purpose of consultation and set out what was being sought through consultation.
 - A summary of the activity description, location of the activity, timeframe of the activity, receiving environment, impacts and risks associated with the PAP, proposed mitigation and management measures.
 - A timeframe for consultation and the provision of feedback.
 - A link to NOPSEMA's brochure Consultation on offshore petroleum environment plans.
 - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations. Advice that relevant persons can request that particular information provided during consultation not be published (to align with regulation 25(4) of the Environment Regulations.

Reasonable Period

A reasonable period for consultation in the preparation of this EP has been provided because:

- A consultation period was notified in the initial correspondence to Protect Ningaloo advising of consultation as well as when consultation would close for the purposes of preparing the EP. This enabled Woodside to assess feedback before EP submission.
- Consultation for this EP commenced 17 months ago in August 2023.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Protect Ningaloo with 30 days for consultation. For consultation on EPs, 30 days is the usual period for Protect Ningaloo.
- In this context, Woodside allowed Protect Ningaloo a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Protect Ningaloo is appropriate and adapted to the nature of Protect Ningaloo:

- Woodside published advertisements in 8 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran 2 targeted social media campaigns (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside sent a follow-up consultation on 30 August 2023, reminding Protect Ningaloo of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Protect Ningaloo did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Protect Ningaloo's functions, interests or activities.

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 570 of 919

Uncontrolled when printed. Refer to electronic version for most up to date information.

TABLE 3: ENGAGEMENT REPORT WITH PERSONS OR ORGANISATIONS ASSESSED AS NOT RELEVANT

The black numbering **(N)** in the *Summary of information provided and record of consultation for this EP* in Table 3 denotes an issue raised by a stakeholder. The green numbering **(N)** in this section denotes Woodside’s response to that issue.

Commonwealth Commercial Fisheries and Representative Bodies

Western Tuna and Billfish Fishery

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Western Tuna and Billfish Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- (1)** Between 10 August 2023 and 9 September 2023, five individual licence holders from the Western Tuna and Billfish Fishery responded asking to be removed from Woodside’s mailing list and for Woodside to consult with Tuna Australia (SI Report, references 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, and 2.7)
- (1)** On 10 September 2023, Woodside responded to five individual licence holders thanking them for their email and confirming they would be removed from Woodside’s mailing list and correspondence would be directed to Tuna Australia (SI Report, references 2.8, 2.9, 2.10, 2.11 and 2.12).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
(1) Five licence holders from the Western Tuna and Billfish Fishery asked to be removed from Woodside’s mailing list and for Woodside to consult with Tuna Australia.	(1) Woodside assessment: Woodside accepts that the consultation process is voluntary. Woodside response: Woodside confirmed it had removed the licence holders from mailing lists and had consulted Tuna Australia.	(1) Not required.
While feedback has been received, there were no objections or claims.	Woodside has consulted AFMA, Tuna Australia, DAFF – Fisheries, CFA, and individual relevant licence holders. Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been	Woodside has assessed the potential for interaction with Commonwealth managed fisheries in Section 4.10.1 of this EP. Woodside will provide notifications to AFMA, CFA, DAFF – Fisheries (see Table 7-8) ten days before activity commences, and following completion of activities, as referenced as PS 1.8.1 of this EP.

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	accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Western Tuna and Billfish Fishery is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Western Tuna and Billfish Fishery to provide feedback during the consultation process.		

Tuna Australia

Summary of information provided and record of consultation for this EP:		
<ul style="list-style-type: none"> • On 9 August 2023, Woodside emailed Tuna Australia advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. • (1) On 14 August 2023, Tuna Australia emailed Woodside stating it would consult on this EP once it had a services agreement in place (SI Report, reference 8.1). • On 23 August 2023, in a response to another EP, Tuna Australia stated it had not yet heard about the services agreement and asked if Woodside was planning to engage Tuna Australia on behalf of the tuna longline industry for this EP (SI Report, reference 8.2). • On 22 November 2023, Woodside responded thanking Tuna Australia for its email of 23 August 2023 regarding this EP (SI Report, reference 8.3) and advised: <ul style="list-style-type: none"> – Woodside’s consultation process identified relevant persons and provided them with sufficient information and a reasonable period to make an informed assessment of the possible consequences of a proposed activity on their functions, interests or activities. – Woodside obtained contact details of individual Commonwealth fishing statutory fishing rights and fishing permit holders so that consultation was consistent with the Regulations. As noted on its website, AFMA’s expectation was that petroleum operators consulted with fishing operators about all activities and projects which may affect day-to-day fishing activities. – In addition to consulting individual licence holders, Woodside consulted relevant fishing industry associations and representative bodies such as Tuna Australia and Commonwealth Fisheries Association, and referred to the AFMA website to help inform which associations and bodies were relevant. – While the management area for the Western Tuna and Billfish Fishery overlapped the Operational Area for this EP, based on AFMA data, no recent fishing effort had occurred within the Operational Area for at least the past 10 years. Despite this, Woodside chose to consult licence holders in this fishery. – (1) The Offshore Environment Regulations did not require entry into service agreements in order to meet EP consultation requirements. Woodside has assessed TA as not relevant for this EP. – Woodside considers it has met its consultation obligations under the Regulations and given Tuna Australia sufficient time and information to provide input. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan

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<p>(1) Tuna Australia advised it would consult once it had a services agreement in place.</p>	<p>(1) Woodside assessment: The Offshore Environment Regulations do not require entry into a services agreement in order to meet EP consultation requirements. Woodside response: Woodside advised that consultation requirements did not require entry into a services agreement and it considered it had given Tuna Australia sufficient time and information to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse effects of the proposed activity.</p>	<p>(1) Not required.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>
<p>Summary Report – Consultation Complete</p>		
<p>While Tuna Australia is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Tuna Australia to provide feedback during the consultation process.</p>		

State Commercial Fisheries and Representative Bodies

Mackerel Managed Fishery – Central (Area 3)

<p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 9 August 2023, Woodside sent a letter to Mackerel Managed Fishery – Central (Area 3) individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet and referred to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 31 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9). 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Inclusion in Environment Plan</p>
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<p>Controlled Ref No: SA0006AF0000022</p>	<p>Revision: 3</p>	<p>Page 573 of 919</p>
<p>Uncontrolled when printed. Refer to electronic version for most up to date information.</p>		

No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Mackerel Managed Fishery – Pilbara (Area 3) is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Mackerel Managed Fishery – Pilbara (Area 3) to provide feedback during the consultation process.		

Nickol Bay Prawn Managed Fishery

Summary of information provided and record of consultation for this EP:		
<ul style="list-style-type: none"> On 9 August 2023, Woodside sent a letter to Nickol Bay Prawn Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet and referred to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 31 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9). On 11 September 2023, WAFIC, on behalf of Woodside, emailed Nickol Bay Prawn Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet. On 12 October 2023, WAFIC emailed Woodside reporting that no feedback had been received from Nickol Bay Prawn Managed Fishery individual licence holders regarding the activity (SI Report, reference 45.1). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Nickol Bay Prawn Managed Fishery is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Nickol Bay Prawn Managed Fishery to provide feedback during the consultation process.		

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Exmouth Gulf Prawn Managed Fishery

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 9 August 2023, Woodside emailed Exmouth Gulf Prawn Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
<p>Summary Report – Consultation Complete</p> <p>While Exmouth Gulf Prawn Managed Fishery is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Exmouth Gulf Prawn Managed Fishery to provide feedback during the consultation process.</p>		

Gascoyne Demersal Scalefish Fishery

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 9 August 2023, Woodside sent a letter to Gascoyne Demersal Scalefish Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet and referred to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.9). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
<p>Summary Report – Consultation Complete</p>		

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While Gascoyne Demersal Scalefish Fishery is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Gascoyne Demersal Scalefish Fishery to provide feedback during the consultation process.

Recreational Marine Users and Representative Bodies

Shark Bay Recreational Marine Users

Summary of information provided and record of consultation for this EP:

- On 31 October 2023, Woodside emailed Shark Bay Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 15 December 2023, Woodside sent Shark Bay Recreational Marine Users a follow-up email (Record of Consultation, reference 2.22) and asked for feedback by 22 December 2023.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

While Shark Bay Recreational Marine Users is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Shark Bay Recreational Marine Users to provide feedback during the consultation process.

Titleholders and Operators

Finder Energy

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Finder Energy advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Finder Energy is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Finder Energy to provide feedback during the consultation process.		

JX Nippon Oil & Gas Exploration Corporation

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 9 August 2023, Woodside emailed JX Nippon Oil & Gas Exploration Corporation advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While JX Nippon Oil & Gas Exploration Corporation is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for JX Nippon Oil & Gas Exploration Corporation to provide feedback during the consultation process.		

Traditional Custodians and Nominated Representative Corporations

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Controlled Ref No: SA0006AF0000022	Revision: 3	Page 577 of 919
Uncontrolled when printed. Refer to electronic version for most up to date information.		

Malgana Aboriginal Corporation

Malgana is established under the Native Title Act 1993 by the Malgana people to represent the Malgana people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Historical Engagement:

- **(1)** On 4 April 2023, Woodside met with Malgana and presented on several activities including the Scarborough Project relevant to Malgana (SITI and Subsea) noting that development of Scarborough would include the installation of a floating production unit (the activity relating to this EP). Malgana asked several general questions related to activities which Woodside responded to at that time. Malgana also sought information about hydrocarbon spill modelling.
- On 26 July 2023, Woodside emailed Malgana Woodside's planned Program of Ongoing Engagement with Traditional Custodians
- **(1)** On 1 August 2023, Woodside emailed Malgana with follow-up information that came out of a query about hydrocarbon spill modelling by Malgana at the meeting of 4 April 2023:
 - The information showed that Shark Bay hydrodynamics are adequately resolved in the model, as tidal flushing can be observed. This reinforces that the indication from modelling that the EMBA for the activity does not enter Shark Bay is appropriate.
- **(2)** On 1 August 2023, Malgana emailed Woodside with thanks for the information and noting that Malgana was looking to get an environmental consultant to provide advice to its Board, noting it was seeking quotes and would come back to Woodside for cost approval.
- **(2)** On 3 August 2023, Woodside emailed Malgana notifying about another activity and requesting to meet to discuss matters, including the issue raised by Malgana about getting an environmental consultant to give advice to its Board. Woodside also said it was available to catch up over the phone over the next coming days to discuss the above matters and for Malgana to reply with a preferred time. Malgana did not respond.

Summary of information provided and record of consultation for this EP:

- On 1 September 2023, Woodside emailed Malgana advising of the proposed activity (Record of Consultation, reference 1.35) and provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that Malgana and its members may have within the EMBA, information on how Malgana would like to engage, and requested that Malgana provide information to other individuals as required.
- On 11 September 2023, Malgana emailed Woodside advising that the information on the proposed activity had been shared with the Board for feedback (SI Report, reference 30.1).
- On 14 September 2023, Woodside emailed Malgana thanking it for sharing the information with the Board and offering assistance from Woodside (SI Report, reference 30.2). Woodside provided information on the planned start date for relevant Scarborough activities discussed at the meeting of 4 April 2023 and NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that Malgana advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 20 October 2023, Woodside emailed Malgana requesting feedback/further information about activities that Woodside had previously notified Malgana about and offering assistance to Malgana for consultation if required (SI Report, reference 30.3).
- On 26 October 2023, Woodside attempted to call Malgana, but the number was disconnected, Woodside emailed Malgana following up on the proposed activities and requesting feedback and re-iterating an offer of assistance if required by Malgana about the activities (SI Report, reference 30.4).

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<ul style="list-style-type: none"> On 2 November 2023, Woodside emailed Malgana following up on the proposed activities and requesting feedback (SI Report, reference 30.5). On 14 December 2023, Woodside emailed Malgana providing the information on the proposed activity which was originally sent on 1 September 2023 (SI Report, reference 30.6). Woodside again provided a Consultation Summary Information Sheet (including a link to the detailed information sheet on Woodside's website). The email requested information on the interests that Malgana and its members may have within the EMBA, information on how Malgana would like to engage, and requested that Malgana provide information to other individuals as required. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1)</p> <p>During previous consultation in relation to separate related activities, Malgana requested further information on a topic related to this proposed activity which were responded to in correspondence shortly afterwards:</p> <ul style="list-style-type: none"> Hydrodynamic modelling and reflection of flow into the bay. 	<p>(1)</p> <p>Woodside assessment: Hydrocarbon spill modelling is undertaken using global best practice approaches and software. Modelling demonstrates tides are the primary drivers of hydrodynamic transport within Shark Bay.</p> <p>Woodside response: Specific information addressing Malgana's query was sent to Malgana on 1 August 2023. No further information request or follow-up has been received.</p>	<p>(1)</p> <p>Existing controls considered sufficient, as described in Section 6.</p>
<p>(2)</p> <p>During previous consultation in relation to separate activities, Malgana noted that their funding is restricted for these types of engagement and requested funding support, including an environmental consultant to advise the Board.</p>	<p>(2)</p> <p>Woodside assessment: Woodside supports ongoing engagement and have responded to Malgana's advice about the limitations on their resources. Woodside is implementing a program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on EPs. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G). This includes addressing Malgana's resourcing issue for ongoing consultation via a Consultation Agreement.</p> <p>Woodside response: Woodside has offered to support Malgana in correspondence sent in August, September and December 2023, including support for environmental expertise supplying names of organisations that Malgana may want to consider conducting the work, however these offers have not been taken up as of yet.</p>	<p>(2)</p> <p>Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to consult following acceptance of the EP, as set out in Section 7.10.5 of the EP.</p>
<p>No feedback, objections or claims received on this activity despite follow-up.</p>	<p>Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it</p>	<p>No additional measures or controls are required.</p>

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	will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	
Summary Report: Consultation Complete		
While Malgana is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Malgana to provide feedback during the consultation process.		

Local Government and Elected Parliamentary Representatives, Community Groups or Organisations

Town of Port Hedland

Summary of information provided and record of consultation for this EP:		
<ul style="list-style-type: none"> On 16 August 2023, Woodside emailed Town of Port Hedland advising of the proposed activity (Record of Consultation, reference 1.19) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.8). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While the Town of Port Hedland is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for the Town of Port Hedland to provide feedback during the consultation process.		

Shire of Carnarvon (SoC)

Summary of information provided and record of consultation for this EP:		
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Controlled Ref No: SA0006AF0000022	Revision: 3	Page 580 of 919
Uncontrolled when printed. Refer to electronic version for most up to date information.		

- On 16 August 2023, Woodside emailed Shire of Carnarvon advising of the proposed activity (Record of Consultation, reference 1.19) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- **(1)** On 16 August 2023, SoC emailed Woodside and asked if there were any anticipated impacts on Coral Bay and Carnarvon. (SI Report, reference 9.1)
- On 16 August, Woodside presented to the SoC's Local Emergency Management Committee members and provided an overview of a variety of EPs, including this EP, the EMBA and how Woodside would respond in the unlikely event of a hydrocarbon spill. Woodside requested feedback on this EP by 11 September 2023 (SI Report, reference 9.2).
- **(1)** On 17 August 2023, Woodside emailed SoC responding to its email on 16 August 2023 further explaining the EMBA and stating it did not overlap Coral Bay or Carnarvon (SI Report, reference 9.3)
- **(1)** On 17 August 2023, SoC emailed to thank Woodside for the information regarding the EMBA (SI Report, reference 9.4).
- On 30 August 2023, Woodside sent a follow-up email to check if SoC had any further feedback regarding the proposed activity (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) SoC asked for anticipated impacts on Coral Bay or Carnarvon.	(1) Woodside assessment: The EMBA for this EP does not overlap Coral Bay or Carnarvon. Woodside response: Woodside advised that the EMBA for this EP did not overlap Coral Bay or Carnarvon.	(1) Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While the Shire of Carnarvon is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for the Shire of Carnarvon to provide feedback during the consultation process.		

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Shire of Shark Bay

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 17 October 2023, Woodside met with the Shire of Shark Bay during a community information session in Denham. The discussion with the Shire included: <ul style="list-style-type: none"> An overview of Woodside’s consultation process. Information on the Scarborough Project and an overview of this EP. (1) The Shire advising it would provide a list of potentially relevant persons to consult in Shark Bay. On 18 October 2023, the Shire of Shark Bay emailed Woodside thanking it for the meeting (SI Report, reference 24.1). The Shire: <ul style="list-style-type: none"> (1) Recommended a list of contacts in Shark Bay who might be interested in providing feedback on the proposed activity. On 20 October 2023, Woodside emailed Shire of Shark Bay following up a face-to-face conversation with information about this EP including that although the EMBA was more than 100 km off the Shark Bay coastline, Woodside was open to receiving feedback or facilitating further discussion (SI Report, reference 24.2). <ul style="list-style-type: none"> (1) Woodside also confirmed it would send consultation information to the contacts identified by Shire of Shark Bay. On 31 October 2023, Woodside emailed Shire of Shark Bay advising of the proposed activity (Record of Consultation, reference 1.4) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 15 December 2023, Woodside sent Shire of Shark Bay a follow-up email (Record of Consultation, reference 1.22) reminding Shire of Shark Bay of the opportunity to provide feedback. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
<p>(1) Shire of Shark Bay provided a list of potentially relevant persons.</p>	<p>(1) Woodside assessment: Woodside has assessed the relevancy of stakeholders recommended by the Shire of Shark Bay. While the stakeholders have been assessed as not relevant for this EP, Woodside, at its discretion in line with Section 5.3.7, Woodside chose to provide them consultation information. Woodside response: Woodside provided consultation information to the stakeholders recommended by Shire of Shark Bay.</p>	<p>(1) Woodside updated its Assessment of Relevance (see Appendix F, Table 1) to include the stakeholders Shire of Shark Bay identified as potentially relevant.</p>
<p>While feedback has been received, there were no objections or claims.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).</p>	<p>No additional measures or controls are required.</p>
<p>Summary Report – Consultation Complete</p>		

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While the Shire of Shark Bay is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for the Shire of Shark Bay to provide feedback during the consultation process.

Carnarvon Chamber of Commerce and Industry

Summary of information provided and record of consultation for this EP:

- On 16 August 2023, Woodside emailed Carnarvon Chamber of Commerce and Industry advising of the proposed activity (Record of Consultation, reference 1.19) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.8).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

While the Carnarvon Chamber of Commerce and Industry is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for the Carnarvon Chamber of Commerce and Industry to provide feedback during the consultation process.

Port Hedland Chamber of Commerce and Industry

Summary of information provided and record of consultation for this EP:

- On 16 August 2023, Woodside emailed Port Hedland Chamber of Commerce and Industry advising of the proposed activity (Record of Consultation, reference 1.19) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.8).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan

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No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While the Port Hedland Chamber of Commerce and Industry is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for the Port Hedland Chamber of Commerce and Industry to provide feedback during the consultation process.		

RAC Monkey Mia Dolphin Resort

Summary of information provided and record of consultation for this EP:		
<ul style="list-style-type: none"> On 31 October 2023, Woodside emailed RAC Monkey Mia Dolphin Resort advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 15 December 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.22). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While RAC Monkey Mia Dolphin Resort is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for RAC Monkey Mia Dolphin Resort to provide feedback during the consultation process.		

Dirk Hartog Island

Summary of information provided and record of consultation for this EP:		
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Controlled Ref No: SA0006AF0000022	Revision: 3	Page 584 of 919
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<ul style="list-style-type: none"> On 31 October 2023, Woodside emailed Dirk Hartog Island advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 15 December 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.22). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Dirk Hartog Island is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Dirk Hartog Island to provide feedback during the consultation process.		

Shark Bay Community Resource Centre

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 31 October 2023, Woodside emailed Shark Bay Community Resource Centre advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 15 December 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.22). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Shark Bay Community Resource Centre is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Shark Bay Community Resource Centre to provide feedback during the consultation process.		

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[Individual 1] MLA

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 31 October 2023, Woodside emailed [Individual 1] MLA advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 15 December 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.22). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
<p>Summary Report – Consultation Complete</p> <p>While [Individual 1] MLA is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for While [Individual 1] MLA to provide feedback during the consultation process.</p>		

Shark Bay Aviation

<p>Summary of information provided and record of consultation for the EP:</p> <ul style="list-style-type: none"> On 31 October 2023, Woodside emailed Shark Bay Aviation advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 15 December 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.22). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
<p>Summary Report – Consultation Complete</p> <p>This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.</p>		
Controlled Ref No: SA0006AF0000022	Revision: 3	Page 586 of 919
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While Shark Bay Aviation is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Shark Bay Aviation to provide feedback during the consultation process.

Shark Bay Coastal Tours

Summary of information provided and record of consultation for this EP:

- On 31 October 2023, Woodside emailed Shark Bay Coastal Tours advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 15 December 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.22).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

While Shark Bay Coastal Tours is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Shark Bay Coastal Tours to provide feedback during the consultation process.

Naturetime Tours

Summary of information provided and record of consultation for this EP:

- On 31 October 2023, Woodside emailed Naturetime Tours advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 15 December 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.22).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and,	No additional measures or controls are required.

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	where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	
Summary Report – Consultation Complete		
While Naturetime Tours is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Naturetime Tours to provide feedback during the consultation process.		

Wula Gula Nyinda Eco Cultural Tours

Summary of information provided and record of consultation for this EP:		
<ul style="list-style-type: none"> On 31 October 2023, Woodside emailed Wula Gula Nyinda Eco Cultural Tours advising of the proposed activity (Record of Consultation, reference 1.23) and provided a Consultation Information Sheet and a link to NOPSEMA’s brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 15 December 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.22). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While the Wula Gula Nyinda Eco Cultural Tours is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Wula Gula Nyinda Eco Cultural Tours to provide feedback during the consultation process.		

Other Non-government Groups or Organisations

Australasian Centre for Corporate Responsibility (ACCR)

Context

ACCR is a shareholder advocacy and research organisation which states that it ‘uses shareholder strategy to enable investors to escalate engagements with heavy-emitting companies in their portfolios and provide research and analysis for institutional capital seeking long term value in a zero-emissions economy’.¹

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ACCR's focus in 2023 and 2024 has predominantly been on commenting on Woodside's broader corporate climate reporting and corporate investor-related announcements.ⁱⁱ Given its broader interest in Woodside's corporate announcements and investor-related presentations which are not specifically targeting this EP, Woodside chose to contact ACCR and provided consultation material on 9 August 2023.

In December 2023, ACCR met with Woodside on corporate climate and sustainability issues. Following this meeting, ACCR self-identified as a Relevant Person for this EP.

ACCR's response to consultation used essentially identical language and approach (albeit altered in parts to capture specifics about ACCR) as Environs Kimberley (self-identified), Friends of Australian Rock Art, Doctors for the Environment, Australian Conservation Foundation and [Individual 2] (self-identified), with all letters received by Woodside within 24 hours of each other on 19 and 20 December 2023.

For this EP, Woodside responded to all queries, sent further proactive information and offered to meet with ACCR. ACCR did not respond.

This and the historic consultation with ACCR are provided in order to confirm that Woodside's consultation with ACCR was appropriate and adapted to the interests of ACCR.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Australasian Centre for Corporate Responsibility advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).
- On 19 December 2023, ACCR sent a letter via email, copying in NOPSEMA, advising they had met with Woodside's investor relations and climate teams (SI Report, reference 54.1).
 - **(1)** ACCR requested to be added to the approvals consultation register.
 - **(2)** Despite being consulted on previous Woodside EPs, ACCR claimed it had not been notified of consultation for this EP and had only just become aware Woodside was seeking feedback by 20 December 2023.
 - **(3)** Asked Woodside to confirm that ACCR would be contacted for future consultations via email.
- In the letter, ACCR provided feedback and made the following assertions, claims, objections and requests for information. ACCR requested a response by 16 January 2024:
 - **(4)** ACCR considered itself a relevant person.
 - **(5)** ACCR understood that climate change impacts, including Scope 3 emissions, which would result from this EP must be assessed in accord with the approved NOPSEMA program under the EPBC Act and broader environment in accordance with Environment Regulations.
 - **(6)** ACCR stated that Woodside had not provided sufficient information and not allowed a reasonable period of time for consultation and asked that this EP not be accepted until Regulation 11A (now Regulation 25) was met.
 - **(7)** Estimates of GHG and other emissions, including Scope 3 emissions from the Scarborough project. At a minimum, this should include:
 - Assessment of all emissions that would arise from the development, including all emissions sources and scopes (direct and indirect), annually and over the lifetime of the project.
 - A breakdown of each emissions source, its nature and location, whether it was under the operational control of Woodside.
 - **(8)** Independent assessment of the compatibility of the project with internationally agreed temperature and decarbonisation goals, including 1.5°C scenarios, including the IEA's NZE. At a minimum, this should include:

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- Independent evaluation of the impacts of the Scarborough Project on global temperature scenarios, including what incremental warming was anticipated to occur as a result of the direct and indirect emissions from the Scarborough Project.
 - Independent evaluation of the compatibility of the Scarborough Project with global 1.5°C scenarios, including what global 1.5°C scenarios were considered by Woodside to be consistent with the operation of the Scarborough Project and which were not.
 - Where global energy scenarios rely on carbon removals from the atmosphere, what was the volume of carbon removals that was assumed, how and where and by what means Woodside expected this to occur, and what (if any) carbon removals would be implemented.
- **(9)** Independent assessment of the climate change impacts of the Scarborough Project on the Australian and international environment and communities, including:
- Analysis of sensitive environmental receptors in Australia and internationally that would be impacted by global climate change, including the Great Barrier Reef, Ningaloo Reef, other Matters of National Environmental Significance (MNES) and other cultural and environmental values.
 - What the anticipated effects of emissions from the Scarborough Project would be on these receptors.
- **(10)** Independent analysis of mitigation options and commitments. At a minimum, this should include:
- An independent analysis of all available options to avoid, reduce or offset material Scope 1, 2 and 3 GHG emission sources as well as other material emission sources.
 - The qualitative and quantitative criteria that had been used to assess each option, the assessment of each option and identification of which options would and would not be implemented.
 - Independent analysis to demonstrate that mitigation efforts at each stage and scope (including Scope 1, 2 and 3 emissions) resulted in emissions reduced to As Low As Reasonably Practicable (ALARP).
 - Where the options selected were not the lowest emission option, a justification of why a lower emission option had not been selected.
 - Independent assessment of abatement options for the Scarborough Project according to a mitigation hierarchy which prioritised avoidance and at source mitigation before offsets and other forms of abatement with justification for Woodside's chosen mitigation commitments over the life of the project.
 - Identification of all (if any) offsets that would be used, including the type, method, provider and jurisdiction where the offsets would occur, what registry would be used, what standards of accountability and accreditation would be applied and, how the offsets would be retired.
 - Where GHG offsets were to be used, whether and how these would interact with national and state-based emission registries, including how these offsets will contribute to Western Australia and Australian emission reduction targets, and what ongoing public reporting and verification would be provided by Woodside of emissions and abatement from the project, including direct and indirect emissions from all sources.
 - How this demonstrates that any estimates or commitments made in the Scarborough OPP were met.
- **(11)** Independent modelling to support Woodside's claims of gas from the Scarborough Project displacing other more carbon intensive energy sources. At a minimum, this should include:
- Evidence of what other energy sources were expected to be displaced, both in current market and for those forecast over the life of the project, including any displacement of renewable energy, fossil fuels, or other energy sources that would result from the Scarborough Project and the net effect of such displacement on global emissions.
 - Evidence of where this displacement was expected to occur, when and how.
 - Evidence of contractual or other arrangements that were, or would be, in place to ensure that this displacement occurred as predicted by Woodside.
 - Third party verification that would be provided to verify claims of abatement achieved.

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- How this demonstrated that any estimates or commitments made in the Scarborough OPP were met.
- **(12)** Independent assessment of how the Scarborough Project and associated mitigation efforts meet the requirements of the UN High Level Expert Group on Net Zero emissions for non-state entities, and the ISO Net Zero Guidelines. At a minimum, this should include:
 - How Woodside's corporate emissions reduction targets and those for the Scarborough Project were science-based, and cover all-scopes of emissions, and take into consideration Woodside's historical emissions.
 - How the mitigation efforts for the Scarborough Project would deliver an immediate and absolute reduction in emissions from current levels.
 - How the Scarborough Project supported a global and local phase out of fossil fuels.
 - How the abatement efforts proposed by Woodside included targets for methane-specific emissions, including what these targets were and how they would be achieved.
 - Evidence of Woodside's lobbying and advocacy efforts and how these were aligned with global temperature scenarios.
- **(13)** Other documents, including documents relied upon by Woodside. At a minimum, this should include:
 - All studies, information and other material commissioned or relied upon by Woodside in assessing the GHG emissions and climate impacts from the project, including mitigation options, climate impacts, alignment with global temperature goals, and any other issues mentioned above.
 - A copy of this EP.
- **(14)** A signed declaration from a Scarborough executive stating that:
 - All emissions reductions options that were identified have been disclosed.
 - Any considered option that could result in a lower emissions outcome had had its costs and benefits quantitatively and qualitatively disclosed, with a clear justification of why lower emission options had not been selected.
 - The disclosures were a complete and fair reflection of Woodside's own assessment of the costs and benefits of potential options.
 - The disclosed material was consistent with representations made to other stakeholders, such as shareholders, financial regulators, the media and customers.
 - Providing false or misleading information may be an offence.
- On 27 December 2023, Woodside responded to ACCR's letter of 19 December 2023 (SI Report, reference 54.2) and received two out of office replies (SI Report, reference 54.3 and 54.4). The Woodside response was as follows:
 - **(1, 4)** Woodside explained ACCR was already on its distribution list but that it had also added the ACCR individual as requested.
 - **(2, 4)** Woodside provided consultation information and a Consultation Information Sheet on this EP to ACCR on 9 August 2023 and 30 August 2023.
 - The Consultation Information Sheet provided a summary of the activity description, the receiving environment, a comprehensive summary of impacts and risks associated with Petroleum Activities Program and proposed mitigation and management measures, so ACCR had been provided with sufficient information to allow it to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
 - **(4, 6)** Woodside extended the consultation deadline from an initial four-week period ending on 11 September 2023, to 4.5 months, ending on 20 December 2023. This afforded ACCR additional time and opportunity to provide feedback, claims and objections during the consultation process.

- (6) As well as directly corresponding with ACCR, Woodside advertised this EP and consultation opportunities in The Australian, The West Australian, regional newspapers and Indigenous newspapers and ran two social media campaigns across Facebook and Instagram. Woodside also had experts and information available at a number of community events in the Pilbara, Gascoyne and Murchison, as well as a tailored community roadshow in these regions throughout September and October 2023.
- (6) Woodside did not receive any response from ACCR until 19 December 2023, the day before consultation closed for this EP.
- (6) On the basis of the extended period for consultation, provision of information sheets as well the below response to your feedback, claims and objections; sufficient information, a reasonable period of time and opportunity for consultation has been provided to ACCR.
- (3) Woodside confirmed it would consult ACCR on future activities and also suggested ACCR subscribed to Woodside's consultation activities on the Woodside website.
- (5, 7) GHG emissions relevant to the PAP, including sources and volumes, would be presented and assessed in the EP. GHG emissions would be estimated using the *National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008* and other industry standard database. The EP would assess direct emissions (Scope 1) and indirect emissions (Scope 3), aligned with the definitions of the GHG Protocol Corporate Standard and the *National Greenhouse and Energy Reporting Regulations 2008 (Cth)*.
- (5, 7) The EP would assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. Direct GHG emissions of carbon dioxide, methane and nitrous oxide and Total carbon dioxide equivalent emissions would be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.
- (5, 7) Indirect emissions associated with offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users would be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.
- (8, 9, 10, 11, 12, 14) Woodside assessed emissions against a range of scenarios including the IEA NZE. Assessment of these could be found in Woodside's 2022 Climate Report which was publicly available on Woodside's website.
- (8, 9, 10, 11, 12, 14) Selected GHG emissions in Woodside's Climate Report were assured by GHD.
- (8, 9, 10, 11, 12, 14) For Woodside, a lower carbon portfolio was one from which the net equity Scope 1 and 2 GHG emissions, which included the use of offsets, were being reduced towards targets, and into which new energy products and lower carbon services were planned to be introduced as a complement to existing and new investments in oil and gas. Woodside's Climate Policy set out the principles that it believes would assist achieve this aim.
- (8, 9, 10, 11, 12, 14) Woodside's net equity emissions reduction targets had an aspiration of net zero by 2050 or sooner. The target was for net equity Scope 1 and 2 GHG emissions, relative to a starting base representative of the gross annual average equity Scope 1 and 2 GHG emissions over 2016-2020 and may be adjusted (up or down) for potential equity changes in producing or sanctioned assets with a final investment decision prior to 2021.
- (8, 9, 10, 11, 12, 14) Woodside had set near- and medium-term targets to reduce net equity Scope 1 and 2 GHG emissions and had three ways to achieve these targets: avoiding emissions through design; reducing them through efficient operations; and offsetting the remainder.
- (9) In accordance with regulation 13(2) and 13(3) of the Environment Regulations, this EP would describe the Environment that May Be Affected (EMBA) including details of receptor sensitivities and exposure potential. This included consideration of Matters of National Environmental Significance (MNES) that may potentially occur in the EMBA.
- (9) The Scarborough Offshore Project Proposal (OPP - publicly available on the NOPSEMA website) defined a level of Significant Impact for receptors, informed by the MNES Significant Impact guidelines. Environmental Performance Outcomes (EPO) and Controls were defined in the OPP and cascaded to subsequent EPs where relevant, to ensure maintenance of Acceptable impact levels.

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- (13) Woodside did not provide drafts of an EP while in development or under assessment due to the potential for content to change. Restricting access to publicly available versions enabled stakeholders to access and comment on the same information and removed potential for any confusion. The EP would be made publicly available on NOPSEMA's website once it had been submitted and was under assessment.
- (8, 14) On 7 March 2024, Woodside proactively sent ACCR an email stating that as they had shown an interest in climate-related matters, they may be interested in Woodside's Climate Transition Action Plan (CTAP) and 2023 Progress Report which summarised Woodside's climate-related plans, activities, progress and climate-related data (SI Report, reference 54.5). The email:
 - Included links to the CTAP and the ASX Announcement.
 - Re-iterated that consultation in the preparation of this EP had closed however, feedback could continue to be provided during the life of an EP, including after consultation had closed on the EP, during EP assessment, and after an EP had been accepted by NOPSEMA.
 - Stated Woodside was available to meet with ACCR to discuss this EP should they be interested.
- On 8 October 2024, Woodside had not received any further consultation correspondence from ACCR. Woodside therefore emailed ACCR to thank it for its initial feedback and for engaging with Woodside on this EP (SI Report, reference 54.6). Woodside advised it would shortly resubmit the EP to NOPSEMA for further assessment and that as, as a courtesy, Woodside was providing ACCR with additional information in response to its feedback. Woodside noted that based on ACCR's stated description of its functions, interests or activities, Woodside did not consider that ACCR's functions, interests or activities were impacted by the activity described in the EP. Woodside:
 - (7) Acknowledged provision of information pertaining to Scope 3 emissions from the Scarborough Project and advised that estimates of GHG emissions associated with the PAP were set out in the EP. The total estimated Scope 3 emissions associated with the project were approximately 870 MtCO₂-e. Additionally, net direct emissions created by the project would be subject to the Federal Safeguard Mechanism (SGM), which set legislated limits on the net GHG emissions of facilities including the Scarborough offshore facility and onshore gas processing plants. Woodside further advised a breakdown of emissions sources extended over 11 pages in the EP however, by way of summary, the total estimated GHG emissions associated with the project, including Source 1 and 3, were approximately 880 MtCO₂-e over the life of the activity. Woodside also provided an overview of GHG abatement and mitigation measures, noting detailed information was available in Section 6.7.6 of the EP.
 - (8) Disagreed with ACCR's position regarding independent verification including because Woodside employed internal specialists on climate matters. Woodside acknowledged climate science and that climate change was understood to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one activity or project including the Scarborough Project. Woodside noted its view that LNG could have a role in the energy transition and therefore, the full volume of GHG emissions associated with the project were not expected to be additive to global GHG concentrations. However, Woodside had used a hypothetical assumption in the EP where GHG emissions associated with the project were hypothetically treated as additive, and the contribution to carbon budgets was de minimis. Woodside noted emissions from the project fit within Australia's NDC and the NDC of customer nations, and that through compliance with the SGM framework, the project would be aligned with Australia's implementation of the Paris Agreement.
 - (9) Acknowledged that climate change was impacting Australian and global receptors but disagreed with ACCR's position regarding independent assessment including because Woodside employs internal environmental climate and science specialists. Woodside noted that human-caused climate change was a consequence of net GHG emissions that had accumulated in the atmosphere since the start of the Industrial Revolution, and that the EP included a contextual evaluation of these impacts drawing on reputable sources including the IPCC Sixth Assessment Report. The IPCC AR6-WGII concluded that one of the nine key climate risks for the Australasian region was "loss and degradation of coral reefs" due to ocean warming and marine heatwaves.
 - (10) Confirmed that Woodside agreed that GHG emissions associated with the Scarborough project should be minimised and managed to ALARP and acceptable levels but did not agree with ACCR's assertion that this should be done independently. Third-party support had been used to identify potential opportunities for abatement, but it was more appropriate to leverage the understanding of the project held by internal personnel. Woodside also advised:

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- Woodside would not provide technical evaluations and studies which included commercially sensitive or confidential information in circumstances where ACCR’s functions, interests or activities are not impacted by the activity in the EP, and even if ACCR’s functions, interests or activities were impacted, ACCR did not need this information to allow it to make an informed assessment of the possible consequences of the activity.
- It was not reasonable for Woodside to provide information on GHG abatement options that had been considered or the criteria for assessment. The incorporation (or not) of particular GHG abatement options for the project was reflected in the GHG estimates provided.
- Avoiding and reducing GHG emissions were Woodside’s priority, however offsetting emissions allowed Woodside to reduce net emissions while asset and technology de plans were matured and implemented. In the longer term, where emissions prove to be hard-to-abate, residual emissions would be offset using carbon credits.
- Carbon offset arrangements were commercially sensitive or subject to contractual confidentiality and would not be shared. Woodside established a carbon business in 2018 to develop a portfolio of carbon credits and skills and expertise in managing carbon credit integrity.
- Emissions associated with the Scarborough Project were subject to the SGM, and Woodside would report domestic GHG emissions associated with the project as required under NGERs.
- The Operations EP demonstrated how OPP requirements were implemented for the specific activity.
- (11) Disagreed with ACCR’s position on independent modelling. Woodside’s view was that LNG could have a role in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes, however, to facilitate a comparison against carbon budgets, a hypothetical assumption where GHG emissions associated with the Scarborough project were treated as hypothetically additive was considered in the latest version of the EP. The acceptability assessment of the activity did not rely on displacement of higher carbon fuels. Compliance with Australian carbon frameworks including the Federal SGM was consistent with Australia’s implementation of the Paris Agreement, as set out in section 6.7.6.
- (12) Disagreed with ACCR’s position and noted it was aware of the UN High Level Expert Group on Net Zero Integrity Matters and the ISO Net Zero Guidelines as well as a range of forums, public dialogues and reports regarding greenwashing. Woodside recently participated in a Senate inquiry into greenwashing and its Hansard transcript was available. Woodside takes care with statements, especially in regards to climate change, so that they are accurate. Woodside further noted:
 - Its corporate emission reduction targets were included in the EP as relevant to Scope 3 emissions only.
 - The Scarborough Project was not required to deliver an immediate absolute reduction in emissions from current levels, nor was it required to support global and local phase out of fossil fuels. As such, neither were proposed in the EP.
 - It had incorporated methane-specific GHG abatement measures.
 - Its advocacy aimed to support the goals of the Paris Agreement. Woodside provided a link to its Climate Policy and a list of government submissions and reports made by Woodside.
- (13) Advised there were no requirements for Woodside to make studies and internal information publicly available and, as previously noted, Woodside did not consider ACCR to be a relevant person for this EP. Even if it were, ACCR did not need this information to make an informed assessment of the possible consequences. The Operations EP was also publicly available on the NOPSEMA website.
- (14) Woodside noted ACCR’s position and declined the request that Woodside provide a signed declaration.
- Woodside has not received any further correspondence from ACCR.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response	Inclusion in Environment Plan
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<p>(1) An ACCR individual requested to be added to the 'approvals consultation register'.</p>	<p>(1) Woodside assessment: ACCR is included in Woodside's distribution database but Woodside also added the individual representing ACCR to the database. Woodside response: Woodside confirmed that ACCR was already on its consultation database and that the individual representing ACCR had also been added to the database.</p>	<p>(1) Not required</p>
<p>(2) ACCR was not aware it had been consulted on this EP and had only just become aware Woodside was seeking feedback by 20 December 2023.</p>	<p>(2) Woodside assessment: Woodside has assessed ACCR as not a relevant person for this EP, based on its functions, interests or activities. Nevertheless, Woodside chose to provide ACCR with consultation information for this EP at its discretion in line with Section 5.3 of the EP. Woodside response: Woodside confirmed it had provided consultation information to ACCR on 9 August and 30 August 2023.</p>	<p>(2) A summary of Woodside's engagement with ACCR on this EP is set out above in Appendix F, Table 3.</p>
<p>(3) Requested Woodside to confirm that ACCR is contacted for future consultations.</p>	<p>(3) Woodside assessment: Woodside agrees to provide consultation information to ACCR regarding future activities. This does not mean ACCR has been assessed as a relevant person for that activity. Woodside response: Woodside agreed it would provide ACCR with consultation information on future activities and also suggested ACCR subscribe to Woodside's consultation activities on Woodside's website.</p>	<p>(3) Not required.</p>
<p>(4) ACCR considers itself a relevant person.</p>	<p>(4) Woodside assessment: Woodside does not consider ACCR's functions, interests or activities are impacted by the activity described in the EP. Woodside chose to contact ACCR at its discretion in line with Section 5.3 of the EP. Woodside response: Woodside advised ACCR that based on ACCR's publicly stated description and purpose, Woodside did not consider that ACCR's functions, interests or activities would be impacted by the activity described in the EP.</p>	<p>(4) Woodside's assessment of ACCR's relevancy is described in Appendix F, Table 1.</p>
<p>(5) Climate change impacts, including Scope 3 emissions, which will result from this EP, must be assessed in accordance with the approved NOPSEMA program under the EPBC Act and broader environment in accordance with the Environment Regulations.</p>	<p>(5) Woodside assessment: Woodside has assessed GHG emissions, including Scope 3 emissions, and potential climate change impacts in the EP in accordance with the relevant Environment Regulations. Woodside response: Woodside confirmed GHG emissions relevant to the PAP, including sources and volumes, were assessed in the EP. The EP also included assessment of potential climate change impacts.</p>	<p>(5) GHG emissions associated with the activity are considered in Section 6.7.6 of the EP.</p>

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<p>(6) Woodside has not provided sufficient information nor a reasonable period of time for consultation.</p>	<p>(6) Woodside assessment: While ACCR is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for ACCR to provide feedback. Despite providing information and offering to engage in face-to-face consultation meetings, ACCR has not provided a further response to Woodside.</p> <p>Woodside response: Woodside provided consultation information for this EP to ACCR on 9 August 2023 and 30 August 2023 which provided a summary of the activity description, the receiving environment, a comprehensive summary of impacts and risks associated with PAP and proposed mitigation and management measures. Woodside did not receive any response from ACCR until 19 December 2023, the day before consultation closed for this EP. Woodside provided direct responses to ACCR's feedback and, as a courtesy, provided additional information on 7 March 2024 and 8 October 2024.</p> <p>Woodside also advertised the EP and consultation opportunities in national, state, regional and Indigenous newspapers and ran social media campaigns. Woodside also had experts and information available at a number of community events and roadshows in the Pilbara, Gascoyne and Murchison regions throughout September and October 2023.</p> <p>Woodside has not received any further response or consultation correspondence from ACCR on this EP.</p>	<p>(6) Not required.</p>
<p>(7) Estimates of greenhouse gas and other emissions, including Scope 3 emissions from the Scarborough project including assessment and breakdown of emissions.</p>	<p>(7) Woodside assessment: Woodside has provided ACCR with information regarding sources and volumes of emissions associated with the EP, via the Consultation Information Sheet, publicly available EP and direct responses to ACCR's feedback.</p> <p>Woodside response: Woodside advised that while the breakdown of emissions sources extended over 11 pages in the EP, by way of summary, the total estimated GHG emissions associated with the project, including Source 1 and 3, were approximately 880 MtCO₂-e over the life of the activity. The total estimated Scope 3 emissions associated with the project were approximately 870 MtCO₂-e. Woodside also noted that GHG emissions would be subject to the Federal SGM and provided information on how indirect emissions were estimated. Woodside noted information regarding GHG abatement and management was provided in the EP and summarised some of the considerations and actions assessed.</p>	<p>(7) GHG emissions associated with the activity are considered in Section 6.7.6 of the EP.</p>

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<p>(8) Independent assessment of the compatibility of the project with internationally agreed temperature and decarbonisation goals, including 1.5°C scenarios, including the IEA's NZE.</p>	<p>(8) Woodside assessment: Woodside does not agree with ACCR's position regarding independent verification. In the latest version of the EP, a hypothetical assumption where GHG emissions associated with the Scarborough Project are hypothetically treated as additive is used. This scenario is not expected to eventuate. Woodside response: Woodside acknowledged that climate science understood climate change to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one project or activity including the Scarborough Project. However, to facilitate a comparison against carbon budgets, Woodside confirmed it had used a hypothetical assumption in the EP where GHG emissions associated with the project were hypothetically treated as additive, and the amount was de minimis. Woodside noted emissions fit within Australia's NDC and would comply with the Federal SGM.</p>	<p>(8) Gas demand in climate-related scenarios is set out in Section 6.7.6 of the EP.</p>
<p>(9) Independent assessment of climate change impacts of the Scarborough Project on the Australian and international environment and communities.</p>	<p>(9) Woodside assessment: Woodside acknowledges that climate science suggests that climate change, caused by the net cumulative global concentration of GHG in the atmosphere, is impacting Australian receptors. It does not agree with ACCR's position regarding independent assessment. Woodside response: Woodside noted that climate science suggests that human-caused climate change was a consequence of net GHG emissions that had accumulated in the atmosphere since the start of the industrial revolution. Woodside included in the EP a contextual evaluation of climate change impacts which encompassed environmental receptors including coral reefs.</p>	<p>(9) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i>.</p>
<p>(10) Independent analysis of mitigation options and commitments in relation to Scope 1, 2 and 3 GHG emission sources as well as other material emission sources.</p>	<p>(10) Woodside assessment: Woodside acknowledges the legislative regime which requires emissions associated with the Scarborough Project to be minimised and managed to ALARP and acceptable levels but does not agree with ACCR's assertion that this should be done independently. Woodside response: Woodside advised it would not provide studies or internal information and even if ACCR had been assessed as a relevant person, the information was not needed for ACCR to make an informed assessment of the possible consequences of the activity. Woodside noted the incorporation of GHG abatement options was reflected in the emissions estimates provided. Woodside confirmed avoiding and reducing GHG emissions were Woodside's priority, however offsetting emissions allowed Woodside to reduce net emissions while asset and</p>	<p>(10) Management and abatement measures are set out in Section 6.7.6 of the EP.</p>

	technology decarbonisation plans were matured and implemented. Woodside also noted emissions were subject to the Federal SGM and NGERs.	
(11) Independent modelling to support Woodside's claims of gas from the Scarborough Project displacing other more carbon intensive energy sources.	(11) Woodside assessment: Woodside does not agree with ACCR's position on independent modelling. Woodside has used a hypothetical assumption in the EP where GHG emissions associated with the project are hypothetically treated as additive. This scenario is not expected to eventuate. Woodside response: Woodside confirmed its view was that LNG could have a role in the energy transition and in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes. However, to facilitate a comparison against carbon budgets, Woodside advised it had used a hypothetical assumption in the EP where GHG emissions associated with the project were hypothetically treated as additive. The acceptability assessment of the activity did not rely on displacement of higher carbon fuels. In addition, Woodside provided a link to the Woodside Climate Transition Action Plan and 2023 Progress Report to ACCR when these were published.	(11) Gas's role in the energy system is set out in Section 6.7.6 of the EP.
(12) Independent assessment of how the Scarborough Project and associated mitigation efforts meet the requirements of the UN High Level Expert Group on Net Zero emissions for non-state entities, and the ISO Net Zero Guidelines.	(12) Woodside assessment: Woodside does not agree with ACCR's position. Woodside takes care with its statements, especially in relation to climate change, so that statements are accurate and not misleading. Woodside response: Woodside advised it had recently participated in the Australian Senate Inquiry into greenwashing and as per its statement at the Inquiry, took care so that statements were accurate and not misleading. Woodside noted its corporate emissions reduction targets were included in the EP. The Scarborough Project was not required to deliver an immediate absolute reduction in emissions from current levels, nor was it required to support global or local phase out of fossil fuels, thus neither was proposed in the EP. Woodside noted it had incorporated methane-specific GHG abatement measures, and its advocacy aimed to support the goals of the Paris Agreement.	(12) GHG emissions associated with the activity are considered in Section 6.7.6 of the EP.
(13) Other documents, including documents relied upon by Woodside, and a draft of this EP.	(13) Woodside assessment: There are no requirements for Woodside to make studies and internal information publicly available. Woodside response: Woodside noted it was not reasonable to provide studies or other information. Woodside did not consider ACCR to be a relevant person for this	(13) Not required.

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	EP, and even if it did, the information would not be required for ACCR to be able to make an informed assessment of the possible consequences of the activity.	
(14) Requested Woodside provide a signed declaration stating in relation to disclosure of its emissions reductions.	(14) Woodside assessment: Woodside declines the request. Woodside's climate strategy is described in its Climate Transition Action Plan and 2023 Progress Report. Woodside response: Woodside noted ACCR's position and declined the request.	(14) Not required.
Woodside has addressed feedback as noted above.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While ACCR is not a relevant person under regulation 25 of the Environment Regulations, Woodside has in any event given ACCR sufficient information and a reasonable period outside of regulatory requirements for ACCR to provide feedback during the consultation process and has confirmed to ACCR that it is open to consulting with ACCR on this EP. Despite providing sufficient information and a reasonable period, ACCR has not provided further response to Woodside's consultation correspondence.		

Extinction Rebellion WA (XRWA)

Context

Extinction Rebellion is a global movement. 'Our core strategy is mass disruption of city centres through nonviolent civil disobedience.'^{lii}

In 2021, XRWA 'rebels' covered a WA pedestrian bridge near Woodside with 'messages alerting the public to the deadly path approved for Scarborough gas.'^{liii}

In April 2024, XRWA posted on its Facebook page stating, 'what's even worse is that our government is subsidising, promoting, and wanting to approve projects like Australia's biggest carbon bomb – Woodside's expanded Burrup Hub...'^{liiv}

XRWA works closely with the Disrupt Burrup Hub campaign^{lv}, which has the sole purpose to get people to 'join the fight back and bring an end to industrial expansion on the Burrup Peninsula' and claims 'Woodside's Burrup Hub mega-project...is a disaster for climate and culture.'^{lvi}

Woodside contacted XRWA twice on this EP but did not receive a response.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Extinction Rebellion WA (XRWA) advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While XRWA is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for XRWA to provide feedback during the consultation process.		

International Fund for Animal Welfare (IFAW)

Context

The International Fund for Animal Welfare (IFAW) is a global non-profit helping animals and people thrive together.^{lvii}

In 2018, IFAW was invited but did not participate in consultation on the Scarborough Energy Project OPP.

Woodside contacted IFAW twice on this EP but has not received a response.

Historical Engagement:

2018 - 2020

- Between 2018 and 2020, IFAW was identified as a stakeholder in 2018 and was invited to consult on the Scarborough Offshore Project Proposal during the three phases of consultation for the Scarborough Project (preliminary, formal and ongoing). Preliminary consultation commenced in 2018. An eight-week formal consultation period ran from 5 July to 30 August 2019. Ongoing consultation continued on acceptance of the OPP in March 2020.
 - IFAW chose not to take up the opportunity to participate in consultation.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed International Fund for Animal Welfare advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.</p> <p>Controlled Ref No: SA0006AF0000022 Revision: 3 Page 600 of 919</p> <p style="text-align: center;">Uncontrolled when printed. Refer to electronic version for most up to date information.</p>		

No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While IFAW is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for IFAW to provide feedback during the consultation process.		

Market Forces

Context

Market Forces is 'an affiliate member of Friends of the Earth Australia and a member of the BankTrack international network whose work exposes the institutions that are financing environmentally destructive projects and helps Australians hold these institutions accountable. We work with the community to prevent investment in projects that would harm the environment and drive global warming.'^{lviii}

In 2018, Market Forces was invited but did not participate in consultation on the Scarborough Energy Project OPP.

As of September 2024, Market Forces stated on its website 'Woodside is undermining a stable climate future by pursuing new oil and gas projects. Our super funds and banks must stop investing in Woodside and its climate-wrecking projects and plans now.' Also included is a Take Action feature where users can search and directly access their superannuation fund and/or send a message to their bank. Additionally it claims, "Woodside plans to develop one of the most polluting projects Australia has ever seen: the massive Scarborough gas field...'^{lix}

Woodside consulted Market Forces on this EP and Market Forces advised they would not be providing feedback.

Historical Engagement:

2018 - 2020

- Market Forces was identified as a stakeholder in 2018 and was invited to consult on the Scarborough Offshore Project Proposal during the three phases of consultation for the Scarborough Project (preliminary, formal and ongoing). Preliminary consultation commenced in 2018. An eight-week formal consultation period ran from 5 July to 30 August 2019. Ongoing consultation continued on acceptance of the OPP in March 2020.
 - Market Forces chose not to take up the opportunity to participate in consultation.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Market Forces advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- (1)** On 14 August 2023, Market Forces emailed Woodside thanking it for the opportunity to engage and informed Woodside that they would not be providing feedback on this EP but would like to continue to be consulted on EPs for Woodside's projects (SI Report, reference 7.1).

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<ul style="list-style-type: none"> (1) On 17 August 2023, Woodside thanked Market Forces and confirmed it would continue to consult on future EPs (SI Report, reference 7.2). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Market Forces advised it would not be providing feedback on the EP but wished to be consulted on future Woodside EPs.	(1) Woodside assessment: Woodside reviewed that Market Forces would not provide feedback on the EP but asked to be consulted on future EPs. Woodside response: Woodside noted Market Forces had no feedback on the EP but would like to be consulted on future EPs.	(1) Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Market Forces is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Market Forces to provide feedback during the consultation process.		

Sea Shepherd Australia (SSA)

Context

Sea Shepherd is an international direct-action ocean conservation movement.^{lx}

Woodside contacted SSA twice on this EP but has not received a response.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed Sea Shepherd Australia advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Sea Shepherd Australia is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Sea Shepherd Australia is to provide feedback during the consultation process.		

World Wildlife Fund (WWF) Australia

Context

WWF's global mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.^{lxi}

In 2018, WWF was invited but did not participate in consultation on the Scarborough Energy Project OPP.

Woodside contacted WWF twice on this EP but has not received a response.

Historical Engagement:

2018 - 2020

- WWF was identified as a stakeholder in 2018 and was invited to consult on the Scarborough Offshore Project Proposal during the three phases of consultation for the Scarborough Project (preliminary, formal and ongoing). Preliminary consultation commenced in 2018. An eight-week formal consultation period ran from 5 July to 30 August 2019. Ongoing consultation continued on acceptance of the OPP in March 2020.
 - WWF chose not to take up the opportunity to participate in consultation.

Summary of information provided and record of consultation for this EP:

- On 9 August 2023, Woodside emailed World Wildlife Fund Australia advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.1).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan

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No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While the World Wildlife Fund Australia is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for the World Wildlife Fund Australia to provide feedback during the consultation process.		

Environs Kimberley (EK)

Context

EK states it is ‘the peak environmental NGO of the Kimberley which works with communities, landholders and land managers, especially Aboriginal Traditional Owners and ranger groups for strong protection and sustainable management of Kimberley lands and waters.’^{lxii}

EK lists its Kimberley Campaigns and the Kimberley Nature Projects under the ‘what we do’ section of its website.^{lxiii} & ^{lxiv} Based on EK’s strong focus on matters in the Kimberley, and as the EMBA and Operational Area for this EP do not overlap the Kimberley, EK was assessed as not relevant.

EK self-identified as a relevant person for this EP on 20 December 2023. EK’s letter used identical language and approach, altered in parts to capture specifics about EK, as Australasian Centre for Corporate Responsibility (self-identified), Friends of Australian Rock Art, Doctors for the Environment, Australian Conservation Foundation and [Individual 2] (self-identified), with all letters received by Woodside within 24 hours of each other on 19 and 20 December 2023.

Summary of information provided and record of consultation for this EP:

- On 20 December 2023, Environs Kimberley sent a letter to Woodside (and copied NOPSEMA) referring to this EP and the Consultation Information Sheet (SI Report, reference 58.1). It made the following comments:
 - They understood Woodside was currently consulting with relevant persons on this EP.
 - **(1)** Environs Kimberley considered that Woodside should consult it as a relevant person.
 - **(2)** Climate change impacts fell under the scope of indirect consequences which must be assessed according to the Environment Regulations and NOPSEMA’s guidelines.
 - **(3)** Environs Kimberley was dedicated to the protection and management of the environmental values of the Kimberley in partnership with communities and Traditional Owners which were threatened by climate change and fossil fuel developments and as a result Woodside should consult with communities across the Kimberley.
 - **(4)** Woodside should provide Environs Kimberley with sufficient information. The Consultation Information Sheet was not sufficient to make an informed decision. A list of further information was also requested regarding climate change, GHG emissions and a draft of the EP. A response to this letter was required within two weeks, no later than 1 January 2024 [noting two weeks from when the letter was sent would have been 3 January 2024]. Because sufficient information had not been provided, further time was necessary to consider the information based on Environs Kimberley available personnel and resources. Environs Kimberley considered the EP should not be finalised, submitted or assessed by NOPSEMA until these requirements were met.
 - Further information was requested on:

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- **(5)** Assessment of the climate change impacts of the Scarborough project on the Kimberley environment, including:
 - ❖ Analysis of sensitive environmental receptors that will be impacted.
 - ❖ Anticipated results of the Scarborough project on these receptors.
 - ❖ Modelling on the effect of the Scarborough Project on parameters including temperature, extreme weather, rainfall and fire in the Kimberley.
 - ❖ Mitigation options for impacts on the Kimberley environment.
- **(6)** Assessment of the climate change impacts of the Scarborough project on communities impacted by climate change in the Kimberley, including:
 - ❖ Evidence that consultation has been undertaken.
 - ❖ Evidence of Woodside's own analysis of impacts of the project on Kimberley communities.
 - ❖ Assessment of impacts on Kimberley communities should include social, economic and other costs and impacts.
- **(7)** Independent estimates of GHG emissions including Scope 3 emissions from the Scarborough project, including:
 - ❖ Independent assessment of all GHG emissions that will arise from the development.
 - ❖ Breakdown of each emissions source, its nature and location, and whether it is under the control of Woodside.
- **(8)** Independent assessment of the compatibility of the project with internationally agreed temperature and decarbonisation goals, including:
 - ❖ Independent evaluation of the impacts of the Scarborough project on global temperature scenarios, GHG concentrations and temperature and fossil fuel phase down goals.
 - ❖ Independent evaluation of the alignment and compatibility of the project with global 1.5-degree compatible energy scenarios.
 - ❖ Where global energy scenarios rely on carbon removals, what is the volume of carbon removals, how and where and by what means Woodside expected this to occur.
 - ❖ Fossil fuel phase down scenarios considered.
 - ❖ Effect the project will have on GHG concentrations in the atmosphere.
 - ❖ Analysis of GHG concentrations that will be in the atmosphere and the climate effects that would be felt as a result.
- **(9)** Independent analysis of mitigation options and commitments, including:
 - ❖ Impact assessment of GHG emissions from the Scarborough facility and management controls to reduce GHG emissions, including a decarbonisation plan for the Pluto Hub.
 - ❖ Independent analysis of all available mitigation options that have been considered by Woodside.
 - ❖ Detailed information on what mitigation of emissions were expected to occur at each stage or facility in the extraction, processing, transport and end use of gas from the Scarborough field.
 - ❖ Independent analysis to demonstrate that mitigation efforts at each stage and scope resulted in emissions reduced to ALARP.
 - ❖ Evidence to demonstrate why any potential mitigation efforts that would not be undertaken had not been considered reasonably practicable.
 - ❖ Identification of any third parties which Woodside relied upon in delivering mitigation actions.
 - ❖ Identification of all offsets that would be utilised by Woodside in meeting abatement goals and commitments.
 - ❖ Ongoing public reporting and verification provided by Woodside of emissions and abatement from the project.
- **(10)** Independent modelling to support Woodside's claim of gas from the Scarborough project displacing other more carbon intensive energy sources, including:

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- ❖ Evidence of what other energy sources were expected to be displaced, both in current market and for those forecast over the life of the project.
- ❖ Evidence of contractual or other arrangements that were, or would be, in place to ensure that this displacement occurred as predicted by Woodside.
- ❖ Independently verifiable evidence to demonstrate that any displacement of more emissions intensive fuels resulted from the Scarborough project.
- ❖ Evidence of third-party verification that would be provided by Woodside or other parties to verify claims of abatement.
- **(11)** Independent assessment of how the Scarborough Project and associated mitigation efforts meet the requirements of the UN High Level Expert Group on Net Zero emissions for non-state entities, and the ISO Net Zero Guidelines. At a minimum, this should include:
 - ❖ How Woodside's corporate emissions reduction targets and those for the Scarborough Project were science-based, and cover all-scopes of emissions, and take into consideration Woodside's historical emissions.
 - ❖ How the mitigation efforts for the Scarborough Project would deliver an immediate and absolute reduction in emissions from current levels.
 - ❖ How the Scarborough Project supported a global and local phase out of fossil fuels.
 - ❖ How the abatement efforts proposed by Woodside included targets for methane-specific emissions, including what these targets were and how they would be achieved.
 - ❖ Evidence of Woodside's lobbying and advocacy efforts and how these were aligned with global temperature scenarios.
- **(12)** Evidence of how the requirements of the approved Scarborough OPP relating to mitigation and avoidance of direct and indirect GHG emissions from the project would be achieved, including:
 - ❖ Details of contractual, regulatory, or other measures that demonstrated that both Woodside and third-party emissions reduction through fuel displacement, offsets or other abatement would be delivered according to international standards for carbon accounting.
- **(13)** Other documents, including documents relied upon by Woodside, including:
 - ❖ All studies, information and other material commissioned or relied upon by Woodside in assessing the greenhouse gas emissions and climate impacts from the project.
 - ❖ A copy of the draft Scarborough Operations EP
- On 3 January 2024, Woodside sent a letter to Environs Kimberley acknowledging they had self-identified and provided feedback, including a request to be consulted (SI Report, reference 58.2). In considering this, Woodside stated the following in its response:
 - Woodside acknowledged *NOPSEMA's Guideline on Consultation in the course of preparing an environment plan* as well as judicial guidance in the Tipakalippa Appeal on the intent of consultation.
 - **(1)** Woodside had applied its methodology which had included reviewing Environs Kimberley's public website (which notes that Environs Kimberley is a Broome-based conservation group), and, given its focus on the Kimberley, did not demonstrate that its functions, interests or activities may be affected by the activities to be carried out under the EP, in accordance with the intended outcome of consultation. The website (cited 28 December 2023) stated that Environs Kimberley undertook 'Kimberley Campaigns' and 'Kimberley Nature Projects'. More specifically, it outlined the following:
 - Protecting the Kimberley Coast
 - Keeping the Fitzroy River running wild
 - Keeping the Kimberley free from fracking
 - Watching Briefs (James Price Point)
 - Protecting the North Kimberley from bauxite mining

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- (3) The Scarborough Floating Production Unit (FPU) is 244 km north-northwest of Exmouth and 374 km west-northwest of Dampier (both in the Pilbara region) and the closest Marine Park is Gascoyne Marine Park (77 km south of the FPU). The environment that may be affected (EMBA) does not overlap with the Kimberley region.
- (1) Woodside had considered Environs Kimberley's self-identification as part of its assessment process of relevant persons, however, it was not apparent that Environs Kimberley's functions, interests or activities may be affected by the proposed activities.
- (2, 3, 4, 5, 6, 7) No response to the correspondence was required as Woodside had considered Environs Kimberley's self-identification as part of its assessment process of relevant persons, however, it was not apparent that Environs Kimberley's functions, interests or activities may be affected by the proposed activities.
- On 8 October 2024, Woodside proactively emailed Environs Kimberley thanking it for its feedback and for engaging on the EP and advising the EP was now publicly available on NOPSEMA's website (SI Report, reference 58.3). Woodside:
 - (4) Advised it would shortly resubmit the EP to NOPSEMA for further assessment and, as a courtesy, Woodside was providing additional information in response to Environs Kimberley's feedback.
 - (1, 3) Advised that, as previously communicated to Environs Kimberley, Woodside had considered Environs Kimberley's self-identification as part of its relevancy assessment process and had concluded that Environs Kimberley's functions, interests or activities were not likely to be affected by the proposed activities. As described in Section 4.1 of the EP, the EMBA for the activity was determined by the worst-case credible hydrocarbon spill scenarios associated with the project, not the global impacts of climate change, which were caused by net global GHG concentrations. The EMBA was depicted on the Consultation Information Sheet and did not include the Kimberley region or the Kimberley coastline.
 - (2, 5) Acknowledged that climate change was impacting Australian and global environmental receptors, and that climate change was understood to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one project or activity including the Scarborough project. Woodside advised a contextual evaluation of climate change impacts was set out in detail in the EP but provided a list of projections for climate change in Australia and nine key climate risks for the Australasian region. Woodside confirmed its view was that LNG could have a role in the energy transition, however, to facilitate a comparison against carbon budgets, a hypothetical assumption where GHG emissions associated with the Scarborough project were treated as additive was considered in the latest version of the EP. Woodside further noted the EMBA was determined by worst-case credible hydrocarbon spill scenarios, not the global impacts of climate change, and the EMBA for this EP did not include the Kimberley region or coastline.
 - (6) Confirmed it consulted relevant persons whose functions, interests or activities may be affected by the activities in the EP. Since climate change impacts were associated with net global atmospheric GHG concentrations, and not with the activity described in the EP, being affected by climate change was not considered an appropriate test for inclusion as a relevant person. Woodside advised it did not consider that impacts to communities could be attributed to GHG emissions associated with the project. As described in the EP, the Kimberley region was outside the EMBA for this EP.
 - (7) Advised independent assessment of emissions sources, scopes and calculations had not been undertaken and was not warranted, including because Woodside applied estimation techniques aligned with the National Greenhouse and Energy Reporting Determination, and net direct emissions created by the project would be subject to the Federal Safeguard Mechanism (SGM). Woodside confirmed a breakdown of emissions sources extended over 11 pages in the EP. By way of summary, Woodside provided a list of sources assessed in the EP and advised the total estimated GHG emissions associated with the project were approximately 880 MtCO₂-e over the life of the activity.
 - (8) Woodside disagreed with Environs Kimberley's position regarding independent verification, including because Woodside employs internal specialists on climate change matters. Woodside acknowledged climate science and that climate change was understood to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one activity or project including the Scarborough Project. Woodside noted its view that LNG could have a role in the energy transition, however advised it had used a hypothetical assumption in the EP where GHG emissions associated with the project were treated as additive. The contribution to global carbon budgets was de minimis. Woodside noted emissions from the project fit within Australia's NDC and the NDC.

- **(9)** Confirmed that Woodside agreed that GHG emissions associated with the Scarborough project should be minimised and managed to ALARP and acceptable levels but did not agree with Environs Kimberley's assertion that this should be done independently. Third-party support had been used to identify potential opportunities for abatement, but it was more appropriate to leverage the understanding of the project held by internal personnel. Woodside also advised:
 - It would not provide technical evaluations and studies and these were not necessary for Environs Kimberley to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Access to the Pluto Hub Decarbonisation Plan was also not required by Environs Kimberley.
 - Lists of emissions abatement opportunities and features implemented were included for Scope 1 and Scope 3 GHG emissions in Section 6.7.6 of the EP. The incorporation (or not) of particular abatement options were reflected in the GHG emissions estimates provided.
 - The description of emissions abatement opportunities in the EP included when aspects were applicable and which were required under regulatory frameworks.
 - Independent analysis was not required to determine whether GHG emissions were reduced to ALARP.
 - Contractual or binding agreements between Woodside and third parties were confidential and would not be shared.
 - Avoiding and reducing GHG emissions were Woodside's priority, however offsetting emissions allowed Woodside to reduce net emissions while asset and technology carbonisation plans were matured and implemented.
 - It had established a carbon business in 2018 to develop a portfolio of carbon credits and skills and expertise in managing carbon credit integrity.
 - It would report domestic GHG emissions associated with the project as required under NGRS.
- **(10)** Disagreed with Environs Kimberley's position on independent modelling. Woodside's view was that LNG could have a role in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes, however, to facilitate a comparison against carbon budgets, a hypothetical assumption where GHG emissions associated with the Scarborough project were treated as hypothetically additive was considered in the latest version of the EP. The acceptability assessment of the activity did not rely on displacement of higher carbon fuels. Compliance with Australian carbon frameworks including the Federal SGM was consistent with Australia's implementation of the Paris Agreement, as set out in section 6.7.6.
- **(11)** Disagreed with Environs Kimberley's position and noted it was aware of the UN High Level Expert Group on Net Zero Integrity Matters and the ISO Net Zero Guidelines as well as a range of forums, public dialogues and reports regarding greenwashing. Woodside recently participated in a Senate inquiry into greenwashing and its Hansard transcript was available. Woodside takes care with statements, especially in regards to climate change, so that they are accurate. Woodside further noted:
 - Its corporate emission reduction targets were included in the EP as relevant to Scope 3 emissions only.
 - The Scarborough Project was not required to deliver an immediate absolute reduction in emissions from current levels, nor was it required to support global and local phase out of fossil fuels. As such, neither were proposed in the EP.
 - It had incorporated methane-specific GHG abatement measures.
 - Its advocacy aimed to support the goals of the Paris Agreement. Woodside provided a link to its Climate Policy and a list of government submissions and reports made by Woodside.
- **(12)** Confirmed the Scarborough OPP was approved by NOPSEMA in March 2020. The Operations EP demonstrated how these OPP requirements were implemented for the specific activity. The EPOs in the EP demonstrated an equal or better environment outcome than those in the OPP. Further, Woodside noted it would not share contractual detail due to confidentiality obligations, and that regulatory and other measures which managed GHG emissions associated with the project were comprehensively described in Section 6.7.6 of the EP.

- **(13)** Advised there were no requirements for Woodside to make studies and internal information publicly available. It was not reasonable for Woodside to provide studies, information or other material including because this was not necessary for Environs Kimberley to assess the possible consequences of the activity. Further, as Woodside had advised, it did not consider Environs Kimberley a relevant person for this EP. Woodside noted the Operations EP was publicly available on NOPSEMA’s website.
- On 7 January 2025, Environs Kimberley sent an email and letter attachment responding to Woodside’s correspondence of 8 October 2024 (SI Report, reference 58.4). Environs Kimberley’s feedback included that:
 - **(1)** It did not agree that the proposed activities did not affect its functions, interests and activities and that Environs Kimberley was therefore not a relevant person, and that:
 - Woodside’s description of the EMBA was inadequate as it failed to include indirect effects of the proposed activities and the impacts on vulnerable communities.
 - Woodside’s decision to exclude Environs Kimberley from relevant person consultation was based on an arbitrary distinction between indirect and direct impacts.
 - The severity of impacts arising from an activity were not necessarily related to physical proximity.
 - The draft EP showed Woodside had given relevant person status to other groups whose functions, interests or activities were only affected by indirect impacts outside the EMBA.
 - Environs Kimberley’s functions, interests or activities were focussed on ecosystems and environments in the Kimberley that were highly vulnerable to the impacts of climate change.
 - Relevant person consultation requirements had not been sufficiently met by Woodside.
 - Woodside had not undertaken further consultation with others across the Kimberley or responded to Environs Kimberley’s offer to assist in identifying such relevant persons.
 - **(2)** Woodside’s assessment of the climate impacts that would arise from the proposed activities was insufficient.
 - Woodside had failed to provide enforceable undertakings regarding mitigation and management of climate impacts.
 - Woodside’s assessment had not met the information requirements for relevant persons.
 - **(14)** Woodside’s carbon budget calculations were misleading and not a reliable measure for assessing the impacts of the proposal, because:
 - If the current rate of emissions continued, the claimed remaining carbon budget would be entirely used up within 3-5 years. The carbon budget was an abstract concept that must be continually updated to reflect emissions.
 - It was likely the carbon budget would be smaller again once operations began.
 - The proportion of the budget that will be used by Woodside will increase as the budget reduced.
 - **(15)** Woodside had not disclosed the assumptions implicit in the carbon budgets it relied on, including disclosing that the volume of carbon drawdown (CDR) that the budgets relied on. Other recent analysis demonstrated over-reliance on land for carbon dioxide removal. Woodside had also not provided evidence that the CDR level relied upon was achievable.
 - **(16)** Carbon budget timescales were not appropriate for the proposed operations, because:
 - References to theoretical carbon budgets in the period from now until net zero was reached was selective and misleading, because it did not take into consideration the need for net negative emissions following the achievement of net zero emissions.
 - Woodside made unenforceable corporate commitments to reduce Scope 1 emissions to net zero by 2050, however no similar commitments are provided for indirect or scope 3 emissions which will remain very high beyond 2050.
 - The use of carbon budgets which referred to emissions which may be released before 2050 to justify continuing emissions after 2050 was misleading.
 - **(17)** Carbon budgets provided insufficient certainty of achieving stated temperature outcomes, because:

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- The carbon budgets cited by Woodside corresponded to a 50 per cent likelihood that temperature goals would be exceeded, which was not a sufficient degree of certainty to use as a measure of what was acceptable.
- EK's position was that any chance of an exceedance of 1.5 degrees global temperature rise was unacceptable.
- **(18)** Carbon budgets were inconsistent with other assessment approaches.
 - Woodside claimed its proposed operations were supported by energy use scenarios reflected in NDCs or climate goals of various customer countries. Woodside had not disclosed which customer countries it referred to.
 - The International Climate Action Tracker rated Japan's commitments as insufficient and China's as highly insufficient and neither country's NDCs were consistent with global temperature goals or corresponding carbon budgets. This demonstrated that Woodside's assessment of climate impacts and justifications for its proposed operations based on carbon budgets and NDCs was inconsistent.
- **(19)** Global average temperature goals did not account for impacts on Australian environment.
 - The carbon budgets referenced by Woodside were associated with the achievement of global temperature goals based on average temperature rises across the globe. Within average temperature rise, significant variation could occur. In some regions such as Northern Australia, the impacts of further temperature rise was likely to be more severe. MNES in the Kimberley region was likely to be severely impacted by future climate change.
 - Given these impacts, a global average of 1.5 degrees warming could not be relied on as the appropriate measure for acceptability.
 - Budgets must be selected that are consistent with the sustainability of Australia's environment and heritage values and not simply global temperature goals.
- **(20)** Woodside's claims regarding the consistency of its proposed operations with global temperature goals could not be relied on because they were based on carbon budget scenarios that were misapplied or applied in inappropriate or misleading ways; not presently realistic; provided insufficient certainty for global temperature outcomes; were not the relevant measures when considering impact on Australia's environment; and were inconsistent with Woodside's other claims.
- **(21)** Repeated a statement from Woodside regarding the ability for Scarborough gas to lower GHG emissions elsewhere in the global energy market and stated it was misleading.
- **(22)** Recent updates to global energy scenarios included dramatic reductions in the amount of gas compatible with global temperature goals. EK included a figure.
- **(23)** IEA's Net Zero scenarios differed from the forecasts presented by Woodside in the draft EP. EK included a figure.
- **(24)** There was already more than enough LNG capacity to meet the levels of demand that corresponded with the NZE scenario. EK included a figure.
- **(25)** The various scenarios showed Woodside's argument regarding the role of gas in supporting decarbonisation was wrong and misleading.
- **(26)** Failure to adequately consider other gas supply developments.
 - Woodside had not provided detailed analysis of current and planned LNG production or supply that supported the claim that Woodside's proposed operations were necessary.
 - Woodside had not addressed significant increases in global LNG production planned in other countries.
- **(27)** Failure to justify global gas use scenarios and use of unrealistic scenarios for global gas use.
 - Woodside has not stated which scenario and what global levels of gas use it believed its proposed operations were consistent with.
 - Global energy scenarios that show increased use of gas were generally associated with a more rapid phase out of coal and / or a much greater reliance on CDR currently planned, achievable or realistic.
 - No evidence that Woodside would take actions to bring about the conditions which would be required to support higher levels of gas use.

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- The use of unrealistic theoretical scenarios was a fundamental data gap.
- **(28)** Woodside relied on customer country NDCs as evidence for the transition fuel hypothesis however its current customer country NDCs were not aligned with global temperature goals.
- **(29)** Woodside had failed to account for the final destination or end use of LNG produced from its operations.
- **(30)** Woodside has provided no evidence that the use of LNG in customer countries would not compete with low emissions alternatives such as renewable energy and zero carbon fuels such as hydrogen.
- **(31)** Woodside failed to account for the significant volumes of LNG currently being on-sold by Asian importers, with the climate commitment of many countries in Asia rated as 'highly insufficient' according to the Climate Action Tracker, including Singapore and India.
- **(32)** New research suggested LNG produced higher overall lifecycle emissions than coal.
- **(33)** The US Department of Energy (DoE) had released a report on implications of US LNG exports and the study contradicted many of Woodside's claims regarding LNG displacing coal, and LNG growth being consistent with global temperature goals.
- **(34)** Woodside's de minimis conclusion regarding the contribution of Scarborough gas to global GHG concentrations was not supported by evidence, and was incorrect by comparison to national decarbonisation goals under the Paris Agreement.
- **(35)** The total aggregate abatement commitments of many countries under current NDC's to 2030 were comparable to the total emissions from Woodside's proposed Scarborough Operations.
- **(36)** Woodside's claim that emissions added to the atmosphere by the Scarborough Operations was insignificant was the same as claiming the aggregate abatement efforts of many large economies was insignificant.
- **(37)** Woodside must disclose the global levels of LNG use and demand consistent with the proposed operations, and the temperature outcomes that would be consistent with this demand.
- **(38)** The Federal SGM only controlled direct or scope 1 carbon pollution from industrial facilities and could not be relied up on to control and abate the majority of carbon pollution.
- **(39)** The extent to which facilities involved in the proposed operations would be required to reduce direct emissions had not been disclosed by Woodside.
- **(40)** It was not possible to determine what abatement would be required or achieved under the SGM for facilities involved in the operations and the SGM and Australia's national emissions reduction targets were not consistent with global temperature goals.
- **(11)** EK had previously submitted evidence that Woodside's corporate climate policies and proposed abatement measures did not meet many of the key criteria established under the international standards for net zero. It was unclear if Woodside considered the international standards for net zero should not apply to its proposed operations, or if Woodside believed the mitigation measures it has proposed met the requirements.
- **(41)** The Regulations required that Woodside employ all reasonable and practicable measures to reduce GHG emissions and that those emissions were reduced to acceptable levels, including considering consultation responses from relevant persons, and the application of international standards for net zero were relevant and appropriate benchmarks.
- **(42)** Woodside has not proposed enforceable measures, commitments or undertakings that reflect its claims regarding carbon pollution and associated climate impacts. EK does not consider it acceptable that Woodside makes claims about the consistency of its operations with global emissions and temperature goals, but made no enforceable undertakings which reflect these claims.

- **(43)** EK did not accept that these matters were beyond Woodside's operational control and Woodside could impose decarbonisation stipulations as conditions of sale or withhold sale to customers where it was not contributing to verifiable emissions reductions. It was also within the operational control of Woodside to reduce or cease production of LNG if global temperature limits were in danger of being reached
- **(44)** It was in the operational control of LNG producers to undertake greater Scope 3 mitigation measures than Woodside had proposed.
- **(45)** The EPBC Act Indirect consequences policy provided that an indirect consequence was relevant for assessment if the action is a substantial cause of the event or circumstance. Climate change impacts were a reasonably foreseeable consequence of secondary action arising from a primary action.
- **(46)** It was not adequate to say that otherwise unacceptable impacts should be allowed to occur because they are not within the operational control of Woodside.
- **(47)** EK suggested control measures that could be adopted consisted with Woodside's claims regarding GHG emissions and mitigation measures.
- On 22 January 2025, Woodside responded to EK's letter (SI Report, reference 58.5). Woodside:
 - **(1)** Confirmed that, as part of its process for identifying relevant persons, Woodside maintained its position that EK was not a relevant person for this EP. Regardless, Woodside had reviewed and assessed EK's feedback, claims and objections about the adverse impacts of the activities to which the EP related and responded to EK the same way it responded to relevant persons. Woodside set out some reasons for its assessment of EK as not a relevant person for this EP, including that the EMBA for the activity did not include the Kimberley region. In addition, climate change impacts were associated with net global atmospheric GHG concentrations and having functions, interests or activities affected by climate change was not considered an appropriate factor for inclusion as a relevant person. Woodside confirmed the concept of the EMBA was set out in the Regulations, and confirmed the EP assessed direct and indirect impacts, including providing examples of potential indirect environmental impacts and risks. Woodside confirmed it had consulted broadly for the EP, and referenced Woodside's previous responses to EK on this topic on 8 October 2024.
 - **(2)** Disagreed with EK's assertions for reasons set out in subsequent responses. Woodside confirmed it had given relevant persons sufficient information and noted that EK did not mention the benefit that gas and LNG provided including energy security, grid stability, economic growth, and other socio-economic benefits.
 - **(14)** Does not agree with EK's logic or calculations. Woodside referred to the Paris Agreement goal and that 1150 GTCO₂ was the more appropriate number to use in calculations. Additionally, extrapolating from the past few years and projecting forward assumed no action to address climate change between 2025-2030. Woodside confirmed Scarborough operations were expected to begin in 2025. The Global Carbon Budget for 2 degrees warming was likely to still exceed 1000 GT of which Scarborough's yearly contribution would be de minimis. Woodside further noted there may be a point in time where the Global Carbon Budget neared zero, however attributing this result specifically to the Scarborough project was not reasonable.
 - **(15)** Confirmed it had extracted excerpts from the Global Carbon Budget numbers and had not made assumptions or edits of its own. Woodside provided a link to the Global Carbon Budget website. Woodside also noted how countries' climate pledges would be achieved was beyond the scope of Woodside or this EP.
 - **(16)** Confirmed it used the Global Carbon Budget which was a widely used global budget and an authoritative source, that Scarborough operations were subject to the SGM, and Woodside had corporate Scope 3 targets which were consistent with the 5-year timeframe of the EP. Woodside also advised the duration of the Scarborough Operations EP covered the next five years and would be revised prior to 2050.
 - **(17)** Woodside does not agree with EK's assertions and referred EK to its response on Woodside's position on the Global Carbon Budget. Woodside confirmed it had included context in the EP around the Australian Carbon Budget which noted that based on Australia's GHG emission reduction commitments and NDC, the Australian carbon budget of 4,377 MtCO₂-e for the years 2021-2030 had been estimated. Emissions associated with Scarborough represented a de minimis contribution to either Australia's GHG emissions or global GHG emissions.
 - **(18)** Woodside referred EK to Section 6.7.6 of the EP for further context around Woodside's statements. Woodside advised it had included excerpts from NDCs for Japan, South Korea and China in this section. Woodside noted the International Climate Action Tracker was a collaboration between two not-for-profit organisations and was not considered an

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authoritative source of information. Woodside confirmed the EP provided context around the conclusion that GHG emissions associated with the project were ALARP and acceptable; for example, that gas had a role in NDC decarbonisation plans as it may offset higher carbon intensity fuels.

- (19) Directed EK to Section 6.7.6 of the EP for context around Woodside's statement. Woodside noted the Paris Agreement included objectives to hold the increase in global average temperature to well below 2 degrees and pursue 1.5 degrees. The agreement was recognised by a large number of countries globally and Woodside considered these objectives to be the appropriate measure of acceptability.
- (20) Confirmed it had used a widely applied Global Carbon Budget and referenced an Australian budget. The fact Scarborough GHG emissions were a small portion of the budgets was not inconsistent with other justifications, but was a complimentary reason why GHG emissions were acceptable.
- (21) Advised there were a number of reasons, including that the role of gas in firming and enabling renewables may have a negative or neutral impact, and if gas displaced coal, it was not partially offsetting a small proportion, it could lead to a net negative amount of GHG emissions in the overall energy system.
- (22) Noted that the image supplied by EK might contradict EK's statement as four of the five scenarios shown by EK had an increase in gas consumption.
- (23) Noted the forecasts shown in the figure were similar to what was included in the EP.
- (24) Noted the Scarborough LNG facility was currently under construction and so was likely included in the IEA graph presented by EK, rather than being additional. (44)
- (25) Advised it had not attempted to demonstrate that utilising LNG created the lowest possible GHG emissions scenario. However, in numerous scenarios, gas played a role in offsetting coal or firming and enabling renewable energy.
- (26) Advised Scarborough gas contained almost no reservoir CO₂ and would be processed through a modern, efficient facility. For net global GHG emissions it may be better that the Scarborough project goes ahead over other international projects that were higher carbon intensity. Woodside also referred generally to the principles of supply and demand.
- (27) Confirmed it had presented scenarios and data from IEA and IPCC and had not picked individual scenarios. Woodside noted EK's comments regarding the rapid phase-out of coal and noted projects like Scarborough could aid in the phase-out of coal and help reduce GHG emissions. Woodside advised it was supplying gas to support customers, a number of whom have stated they are phasing out coal-powered power plants.
- (28) Disagreed with the assertion from EK and advised Japan and South Korea had both committed to net zero by 2050. China had committed to 2060 and as the largest user of coal globally, presented an opportunity for displacement of coal with natural gas.
- (29) Disagreed with the assertion from EK and confirmed its customers included some of Japan's largest electricity generators, including JERA and Kansai Electric. Additionally, gas that was used as an industrial feedstock may have replaced coal in the past and removing gas supply could lead to reintroduction of coal.
- (30) Noted gas played an important role in stabilising grids and could act as an enabler of renewable electricity buildout. Woodside further noted the cheapest form of electricity – solar power – could not provide 24-hour power. Some key markets also had limited land for renewable energy development and large energy demands.
- (31) Referred EK to its previous response regarding the Climate Action Tracker, and noted if EK's examples of onselling were correct, they were likely net negative for GHG emissions.
- (32) Advised the EP now included comment on the research referenced by EK, and included evidence for why the findings were not relevant to Scarborough or Australian products, and provided examples.
- (33) Noted a number of projects that were authorised may not get built or become operational. Construction of the Scarborough project was under way and was expected to supply gas to the market ahead of the mentioned US projects. Woodside further noted there had been recent publications questioning the validity of the report by the DoE, and provided a link to one such example.

- (34) Disagreed with the assertion from EK and noted the context around the de-minimis statement, Paris agreement, and carbon budgets was provided in Woodside's 8 October 2024 correspondence to EK. Woodside noted that EK and Woodside have different positions and views on climate change, the role of gas, and on Woodside's role, therefore there was unlikely to be consensus on these matters. EK had also not demonstrated how the carbon budget calculations were incorrect.
- (35) Advised that comparing abatement commitment numbers to 2030 with GHG emissions over proposed Scarborough operations was not a valid comparison, and confirmed the EP set out that five years of operations and GHG emissions from Scarborough in Australia was approximately 38 MtCO₂-e with the DCCEEW suggesting an Australian carbon budget of 4,377 MtCO₂-e, resulting in approximately 0.9%.
- (36) Confirmed this was only one consideration for why the project was acceptable and that through gas displacing coal or enabling renewables, it may have a positive impact to global GHG emissions. Woodside noted EK and Woodside's differing views and referred to its previous responses on carbon budgets.
- (37) Confirmed it did not pick individual scenarios to align to and took guidance from IPCC/ IEA scenarios on the role gas could play globally.
- (38) Advised the Safeguard Mechanism was the Australian Government's policy for reducing emissions at Australia's largest industrial facilities, and the EP included information and controls consistent with the SGM.
- (39) Confirmed the EP set out relevant context and noted that Woodside would comply with requirements of the NGER Act and SGM as it pertained to facility definitions, baseline emissions intensity factors, and eligibility criteria for TEBA.
- (40) Disagreed with EK's assertions and noted the context around SGM was set out in the EP.
- (11) Confirmed that, as previously advised to EK, Woodside was aware of the UN High Level Expert Group on Net Zero Integrity Matters and the ISO Net Zero Guidelines as well as a range of other forums, public dialogues and reports regarding purported greenwashing. Woodside recently participated in the Australian Senate Inquiry into Greenwashing. As per Woodside's statement at the Inquiry, Woodside takes care with its statements, especially in relation to climate change, so that these statements are factual and accurate.
- (41) Advised Acceptable levels of impact for the project were assessed in the OPP, and the risks assessed in the EP were consistent with the Acceptable levels set out in the EP. A number of measures to reduce GHG emissions had been considered and either implemented or deemed not reasonable or practicable. Woodside referred to the consultation provisions in the Regulations and confirmed it had assessed the merits of relevant persons' feedback, claims and objections. While EK has not been assessed as relevant, Woodside has still reviewed, assessed and responded to EK's feedback as if EK were a relevant person.
- (42) Disagreed with EK's assertions and confirmed the EP contained a number of EPOs and control measures that referenced displacement of higher intensity energy sources, monitoring of the natural gas value chain, and effectiveness of Scope 3 targets.
- (43) Noted that EK's proposals were unrealistic or not practical. They were inconsistent with supply agreements currently in place and would require governments or other bodies to create regimes to support these. Woodside referred to its response regarding a control for verification of the potential for gas to displace more carbon intensive energy sources, and as to continuing supply of LNG and renewables, noted demand and supply principles generally.
- (44) Confirmed Scope 3 targets were included in annual disclosures on Woodside's website.
- (45) Confirmed the regulations enacted by Parliament that governed the content of the EP also governed consultation for EPs. The EP and consultation undertaken in preparing the EP comply with those regulations and in particular referenced direct and indirect impacts. Climate change impacts cannot be attributed to any one activity as they are instead the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution started.
- (46) Noted it was important to understand EK and Woodside had different positions and views on climate change, the role of gas in transition, and on Woodside's role. The EP complied with the Regulations and included control measures to reduce GHG emissions to ALARP and Acceptable.

- (47) Noted EK's suggestions and its request for specific responses, and advised the context around Woodside's EPOs and controls was set out in the EP. Updates to EPOs had also been set out in earlier responses. Woodside further noted:
 - Given EK and Woodside's differing views, there was unlikely to be consensus on the matter.
 - It did not agree the summarised versions of Woodside material was always accurate.
 - A number of EPOs, EPS and control measures that EK focussed on had already been approved in the OPP.
 - The comments from EK were not claims or objections about the adverse impact to which the EP relates, and specific responses were not required.
 - Many of EK's proposed enforceable measures and enforceable undertakings were unrealistic and not practical.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
<p>(1) Environs Kimberley considers that Woodside should consult it as a relevant person.</p>	<p>(1) Woodside assessment: Woodside has considered Environs Kimberley's self-identification as part of Woodside's relevancy assessment process and concluded that Environs Kimberley's functions, interests or activities are not affected by the proposed activities. Woodside response: Woodside considered Environs Kimberley's self-identification as part of its assessment of relevant person process and concluded that Environs Kimberley's functions, interests or activities are not affected by the proposed activities.</p>	<p>(1) Woodside's assessment of Environs Kimberley's relevancy is described in Appendix F, Table 1.</p>
<p>(2) Climate change impacts fall under the scope of indirect consequences which must be assessed according to the Environment Regulations and NOPSEMA's guidelines. Woodside's assessment of the climate impacts was insufficient.</p>	<p>(2) Woodside assessment: Woodside has assessed potential climate change impacts in the EP. Woodside response: Woodside has assessed climate change impacts in the EP. Specific information relating to Environs Kimberley's feedback on this topic is provided in subsequent responses.</p>	<p>(2) GHG emissions associated with the activity are assessed in Section 6.7.6 of the EP.</p>
<p>(3) Woodside should consult with communities across the Kimberley.</p>	<p>(3) Woodside assessment: Woodside consults relevant persons in accordance with its methodology and regulation 25 of the Environment Regulations. Kimberley communities are not relevant for this EP as the EMBA does not include the Kimberley region.</p>	<p>(3) Methodology for identifying relevant persons is described in Section 5.3 and included in Table 1 of Appendix F.</p>

	Woodside response: Woodside consults relevant persons as per its relevancy assessment methodology. The EMBA for this activity does not include the Kimberley region or the Kimberley coastline.	
(4) Requested additional information and time for consultation and stated the Consultation Information Sheet was not sufficient for making an informed decision.	(4) Woodside assessment: Although Environs Kimberley is not a relevant person, Woodside considers it has provided sufficient information and a reasonable period to Environs Kimberley outside of regulatory requirements. Woodside response: Woodside advised that Environs Kimberley was not a relevant person for this EP, however, as a courtesy, Woodside had provided Environs Kimberley with additional information in response to its feedback.	(4) Not required.
(5) Assessment of the climate change impacts of the Scarborough project on the Kimberley environment.	(5) Woodside assessment: Woodside acknowledges that climate change is impacting Australian receptors, and that climate science understands climate change to be caused by the net cumulative concentration of GHG in the atmosphere. Changes to the GHG concentrations cannot be attributed to any one activity or project, including the Scarborough project. Woodside's view is that LNG can have a role in the energy transition and the full volume of GHG emissions associated with the project are not expected to be additive to global GHG concentrations. Therefore, Woodside does not accept that the Scarborough project will contribute to the exacerbation of climate change impacts in Western Australia. Woodside response: Woodside noted that climate science suggested that human-caused climate change was a consequence of net GHG emissions that had accumulated in the atmosphere since the start of the industrial revolution. Woodside advised a contextual evaluation of climate change impacts had been included in the EP and, by way of summary, provided a list of projections for Australia. Woodside further noted the EMBA was determined by worst-case credible hydrocarbon spill scenarios, not the global impacts of climate change, and the EMBA for this EP did not include the Kimberley region or Kimberley coastline.	(5) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i> .
(6) Assessment of the climate change impacts of the Scarborough project on communities impacted by climate change in the Kimberley.	(6) Woodside assessment: Woodside consults relevant persons whose functions, interests or activities may be affected by the activities to be carried out under the EP. Since climate science suggests that climate change impacts are associated with net global atmospheric GHG concentrations, being affected by climate change is not	(6) The EMBA for this activity is defined in Section 4.1 of the EP. A contextual evaluation of climate change impacts is provided in Section 6.7.6.

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	<p>considered an appropriate test for inclusion as a relevant person. Based on the EMBA, Kimberley communities are not relevant to this EP.</p> <p>Woodside response: Woodside advised that since climate change impacts were associated with net global atmospheric GHG concentrations, and not with the activity described in the EP, being affected by climate change was not considered an appropriate test for inclusion as a relevant person. Woodside advised it did not consider that impacts to communities could be attributed to GHG emissions associated with the project, and in any case, the Kimberley region was outside the EMBA for this EP.</p>	
<p>(7) Independent estimates of greenhouse gas emissions, including Scope 3 emissions from the Scarborough project.</p>	<p>(7) Woodside assessment: Woodside does not agree with Environs Kimberley's position on independent assessment. Woodside has assessed GHG emissions, including Scope 3 emissions, in the EP.</p> <p>Woodside response: Woodside confirmed it applied estimation techniques aligned with the National Greenhouse and Energy Reporting Determination and emissions were subject to the Federal SGM. Woodside noted a breakdown of emissions was included in the EP but the total estimated lifecycle GHG emissions associated with the project were approximately 880 MtCO₂-e.</p>	<p>(7) GHG emissions associated with the activity are assessed in Section 6.7.6 of the EP</p>
<p>(8) Independent assessment of the compatibility of the project with internationally agreed temperature and decarbonisation goals, including 1.5 degrees and the phase down of fossil fuels.</p>	<p>(8) Woodside assessment: Woodside does not agree with Environs Kimberley's position regarding independent verification. Woodside employs internal specialists who stay abreast of developments in the evolving science of climate change and support assessment of projects against climate frameworks. In the latest version of the EP, a hypothetical assumption where GHG emissions associated with the Scarborough project are treated as additive is considered. This scenario is not expected to eventuate.</p> <p>Woodside response: Woodside acknowledged that climate science understood climate change to be caused by the net cumulative global concentration of GHG in the atmosphere and could not be attributed to any one project or activity including the Scarborough Project. However, to facilitate a comparison against carbon budgets, Woodside confirmed it had used a hypothetical assumption in the EP where GHG emissions associated with the project were hypothetically treated as additive, and the contribution was de minimis. Woodside noted emissions fit within Australia's NDC and would comply with the Federal SGM.</p>	<p>(8) Climate-related scenarios are presented in Section 6.7.6.</p>

<p>(9) Independent analysis of mitigation options and commitments.</p>	<p>(9) Woodside assessment: Woodside acknowledges the legislative regime which requires emissions associated with the Scarborough Project to be minimised and managed to ALARP and Acceptable levels but does not agree with Environs Kimberley's assertion that this should be done independently. Woodside response: Woodside advised that Environs Kimberley did not require technical evaluations, studies or access to the Pluto Decarbonisation Plan to assess the possible consequences of the activity on its functions, interests or activities. Emissions abatement opportunities and features implemented were included in the EP, including whether they were required under regulatory frameworks or voluntary. Woodside also noted contractual or binding agreements between Woodside and third parties would not be shared, and avoiding and reducing GHG emissions were Woodside's priorities, however offsetting emissions allowed Woodside to reduce net emissions while asset and technology decarbonisation plans were matured and implemented. Woodside also provided details on its carbon business and confirmed it would report domestic GHG emissions as required under NGRS.</p>	<p>(9) Routine and non-routine atmospheric and GHG emissions associated with the activities, and options analysis of reduction/abatement measures (in the form of ALARP demonstration) are assessed in 6.7.6 and 6.7.7 of the EP</p>
<p>(10) Independent modelling to support Woodside's claims of gas from the Scarborough project displacing other more carbon intensive energy sources.</p>	<p>(10) Woodside assessment: Woodside does not agree with Environs Kimberley's position on independent modelling. Woodside has used a hypothetical assumption in the EP where GHG emissions associated with the project are hypothetically treated as additive. This scenario is not expected to eventuate. Woodside response: Woodside confirmed its view was that LNG could have a role in the energy transition and in displacing higher carbon intensity fuels and lowering carbon intensity of existing energy mixes. However, to facilitate a comparison against carbon budgets, Woodside advised it had used a hypothetical assumption in the EP where GHG emissions associated with the project were hypothetically treated as additive. The acceptability assessment of the activity did not rely on displacement of higher carbon fuels.</p>	<p>(10) Comparisons against carbon budgets are set out in EP Section 6.7.6, <i>Gas's Role in the Energy System</i>.</p>
<p>(11) Independent assessment of how the Scarborough project and associated mitigation efforts meets the requirements of the UN High Level Expert Group on Net Zero emissions for non-state entities, and the ISO Net Zero Guidelines.</p>	<p>(11) Woodside assessment: Woodside does not agree with Environs Kimberley's position. Woodside takes care with its statements, especially in relation to climate change, to ensure statements are accurate and not misleading. Woodside response: Woodside confirmed it was aware of a range of forums, public dialogues and reports regarding greenwashing. Woodside advised it had</p>	<p>(11) Not required.</p>

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	<p>recently participated in the Australian Senate Inquiry into greenwashing and as per its statement at the Inquiry, took care so that statements were accurate and not misleading. Woodside further noted its corporate emissions reduction targets were included in the EP. The Scarborough Project was not required to deliver an immediate absolute reduction in emissions from current levels, nor was it required to support global or local phase out of fossil fuels, thus neither was proposed in the EP. Woodside noted it had incorporated methane-specific GHG abatement measures, and its advocacy aimed to support the goals of the Paris Agreement.</p>	
<p>(12) Evidence of how the requirements of the approved Scarborough OPP relating to mitigation and avoidance of direct and indirect greenhouse gas emissions from the project will be achieved.</p>	<p>(12) Woodside assessment: The Operations EP demonstrates how OPP requirements are implemented for the specific activity. Woodside response: Woodside confirmed the Scarborough OPP was approved by NOPSEMA in 2020. EPOs for the EP were mapped against those from the OPP in Table 6-2 of the EP. Woodside noted it would not share contractual detail of third-party emissions reduction measures due to confidentiality obligations, but that regulatory and other measures to manage GHG emissions were described in Section 6.7.6 of the EP.</p>	<p>(12) A comparison of EPOs between the OPP and the EP is provided in the EP Section 6.3.</p>
<p>(13) Other documents, including documents relied upon by Woodside, and draft Operations EP.</p>	<p>(13) Woodside assessment: There is no requirement to make studies and internal documents publicly available. Woodside response: Woodside advised it was not reasonable for Woodside to provide studies, information or other material, as this was not needed for Environs Kimberley to make an informed assessment of the possible consequences of the activity. Further, as Woodside already noted, it did not consider Environs Kimberley a relevant person for this activity.</p>	<p>(13) Not required.</p>
<p>(14) Claims Woodside's carbon budget calculations were misleading.</p>	<p>(14) Woodside assessment: Woodside does not agree with EK's logic or calculations. Woodside response: Woodside referred to the goals of the Paris Agreement and set out more appropriate calculations regarding the Scarborough project. Woodside noted there may be a point in time where the global carbon budget neared zero however attributing this result specifically to the Scarborough project was not reasonable.</p>	<p>(14) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.</p>
<p>(15)</p>	<p>(15)</p>	<p>(15)</p>

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<p>Assumptions implicit in carbon budgets and volume of carbon drawdown not disclosed.</p>	<p>Woodside assessment: Woodside has not made assumptions or edits of its own in respect to the Global Carbon Budget numbers.</p> <p>Woodside response: Woodside confirmed it had extracted excerpts from the Global Carbon Budget and referred EK to the Global Carbon Budget website for further information.</p>	<p>Not required.</p>
<p>(16) Carbon budget timescales not appropriate.</p>	<p>(16) Woodside assessment: Woodside disagrees its carbon budget calculations are misleading. Woodside uses the Global Carbon Budget which is a widely used global budget and an authoritative source.</p> <p>Woodside response: Woodside confirmed it used a widely used, authoritative global budget. Woodside noted Scarborough operations were subject to the SGM, and Woodside had corporate Scope 3 targets which were consistent with the timeframe of the EP.</p>	<p>(16) Not required.</p>
<p>(17) Carbon budgets provided insufficient certainty of achieving stated temperature outcomes.</p>	<p>(17) Woodside assessment: Woodside does not agree with EK's assertions. Woodside has included text in the EP regarding global and Australian carbon budgets and emissions from the Scarborough project represent a de minimis contribution to either Australia's GHG emissions or global GHG emissions.</p> <p>Woodside response: In addition to information provided to EK regarding global carbon budget comparisons, Woodside provided context on an Australian Carbon Budget, and advised that net emissions associated with Scarborough in Australia were set to be lower than the figures noted, with ongoing abatement via implementation of the NGERs Safeguard Mechanism.</p>	<p>(17) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.</p>
<p>(18) Carbon budgets were inconsistent with other assessment approaches, including that Woodside has not disclosed which customer countries it refers to.</p>	<p>(18) Woodside assessment: Woodside disagrees with EK's assertions. Context regarding EK's statements is provided in the EP, including excerpts from NDCs for Japan, South Korea and China. Further, the International Climate Action Tracker referenced by EK is not considered an authoritative source of information.</p> <p>Woodside response: Woodside confirmed further context, including excerpts from NDCs and information around the conclusion that GHG emissions associated with the project were ALARP and acceptable, was included in the EP. Regarding the International Climate Action Tracker, Woodside noted more authoritative sources</p>	<p>(18) Context regarding customer countries' NDCs is set out in Section 6.7.6 of the EP. Context regarding ALARP and acceptable conclusions is also set out in Section 6 of the EP.</p>

	had devised pathways for countries to meet their climate targets, many of which included gas as a transition fuel.	
(19) Global average temperature goals did not account for impacts on Australian environment.	(19) Woodside assessment: Woodside has provided context around EK's statement in Section 6.7.6 of the EP. Woodside considers objectives from the Paris Agreement to be the appropriate measure of acceptability. Woodside response: Woodside noted the Paris Agreement was recognised by a large number of countries globally and its objectives were an appropriate measure of acceptability.	(19) A contextual evaluation of climate change impacts is set out in EP Section 6.7.6, <i>Climate Change – Global and Australian Context</i> .
(20) Woodside's claims regarding the consistency of its proposed operations with global temperature goals could not be relied on.	(20) Woodside assessment: Woodside disagrees with EK's assertions. Woodside has used a widely applied Global Carbon Budget and has referenced an Australian Carbon Budget, with Scarborough emissions representing a de minimis contribution to both. Woodside response: Woodside noted the fact Scarborough GHG emissions were a small portion of the budgets was not inconsistent with other justifications.	(20) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.
(21) Claims Woodside's statement regarding the displacement of higher polluting fuels was misleading.	(21) Woodside assessment: Woodside does not agree with EK's assertions. There are a number of ways gas can have a negative or neutral impact on GHG emissions. Woodside response: Woodside provided examples of the role of gas in firming and enabling renewables, and displacing coal.	(21) Gas's role in the energy system is set out in Section 6.7.6 of the EP.
(22) Recent updates to global energy scenarios included dramatic reductions in the amount of gas compatible with global temperature goals.	(22) Woodside assessment: Woodside considers that the image provided by EK contradicts EK's statement, as 4 of the 5 scenarios include an increase in gas consumption. Woodside response: Woodside noted the increase in gas in the scenarios depicted in the figure supplied by EK and in addition noted some gas fields were reaching plateau or decline, therefore new investments such as Scarborough were required to maintain present production volumes.	(22) Not required.
(23) IEA's Net Zero scenarios differed from the forecasts presented by Woodside in the draft EP.	(23) Woodside assessment: Woodside disagrees with EK's assertions as the forecasts shown are similar to what is included in the EP.	(23) Climate-related scenarios are presented in Section 6.7.6 of the EP.

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	Woodside response: Woodside confirmed its graph used IEA data showing the NZE scenario but also included scenarios that included a larger role for gas, and showed the 2 degree scenario ranges.	
(24) There was already more than enough LNG capacity to meet the levels of demand that corresponded with the NZE scenario.	(24) Woodside assessment: Woodside notes the graph provided by EK likely already includes the Scarborough project. Woodside response: Woodside advised the Scarborough LNG facility was already under construction and therefore was likely included in the graph, rather than being additional.	(24) Not required.
(25) The various scenarios showed Woodside's argument regarding the role of gas in supporting decarbonisation was wrong and misleading.	(25) Woodside assessment: Woodside has not attempted to demonstrate that utilising LNG creates the lowest possible GHG emissions scenarios, however, in numerous scenarios gas plays a role in the energy transition. Woodside response: Woodside confirmed that in numerous scenarios, gas played a role in offsetting coal, or firming or enabling renewables.	(25) Not required.
(26) Failure to adequately consider other gas supply developments.	(26) Woodside assessment: Woodside considers that, for net global greenhouse gas emissions and global impact to climate change, it may be better that Scarborough project goes ahead over other international projects that have higher emissions intensity. Woodside response: Woodside confirmed Scarborough gas contained almost no reservoir CO2 and would be processed through a modern, efficient facility, making it one of the lowest carbon intensity sources of LNG delivered into modern markets.	(26) Not required.
(27) Failure to justify global gas use scenarios and use of unrealistic scenarios for global gas use.	(27) Woodside assessment: Woodside does not cherry pick scenarios and has presented a range of scenarios and data from IEA and IPCC in the EP. Woodside response: Woodside confirmed it had shown a range of scenarios in the EP as well as supplying quotes from customer country NDCs. Woodside noted projects like Scarborough could aid in the phase-out of coal, with a number of customer countries phasing out coal-powered power plants. Woodside noted further context was available in Section 6.7.6 of the EP.	(27) Climate-related scenarios are presented in Section 6.7.6 of the EP.
(28)	(28)	(28)

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<p>Woodside relied on customer country NDCs as evidence for the transition fuel hypothesis however its current customer country NDCs were not aligned with global temperature goals.</p>	<p>Woodside assessment: Woodside disagrees with EK's assertion. Japan and South Korea have committed to net zero by 2050 and China by 2060.</p> <p>Woodside response: Woodside noted that in addition to Japan and South Korea's alignment, China, as the largest user of coal globally, presented an opportunity for displacement of coal with natural gas to reduce GHG emissions.</p>	<p>Customer markets' NDCs are discussed in Section 6.7.6 of the EP.</p>
<p>(29) Woodside had failed to account for the final destination or end use of LNG produced from its operations.</p>	<p>(29) Woodside assessment: Woodside disagrees with EK's assertion. Woodside's customers include some of Japan's largest electricity generators including JERA and Kansai Electric.</p> <p>Woodside response: Woodside confirmed its customers included some of Japan's largest electricity generators and noted that gas that was used as an industrial feedstock may have replaced coal in the past, and removing gas supply could lead to the reintroduction of coal.</p>	<p>(29) Gas's role in the energy system is set out in Section 6.7.6 of the EP.</p>
<p>(30) Woodside has provided no evidence that the use of LNG in customer countries would not compete with low emissions alternatives.</p>	<p>(30) Woodside assessment: Gas plays an important role in stabilising grids that have a high percentage of intermittent renewable electricity, it can act as an enabler of more renewable electricity buildout.</p> <p>Woodside response: Woodside noted the role gas played in firming and enabling renewables, and advised that some of the key markets Woodside sold LNG to had limited land for renewable energy development. Woodside referred generally to supply and demand principles.</p>	<p>(30) Gas's role in the energy system is set out in Section 6.7.6 of the EP.</p>
<p>(31) Woodside failed to account for the significant volumes of LNG currently being on-sold by Asian importers, with the climate commitment of many countries in Asia are rated as 'highly insufficient' according to the Climate Action Tracker, including Singapore and India.</p>	<p>(31) Woodside assessment: Woodside does not consider the Climate Action Tracker to be an authoritative source.</p> <p>Woodside response: Woodside noted that even if EK's examples were correct, they were likely still net negative given Singapore produced the majority of its electricity through petroleum products, and India through coal.</p>	<p>(31) Not required.</p>
<p>(32) New research suggested LNG produced higher overall lifecycle emissions than coal.</p>	<p>(32) Woodside assessment: Woodside has provided evidence in the EP for why the findings of the referenced report are not relevant to Scarborough or Australia.</p>	<p>(32) Comments regarding the referenced report are set out in Section 6.7.6 of the EP under the subheading <i>Gas's Role in the Energy System</i>.</p>

	Woodside response: Woodside advised the EP now included comment on the research referenced by EK, and provided examples of why the findings were not relevant to Scarborough.	
(33) DoE report on implications of US LNG exports.	(33) Woodside assessment: Construction of the Scarborough project is underway and is expected to be supplying gas to the market ahead of the mentioned US projects. Woodside response: Woodside noted a number of projects that were authorised may not get built or become operational, and that recent publications had questioned the validity of the DoE report.	(33) Not required.
(34) Woodside's de minimis conclusion regarding the contribution of Scarborough gas to global GHG concentrations was not supported by evidence, and was incorrect by comparison to national decarbonisation goals under the Paris Agreement.	(34) Woodside assessment: Woodside disagrees with EK's assertions and notes EK has not demonstrated how the calculations are incorrect. Woodside understands EK and Woodside have different positions and views on climate change, the role of gas, and Woodside's role, which mean a consensus on such matters is unlikely. Woodside response: Woodside directed EK to its previous correspondence for further context on these topics.	(34) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.
(35) The total aggregate abatement commitments of many countries under current NDC's to 2030 were comparable to the total emissions from Woodside's proposed Scarborough Operations.	(35) Woodside assessment: Woodside does not agree with EK's assertions, logic or calculations. Comparing abatement commitment numbers to 2030 with GHG emissions over proposed Scarborough operations is not a valid comparison. Woodside response: Woodside noted the EP now included that 5 years of operations and GHG emissions from Scarborough in Australia was approximately 38 MtCO ₂ -e with the DCCEEW suggesting an Australian carbon budget of 4,377 MtCO ₂ -e, resulting in approximately 0.9%.	(35) Comparisons against an Australian Carbon Budget are set out in Section 6.7.6 of the EP.
(36) Woodside's claim that emissions added to the atmosphere by the Scarborough Operations was insignificant was the same as claiming the aggregate abatement efforts of many large economies was insignificant.	(36) Woodside assessment: Context for these topics is provided in Section 6.7.6 of the EP and in prior responses to EK. Woodside notes the differing positions and views of EK and Woodside on this topic. Woodside response: Woodside referred EK to previous responses for context on these topics. Woodside further noted this was only one consideration for why the project was acceptable.	(36) Comparisons against carbon budgets are set out in Section 6.7.6 of the EP.
(37)	(37)	(37)

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<p>Woodside must disclose the global levels of LNG use and demand that are consistent with the proposed operations, and the temperature outcomes that would be consistent with this level of demand.</p>	<p>Woodside assessment: Context for this topic is set out in Section 6.7.6 of the EP and in prior responses to EK. Woodside does not pick individual scenarios to align to.</p> <p>Woodside response: Woodside confirmed it took guidance from IPCC/ IEA scenarios on the role gas could play globally</p>	<p>Not required.</p>
<p>(38) The Federal SGM only controlled direct or scope 1 carbon pollution from industrial facilities.</p>	<p>(38) Woodside assessment: The Safeguard Mechanism is the Australian Government's policy for reducing emissions at Australia's largest industrial facilities.</p> <p>Woodside response: Woodside confirmed the SGM was an Australian Government policy and that the EP included information and controls consistent with the SGM.</p>	<p>(38) Information about the SGM is set out in Section 6.7.6 of the EP.</p>
<p>(39) The extent to which facilities involved in the proposed operations would be required to reduce direct emissions had not been disclosed by Woodside.</p>	<p>(39) Woodside assessment: Woodside disagrees that it has not disclosed relevant information. The EP sets out relevant context.</p> <p>Woodside response: Woodside confirmed it would comply with requirements of the NGER Act and SGM as it pertained to facility definitions, baseline emissions intensity factors, and eligibility criteria for TEBA</p>	<p>(39) Information about the SGM is set out in Section 6.7.6 of the EP.</p>
<p>(40) It was not possible to determine what abatement would be required or achieved under the SGM for facilities involved in the operations and the SGM and Australia's national emissions reduction targets were not consistent with global temperature goals.</p>	<p>(40) Woodside assessment: Woodside disagrees with EK's assertions and notes the different positions and views held by EK and Woodside on this topic.</p> <p>Woodside response: Woodside noted the context around SGM was set out in the EP.</p>	<p>(40) Information about the SGM is set out in Section 6.7.6 of the EP.</p>
<p>(41) The Regulations required that Woodside employ all reasonable and practicable measures to reduce GHG emissions and that those emissions were reduced to acceptable levels.</p>	<p>(41) Woodside assessment: Acceptable levels of impact were assessed in the OPP and are consistent in the EP. Woodside has assessed the merits of relevant persons' objections and claims and considered relevant persons' input in the development of the EP. While EK has not been assessed as relevant for this EP, Woodside has still reviewed, assessed and responded to EK's feedback.</p> <p>Woodside response: Woodside advised Acceptable levels of impact for the project were assessed in the OPP, and the risks assessed in the EP were consistent with the Acceptable levels set out in the EP,</p>	<p>(41) Demonstration of Acceptability is set out in Section 2.3.6 of the EP.</p>

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<p>(42) Woodside has not proposed enforceable measures, commitments or undertakings that reflect, or are consistent with its claims regarding carbon pollution and associated climate impacts.</p>	<p>(42) Woodside assessment: Woodside disagrees with EK's assertions. The EP contains a number of relevant EPOs and control measures. Woodside response: Woodside confirmed the EP contained EPOs and control measures that referenced displacement of higher intensity energy sources, monitoring of the natural gas value chain, and effectiveness of Scope 3 targets.</p>	<p>(42) Environmental Performance Outcomes, Standards and Measurement Criteria are set out in Section 6.3.</p>
<p>(43) EK did not accept that these matters were beyond Woodside's operational control. It was also within the operational control of Woodside to reduce or cease production of LNG if global temperature limits were in danger of being reached.</p>	<p>(43) Woodside assessment: EK's proposals are not realistic or practical. They are inconsistent with supply agreements currently in place and would require governments or other bodies to create supporting regimes. Woodside response: Woodside referred to its response regarding a control for verification of the potential for gas to displace more carbon intensive energy sources, and as to continuing supply of LNG and renewables, noted demand and supply principles generally.</p>	<p>(43) Not required.</p>
<p>(44) It was in the operational control of LNG producers to undertake greater Scope 3 mitigation measures than Woodside had proposed</p>	<p>(44) Woodside assessment: EK's proposals are not realistic or practical. Woodside response: Woodside confirmed it include its Scope 3 targets in its annual disclosures and on its website.</p>	<p>(44) Not required.</p>
<p>(45) The EPBC Act Indirect consequences policy provided that an indirect consequence was relevant for assessment if the action is a substantial cause of the event or circumstance. Climate change impacts were a reasonably foreseeable consequence of secondary action arising from a primary action.</p>	<p>(44) Woodside assessment: Climate change impacts cannot be attributed to any one activity as they are instead the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution started. Woodside response: Woodside confirmed regulations enacted by Parliament that governed the content of the EP also governed consultation for EPs. The EP and consultation undertaken in preparing the EP comply with those regulations and in particular referenced direct and indirect impacts.</p>	<p>(44) Not required.</p>
<p>(46) It was not adequate to say that otherwise unacceptable impacts should be allowed to occur because they are not within the operational control of Woodside.</p>	<p>(44) Woodside assessment: Woodside notes the differing positions and views of EK and Woodside on this topic and that as a result, a consensus is unlikely to be reached.</p>	<p>(44) Not required.</p>

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	Woodside response: Woodside confirmed the EP complied with the Regulations and included control measures to reduce GHG emissions to ALARP and Acceptable.	
(47) EK suggested control measures that could be adopted consistent with Woodside's claims regarding GHG emissions and mitigation measures	(44) Woodside assessment: Many of EK's proposed enforceable measures and enforceable undertakings are unrealistic and not practical. Woodside response: Woodside advised EK's proposals were inconsistent with supply agreements currently in place, would require governments or other bodies to create regimes to support these and those regimes do not exist. Woodside referred EK to relevant sections of the EP, and existing relevant EPOs and control measures.	(44) Not required.
Woodside has addressed objections and claims as noted above.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Environs Kimberley is not a relevant person under regulation 25 of the Environment Regulations, Woodside has in any event given Environs Kimberley sufficient information and a reasonable period outside of regulatory requirements for Environs Kimberley to provide feedback during the consultation process.		

Research Institutes and Local Conservation Groups or Organisations

Western Australian Marine Science Institution (WAMSI)

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 11 August 2023, Woodside emailed WAMSI advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.7).

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Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While WAMSI is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for WAMSI to provide feedback during the consultation process.		

Murdoch University

Summary of information provided and record of consultation for this EP:		
<ul style="list-style-type: none"> On 11 August 2023, Woodside emailed Murdoch University advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.7). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While Murdoch University is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Murdoch University to provide feedback during the consultation process.		

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Edith Cowan University (ECU)

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 11 August 2023, Woodside emailed ECU advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 30 August 2023, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 2.7). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
<p>Summary Report – Consultation Complete</p>		
<p>While ECU is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for ECU to provide feedback during the consultation process.</p>		

Australian Institute of Marine Science (AIMS)

<p>Summary of information provided and record of consultation for this EP:</p> <ul style="list-style-type: none"> On 11 August 2023, Woodside emailed AIMS advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. (1) On 21 August 2023, AIMS emailed Woodside and confirmed it would not be conducting any work in the vicinity where the activities for this EP are taking place (SI Report, reference 13.1). (1) On 5 September 2023, Woodside responded noting and thanking AIMS for its response (SI Report, reference 13.2). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) AIMS confirmed there were no overlaps with planned AIMS science activities in the area.	(1) Woodside assessment: Woodside reviewed AIMS's update that it would not be conducting any work in the vicinity of the EPs activities.	(1) Not required.

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	Woodside response: Woodside noted AIMS's confirmation that there were no overlaps with planned AIMS science activities in the area.	
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.2.7.2 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete		
While AIMS is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for AIMS to provide feedback during the consultation process.		

RECORD OF CONSULTATION

1	GENERAL CONSULTATION	636
1.1	Consultation Information Sheet sent to all relevant persons – August 2023	636
1.2	Summary Consultation Information Sheet – August 2023	649
1.3	Email sent to Australian Border Force (ABF), Department of Transport (DoT), Pilbara Ports Authority, Ningaloo Coast World Heritage Advisory Committee (NCWHAC), Department of Biodiversity, Conservation and Attractions (DBCA), Department of Industry, Science and Resources (DISR), Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), Recfishwest, Marine Tourism WA, WA Game Fishing Association, Chevron Australia, Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, INPEX Alpha Ltd, Carnarvon Energy Ltd, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, Jadestone, KATO Energy, Finder Energy, KUFPEC, Santos, Coastal Oil and Gas, Bounty Oil and Gas, Vermilion Oil and Gas, OMV Australia, JX Nippon, Australian Petroleum Production and Exploration Association (APPEA), 350 Australia (350A), Australasian Centre for Corporate Responsibility (ACCR), Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Doctors for the Environment Australia (DEA), Extinction Rebellion WA (XRWA), Friends of Australian Rock Art (FARA), Greenpeace Australia Pacific (GAP), International Fund for Animal Welfare (IFAW), Lock the Gate Alliance (LGA), Market Forces, Say No To Scarborough Gas (SNTSG), Sea Shepherd Australia (SSA), The Wilderness Society (TWS), World Wildlife Fund (WWF), University of Western Australia (UWA), Cape Conservation Group, Protect Ningaloo, Shire of Exmouth, City of Karratha, Shire of Ashburton – 9 August 2023	652
1.4	Email sent to Department of Biodiversity, Conservation and Attractions (DBCA) – Shark Bay and Shire of Shark Bay – 31 October 2023.....	655
1.5	Email sent to Karratha Recreational Marine Users, Exmouth Recreational Marine Users – 9 August 2023	657
1.6	Letter sent to Gascoyne Recreational Marine Users, Pilbara/Kimberley Recreational Marine Users – 9 August 2023.....	661
1.7	Email sent to Australian Fisheries Management Authority (AFMA), Department of Primary Industries and Regional Development (DPIRD), North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery, Western Tuna and Billfish Fishery, Commonwealth Fisheries Association (CFA), Tuna Australia, Onslow Prawn Managed Fishery, Exmouth Gulf Prawn Managed Fishery, Demersal Scalefish Fishery: Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery by Woodside – 9 August 2023.....	664
1.8	Letter sent to Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Nickol Bay Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Gascoyne Demersal Scalefish Fishery by Woodside – 9 August 2023.....	667
1.9	Email sent to Western Australian Fishing Industry Council (WAFIC) – 9 August 2023	671
1.10	Email sent to Australian Hydrographic Office (AHO), Australian Maritime Safety Authority (AMSA) – Marine Safety, Australian Maritime Safety Authority (AMSA) – Marine Pollution – 9 August 2023	674

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1.11	Email sent to Australian Hydrographic Office (AHO), Australian Maritime Safety Authority (AMSA) – Marine Safety, Australian Maritime Safety Authority (AMSA) – Marine Pollution – 9 August 2023	677
1.12	Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries and Biosecurity – 9 August 2023.....	677
1.13	Email sent to Department of Defence (DoD) – 9 August 2023	681
1.14	Email sent to Western Australian Museum, Department of Planning, Lands and Heritage – DPLH) – 9 August 2023.....	685
1.15	Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEE) – Underwater Heritage & Petroleum and Fisheries – 9 August 2023.....	688
1.16	Email sent to Director of National Parks (DNP) – 9 August 2023	692
1.17	Email sent Karratha Community Liaison Group (KCLG), Exmouth Community Liaison Group and Exmouth Chamber of Commerce and Industry (CCI) – 10 August 2023)	696
1.18	Email sent to Western Australian Marine Science Institution (WAMSI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Institute of Marine Science (AIMS), Edith Cowan University, Murdoch University, and Curtin University – 11 August 2023	699
1.19	Email sent to Carnarvon Chamber of Commerce and Industry, Shire of Carnarvon, Port Hedland Chamber of Commerce, Town of Port Hedland, Karratha & Districts Chamber of Commerce and Industry – 16 August 2023	701
1.20	Email sent to Onslow Chamber of Commerce and Industry – 31 August 2023 ...	704
1.21	Email sent to [Individual 4], [Individual 3] and Save Our Songlines – 3 September 2023	707
1.22	Email sent to Shire of Shark Bay – 31 October 2023	708
1.23	Email sent to Shark Bay Recreational Marine Users, RAC Monkey Mia Dolphin Resort, Dirk Hartog Island, Shark Bay Community Resource Centre, [Individual 1] MLA, Shark Bay Aviation, Shark Bay Coastal Tours, Naturetime Tours, Wula Gula Nyinda Eco Cultural Tours – 31 October 2023	710
1.24	Email sent to Australian Communications and Media Authority (ACMA) – 7 December 2023	712
1.25	Email sent to Wanparta Aboriginal Corporation – 28 August 2023.....	715
1.26	Email sent to Kariyarra Aboriginal Corporation – 29 August 2023.....	716
1.27	Email sent to Murujuga Aboriginal Corporation (MAC) – 1 September 2023.....	717
1.28	Email sent to Ngarluma Aboriginal Corporation (NAC) – 1 September 2023.....	718
1.29	Email sent to Wirrawandi Aboriginal Corporation (WAC) – 28 August 2023.....	719
1.30	Email sent to Yinggarda Aboriginal Corporation – 1 September 2023.....	720
1.31	Email sent to Yindjibarndi Aboriginal Corporation (YAC) – 28 August 2023.....	721
1.32	Email sent to Buurabalayji Thalanyji Aboriginal Corporation (BTAC) – 1 September 2023	722
1.33	Email sent to Robe River Kuruma Aboriginal Corporation (RRKAC) – 29 August 2023	723
1.34	Email sent to Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) via Yamatji Marlpa Aboriginal Corporation (YMAC) – 1 September 2023	724
1.35	Email sent to Malgana Aboriginal Corporation – 1 September 2023	725
1.36	Email sent to Yamatiji Marlpa Aboriginal Corporation (YMAC) – 29 August 2023	726

1.37	Email sent to Ngarluma and Yindjibarndi Foundation Ltd (NYFL) – 29 August 2023 727	
1.38	Email sent to Clean Energy Regulator – 11 September 2024	728
1.39	Email sent to Vocus – 12 September 2024	731
1.40	Email sent to Telstra – 4 November 2024	734
2	FOLLOW-UP CONSULTATION	738
2.1	Email sent to Australian Border Force (ABF), Pilbara Ports Authority, Ningaloo Coast World Heritage Advisory Committee (NCWHAC), Department of Biodiversity, Conservation and Attractions (DBCA), Department of Industry, Science and Resources (DISR), Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), Marine Tourism WA, WA Game Fishing Association, Chevron Australia, Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, INPEX Alpha Ltd, Carnarvon Energy Ltd, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, Jadestone, KATO Energy, Finder Energy, KUFPEC, Santos, Coastal Oil and Gas, Bounty Oil and Gas, Vermilion Oil and Gas, OMV Australia, JX Nippon, Australian Petroleum Production and Exploration Association (APPEA), Australasian Centre for Corporate Responsibility (ACCR), Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Doctors for the Environment Australia (DEA), Extinction Rebellion WA (XRWA), Friends of Australian Rock Art (FARA), Greenpeace Australia Pacific (GAP), International Fund for Animal Welfare (IFAW), Lock the Gate Alliance (LGA), Say No To Scarborough Gas (SNTSG), Sea Shepherd Australia (SSA), The Wilderness Society (TWS), World Wildlife Fund (WWF), University of Western Australia (UWA), Cape Conservation Group, Protect Ningaloo, Karratha Recreational Marine Users, Exmouth Recreational Marine Users, Shire of Exmouth, City of Karratha, Shire of Carnarvon, Karratha Community Liaison Group, Exmouth Community Liaison Group, Exmouth Chamber of Commerce and Industry (CCI), Australian Fisheries Management Authority (AFMA), North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery, Commonwealth Fisheries Association (CFA), Onslow Prawn Managed Fishery, Exmouth Gulf Prawn Managed Fishery, Demersal Scalefish Fishery: Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery – 30 August 2023 738	
2.2	Email sent to Australian Maritime Safety Authority (AMSA) – Marine Safety, Australian Maritime Safety Authority (AMSA) – Marine Pollution – 30 August 2023	739
2.3	Email sent to Department of Defence (DoD). Included the Defence Map – 30 August 2023.....	739
2.4	Email sent to Department of Planning, Lands and Heritage (DPLH). Included the WA Historical Shipwrecks List – 30 August 2023	739
2.5	Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) – Underwater Heritage & Petroleum and Fisheries (DAFF – Fisheries). Included the Australia National Shipwreck List – 30 August 2023	740
2.6	Email sent to Director of National Parks (DNP) – 30 August 2023)	740
2.7	Email sent to Western Australian Marine Science Institution (WAMSI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Edith Cowan University (ECU), Murdoch University, and Curtin University – 30 August 2023.....	741
2.8	Email sent to Carnarvon Chamber of Commerce and Industry, Port Hedland Chamber of Commerce, Town of Port Hedland, Karratha & Districts Chamber of Commerce and Industry – 30 August 2023	741
2.9	Letter sent to Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Nickol Bay Prawn Managed Fishery, Western	

Australian Sea Cucumber Fishery, Gascoyne Demersal Scalefish Fishery by Woodside – 31 August 2023.....	742
2.10 Email sent to Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Onslow Prawn Managed Fishery, Nickol Bay Prawn Managed Fishery, Western Australia Sea Cucumber Fishery Demersal Scale Fish Fishery: Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery by Western Australian Fishing Industry Council (WAFIC) – 11 September 2023	745
2.11 Email sent to Demersal Fish Fishery: Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery by Western Australian Fishing Industry Council (WAFIC) – 23 September 2023	748
2.12 Letter sent to Gascoyne Recreational Marine Users, Pilbara/Kimberley Recreational Marine Users – 31 August 2023.....	750
2.13 Email sent to Australian Marine Conservation Society – 16 November 2023	753
2.14 Email sent to [Individual 4], [Individual 3] and Save Our Songlines & and cc: Environmental Defenders Office (EDO) – 22 November 2023	754
2.15 Email sent to Director of National Parks (DNP) – 23 November 2023	754
2.16 Email sent to Say No to Scarborough Gas (SNTSG) with letter attached – 5 December 2023	756
2.17 Email sent to Doctors for the Environment Australia (DEA) with letter attached – 5 December 2023	761
2.18 Email sent to Lock The Gate Alliance (LGA) with letter attached – 5 December 2023	764
2.19 Email sent to The Wilderness Society (TWS) with letter attached – 5 December 2023	767
2.20 Email sent to The Australian Conservation Foundation (ACF) with letter attached – 5 December 2023	771
2.21 Email sent to Friends of Australian Rock Art (FARA) with letter attached – 5 December 2023	776
2.22 Email sent to Shire of Shark Bay, Shark Bay Recreational Marine Users, Department of Biodiversity, Conservation and Attractions – Shark Bay, RAC Monkey Mia Dolphin Resort, Dirk Hartog Island, Shark Bay Community Resource Centre, [Individual 1] MLA, Shark Bay Aviation, Shark Bay Coastal Tours, Naturetime Tours, Wula Gula Nyinda Eco Cultural Tours – 15 December 2023	781
3 COMMUNITY CONSULTATION.....	782
3.1 Community Newsletters	782
3.2 Newspaper Advertising of the proposed activity.....	819
3.3 Social Media EP Targeted Campaign	829
3.4 Social Media Generic EP Campaign	830
3.5 Are you a Relevant Person Social Media Campaign	835
3.6 Scarborough Energy Project – Integrated Information Campaign.....	837
3.7 Community Engagement.....	838
3.8 Ngaarda Radio Advertising	909
4 HISTORICAL – SCARBOROUGH OFFSHORE PROJECT PROPOSAL CONSULTATION REPORT	911

END NOTES 918

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 635 of 919

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1 GENERAL CONSULTATION

1.1 Consultation Information Sheet sent to all relevant persons – August 2023



CONSULTATION INFORMATION SHEET

August 2023

CONSULTATION

SCARBOROUGH OFFSHORE FACILITY AND TRUNKLINE OPERATIONS ENVIRONMENT PLAN

CARNARVON BASIN, NORTH-WEST AUSTRALIA

Woodside Energy Limited (Woodside) consults relevant persons in the course of preparing an environment plan (EP) to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse effects of the proposed activity on the environment. This is the intended outcome of consultation.

Woodside's aim is to ensure the activity is carried out in a manner that is consistent with the principles of ecologically sustainable development (ESD), by which the environmental impacts and risks of the activity are reduced to as low as reasonably practicable (ALARP) and of an acceptable level. Woodside want relevant persons whose functions, interests or activities that may be affected by the proposed activity to have the opportunity to identify themselves and provide feedback on our proposed activity, in accordance with the intended outcome of consultation.

Overview

Woodside plans to submit the Scarborough Offshore Facility and Trunkline Operations EP in Commonwealth waters, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth) (regulations). The EP will cover Floating Production Unit (FPU) installation (hook-up), commissioning, start-up and operations and other support activities, including gravimetry surveys, and inspection, maintenance, monitoring and repair (IMMR) activities for the FPU, subsea infrastructure and the gas export trunkline.

Proposed Activity Overview

Woodside plans to install the FPU and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough project within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning. The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU, and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Future decommissioning of infrastructure will be subject to separate future EPs.

Vessels

A range of vessels may be used during the FPU installation, hook-up and commissioning phase including tow, support and anchor handling tugs, light construction vessels, survey vessels, supply/support vessels and contingent accommodation support vessel.

During normal operations, vessels will typically be limited to supply/support vessels and IMMR vessels. The vessel size and type will be dependent on the work scope. Vessels are not planned to anchor/moor on the seabed. It is anticipated vessels will operate 24 hours per day for the duration of activities.

Location and Operations

The FPU and associated subsea production infrastructure will be installed in Commonwealth waters within Production Licenses WA-61-L and WA-62-L, in water depths ranging from ~900 to 1000 m and around 374 km west-northwest of Dampier, Western Australia.

Gas from the FPU will be exported through the ~440 km trunkline to the Pluto LNG Plant in Dampier, Western Australia for further processing.

Communication with mariners

The location of the Scarborough FPU will be marked on nautical charts and will be surrounded by a fixed 500 m radius petroleum safety zone (PSZ). A temporary exclusion zone will also be in place around installation vessels during activities, to manage vessel movements. These distances will be communicated through marine notices and are typically 500m. Other marine users are permitted to use the area but should take care when entering the relevant Operational Area (provided in Table 1) and remain clear of any exclusion zone(s) in effect.

Assessment

Woodside has undertaken an assessment of the potential impacts and risks to the environment as well as to relevant persons arising from the planned activities as well as unplanned events. This assessment considers timing, duration and location of activities. A number of mitigation and management measures will be implemented and are summarised in Table 3. Further details will be provided in the EP, which is being developed to manage proposed activities.

In preparing the EP, our intent is to minimise environmental and social or cultural impacts associated with the proposed activities, and Woodside are seeking any interest or comments you may have to inform our decision making.

Joint Venture

Woodside is the Titleholder for this activity, on behalf of a Joint Venture comprising both Woodside Energy Scarborough Pty Ltd and Woodside Energy (Australia) Pty Ltd.

¹ Scarborough Offshore Facility and Trunkline (Operations) Environment Plan | August 2023

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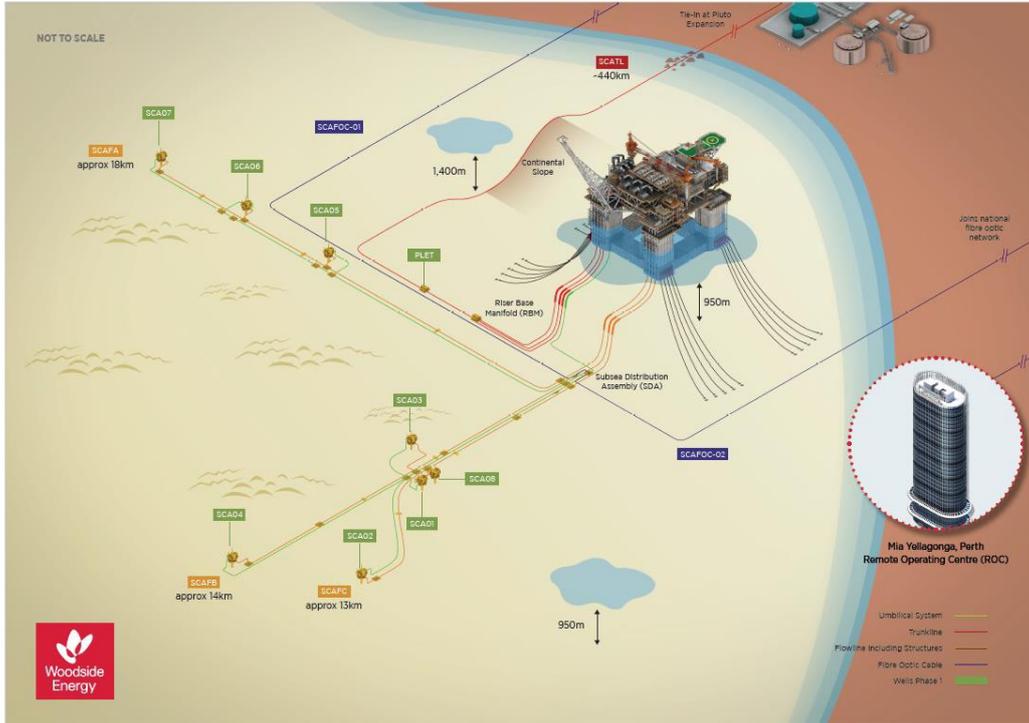


Figure 1. Indicative Scarborough field infrastructure layout

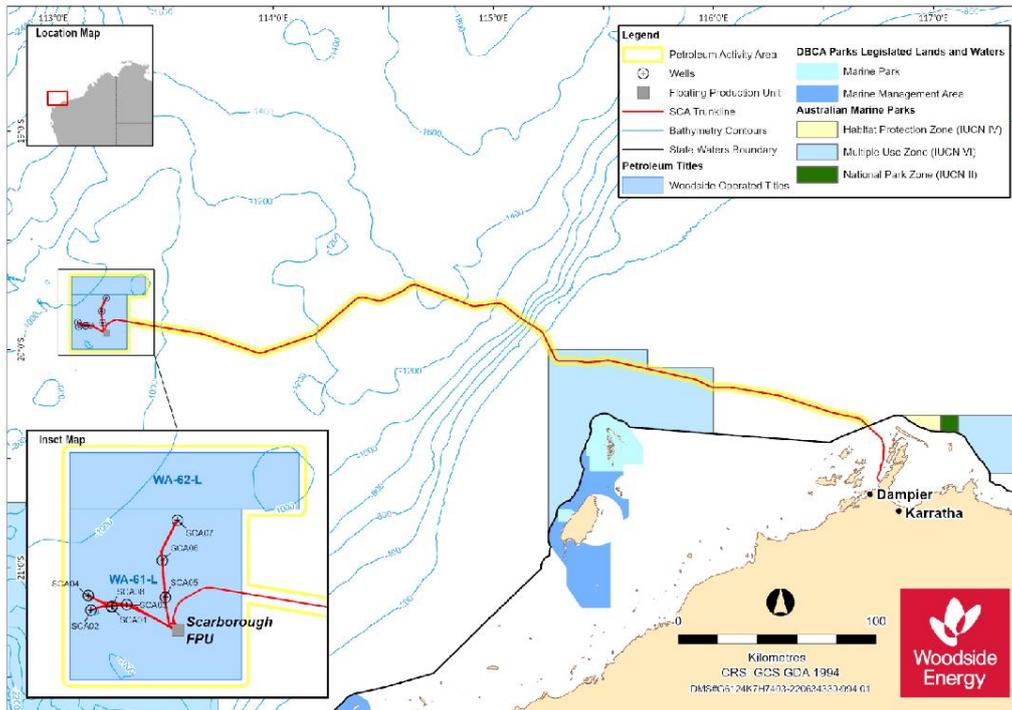


Figure 2. Petroleum Activities Area

Table 1. Activity summary

Scarborough Offshore Facility and Trunkline (Operations) Environment Plan	
Facility type	Floating Production Unit (FPU) and Gas Export Trunkline
Production License Areas	WA-61-L and WA-62-L
Pipeline License	WA-32-PL
Approximate water depth	<ul style="list-style-type: none"> • FPU: ~950 m • Production Licenses: ~900 m to 1000 m • Trunkline: ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Commencement date	The Petroleum Activities Program includes a number of temporary activities (hook-up, commissioning and start-up), followed by ongoing production of the Scarborough field (operations). The earliest commencement date (subject to approval) is estimated to be the second half of 2025.
Approximate estimated duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)
Operational Areas and Exclusion zones	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> • Facility: 2000 m around future location of the FPU • Subsea: 1500 m from the centerline of subsea infrastructure • Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> • 1500 m radius from the centerline of the gas export trunkline (WA-32-PL) <p>Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. Temporary 500 m exclusion zone around vessels to manage vessel movements.</p>
Distance to nearest town from FPU	<ul style="list-style-type: none"> • ~ 244 km north-northwest of Exmouth • ~ 374 km west-northwest of Dampier
Distance to nearest marine park/nature reserve from FPU	<ul style="list-style-type: none"> • ~ 77 km north of the Gascoyne Marine Park (Cwlth) • ~ 201 km north-west of Montebello Marine Park (Cwlth) • ~ 180 km north-northwest of Ningaloo Marine Park (Cwlth)

Environment That May Be Affected (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision. This is depicted in Figure 3.

The EMBA does not represent the extent of the predicted impact of the highly unlikely marine diesel release. Rather, the EMBA represents the merged area of many possible paths a highly unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release.

This means in the highly unlikely event a hydrocarbon release does occur, the whole EMBA will not be affected at one time - the specific and minimal part of the EMBA that is affected will only be known at the time of the release.

The three hydrocarbon spill modelling sites are representative of the range of locations where a vessel collision could occur in the Petroleum Activities Area and are summarised below. The EMBA has been defined using a combination of all three locations:

- **Outside Mermaid Sound (Location 1):** Near the State Waters Boundary, this site represents the closest location to shore IMMR activities may occur under this EP.
- **Montebello Marine Park Multiple Use Zone (Location 2):** This location was chosen to represent around half-way along the trunkline length where IMMR activities may occur under this EP.
- **Scarborough Field (Location 3):** This location is representative of a spill in the deep-water open-ocean environment in Production License WA-61-L, where the FPU is planned to be installed and activities at the most western end of the Petroleum Activities Area.

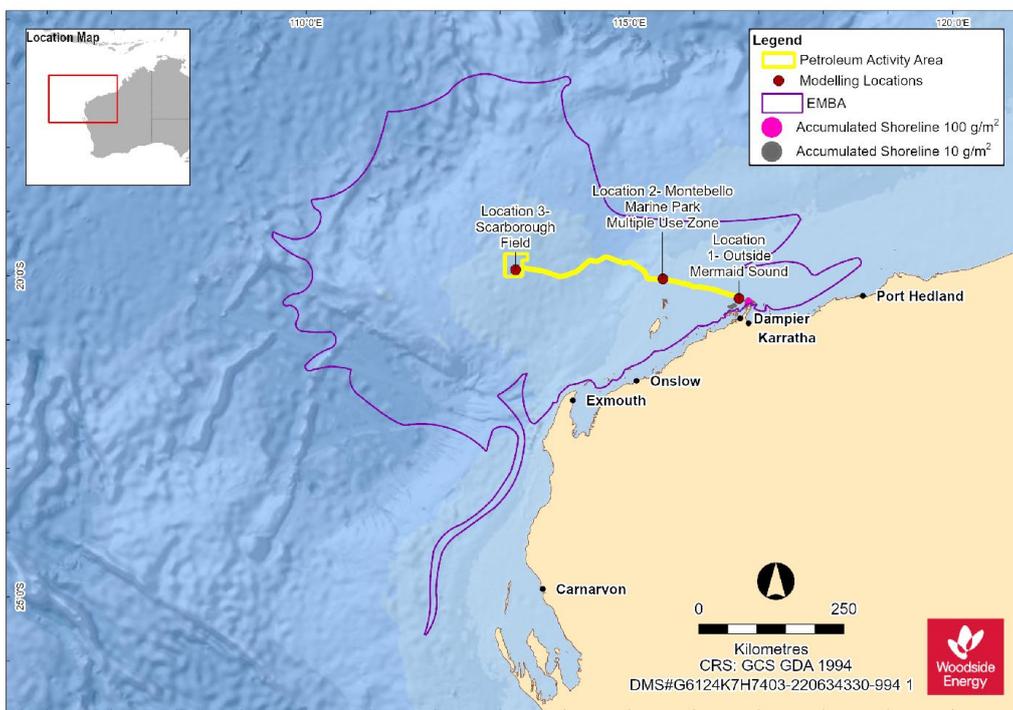


Figure 3. Environment that May Be Affected (EMBA) by a diesel release from an accident/incident during the EP Petroleum Activities Program.

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Table 2. Summary of proposed locations. Note: all subsea infrastructure is being installed under construction EPs.

Structure	Approximate Water depth ¹	Approximate Latitude ²	Approximate Longitude	Petroleum Titles
Facility				
Scarborough FPU	953	19° 55' 33.731" S	113° 14' 29.752" E	WA-61-L
Gas Export Trunkline (Proposed location to be installed under Scarborough Seabed Intervention and Trunkline Installation EP)				
PLET ³	941	19° 54' 39.844" S	113° 14' 02.837" E	WA-61-L
Trunkline at State Waters Boundary	33	20° 21' 01.892" S	116° 42' 09.699" E	-
Subsea Infrastructure (Proposed Location to be installed under WA-61-L AND WA-62-L Subsea Infrastructure Installation EP)				
Gas Export Riser Base (GERB)	941	19° 54' 41.065" S	113° 14' 03.987" E	WA-61-L
PLET	941	19° 54' 39.844" S	113° 14' 02.837" E	WA-61-L
Flowline A (start)	912	19° 45' 51.806" S	113° 14' 29.149" E	WA-61-L
Flowline A (end)	946	19° 55' 09.556" S	113° 13' 47.502" E	WA-61-L
Flowline B (start)	916	19° 52' 30.765" S	113° 06' 43.534" E	WA-61-L
Flowline B (end)	948	19° 55' 16.142" S	113° 13' 50.783" E	WA-61-L
Flowline C (start)	914	19° 53' 48.035" S	113° 06' 57.617" E	WA-61-L
Flowline C (end)	948	19° 55' 18.360" S	113° 13' 49.354" E	WA-61-L
Northern end of mooring array	943	19° 54' 39.812" S	113° 14' 31.321" E	WA-61-L
Southern end of mooring array	961	19° 56' 33.071" S	113° 14' 28.052" E	WA-61-L
Eastern end of mooring array	956	19° 55' 34.784" S	113° 15' 32.751" E	WA-61-L
Western end of mooring array	949	19° 55' 32.800" S	113° 13' 32.795" E	WA-61-L
NW outer concrete pad	969	19° 39' 56.013" S	113° 05' 04.841" E	WA-62-L
NE outer concrete pad	928	19° 40' 04.739" S	113° 24' 59.771" E	WA-62-L
SW outer concrete pad	966	19° 59' 04.746" S	113° 05' 34.065" E	WA-61-L
SE outer concrete pad	955	19° 59' 07.213" S	113° 18' 57.265" E	WA-61-L
Wells (Proposed location to be installed under Scarborough Drilling and Completions EP)				
Well 1 (Sca0H)	911	19° 53' 30.302" S	113° 08' 44.064" E	WA-61-L
Well 2 (Sca0A)	913	19° 53' 47.995" S	113° 06' 54.730" E	WA-61-L
Well 3 (Sca0F)	913	19° 53' 18.864" S	113° 10' 02.008" E	WA-61-L
Well 4 (Sca0E)	920	19° 52' 30.982" S	113° 06' 40.810" E	WA-61-L
Well 5 (Sca0G)	919	19° 52' 40.303" S	113° 13' 25.192" E	WA-61-L
Well 6 (Sca0C)	903	19° 49' 26.807" S	113° 13' 08.840" E	WA-61-L
Well 7 (Sca0D)	908	19° 45' 53.390" S	113° 14' 27.127" E	WA-61-L
Well 8 (Sca0B)	911	19° 53' 27.828" S	113° 08' 44.357" E	WA-61-L

¹ Approximate mean surface level
² Datum: GDA94 MGA50
³ Pipeline End Termination

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Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts/Risks	Proposed Mitigation and/or Management Measure ¹
Routine and Non-routine Discharges: Project Vessels	<ul style="list-style-type: none"> Discharge of sewage, grey water and putrescible waste from vessels to the marine environment. Discharge of deck, bilge and drain water from vessels to the marine environment. Discharge of brine and cooling water from vessels to the marine environment. 	<ul style="list-style-type: none"> Impacts to water quality from planned discharges above a slight or negligible level are not expected because of the minor quantities involved, the expected localised mixing zone and high level of dilution into the open water marine environment of the Operational Area. Similarly, although some marine fauna may transit the Operational Area, the potential for impact remains slight or lower (negligible) due to the localised nature of discharges and rapid dilution. 	<ul style="list-style-type: none"> Marine discharges will be managed according to regulatory requirements (e.g., Marine Orders / MARPOL).
Routine and Non-routine Discharges: FPU Operations (Wastewater streams)	<ul style="list-style-type: none"> Discharge of sewage, grey water and putrescible waste from FPU to the marine environment. Discharge of deck, bilge and drain water from FPU to the marine environment. 	<ul style="list-style-type: none"> Localised and slight decrease in water and sediment quality with no lasting effect around discharge locations within Offshore Operational Area. Negligible impact potential for plankton, epifauna and infauna indirectly from decreased water quality. Localised and short-term impact potential to fish, marine mammals and marine reptiles from discharges in the Offshore Operational Area. Impacts from discharges on KEFs in the Offshore Operational Area are expected to the slight with no lasting effects. 	<ul style="list-style-type: none"> Marine discharges will be managed according to regulatory requirements. FPU design includes a range of measures that specifically aid in containment of non-routine and routine discharges for example deck drainage collected to a drainage system for separation and collection of hydrocarbons for safe, contained disposal onshore.
Routine and Non-Routine Discharges: FPU and Subsea Commissioning	<ul style="list-style-type: none"> Routine and non-routine discharges of commissioning fluids during installation of the FPU and commissioning activities. 	<ul style="list-style-type: none"> The discharges are expected to result in slight or lower (negligible) impacts including a temporary decline in water quality and sediment quality around the discharge locations with no accumulation and no lasting effect predicted. Negligible impact to plankton, epifauna and infauna indirectly from decreased water quality. Localised and short-term impacts to fish, marine mammals and marine reptiles through from discharges in the Offshore Operational Area. Impacts from discharges on KEFs in the Offshore Operational Area are expected to the slight with no lasting effects. 	<ul style="list-style-type: none"> Marine discharges will be managed according to regulatory requirements. Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process. Commissioning procedures implemented.
Routine and Non-Routine Discharges: FPU Operation (Commingled Produced water/cooling water stream)	<ul style="list-style-type: none"> Discharge of produced water, cooling water and brine during routine and non-routine operations. 	<ul style="list-style-type: none"> Localised and slight decrease in water and sediment quality with no lasting effect around discharge locations within Offshore Operational Area. Negligible impact of injury/mortality to plankton, epifauna and infauna indirectly from decreased water quality. Localised and short-term impacts to fish, marine mammals and marine reptiles through injury or behavioural changes from discharges in the Offshore Operational Area. Impacts from discharges on KEFs in the Offshore Operational Area are expected to the slight. 	<ul style="list-style-type: none"> Marine discharges will be managed according to regulatory requirements. Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process. Implement adaptive monitoring and management for applicable FPU discharges.

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Mitigation and management measures

Woodside has undertaken an assessment to identify potential impacts and risks to the environment arising from the Scarborough FPU installation (hook-up), commissioning, start-up and operations activity, including gravimetry surveys, IMMR activities and other contingent activities. A number of mitigation and management measures for the activity are outlined in **Table 3**. Further details will be provided in the EP.

Impact areas are split into the Offshore Operational Area (nominally the FPU and subsea infrastructure location(s) in WA-61-L / WA-62-L) and the Trunkline Operational Area (1500m either side, from the centerline of the gas export trunkline WA-32-PL)

Table 3. Summary of key risks and/or impacts and preliminary management measures for the Activity*

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts/Risks	Proposed Mitigation and/or Management Measure ¹
Planned Activities (Routine and Non-routine)			
Physical Presence: Interaction with Other Marine Users, Cultural Values & Heritage.	<ul style="list-style-type: none"> The presence of FPU, trunkline and other subsea infrastructure has the potential to exclude and/or displace other users from Petroleum Safety Zone (PSZ) and routine/IMMR activities within the PAA respectively. A range of vessels will be required to complete the hook-up and commissioning activities, prior to start-up and operations. The physical presence and movement of vessels within the PAA has the potential to displace other marine users. Helicopters will be used to transport personnel, which will occur on a regular basis. Physical presence of project vessels and activities may have potential to impact cultural values and heritage. 	<ul style="list-style-type: none"> The Offshore Operational Area is not an area of high commercial fishing activity. Commercial fishing vessels will have a localised exclusion from a 500 m Petroleum safety zone (PSZ) around the FPU and temporary exclusion zones associated with vessel operations. The Offshore Operational Area does not overlap with Australian Maritime Safety Authority (AMSA) fairways and therefore impacts to commercial shipping vessels are not expected. In the Trunkline Operational Area impact to commercial shipping is limited to the temporary presence of IMMR vessels. Tourism and recreation within the Offshore Operational Area are expected to be limited due to the distance offshore and water depths. During IMMR activities in the Trunkline Project Area potential impacts to tourism and recreational activities would likely be minor interactions (i.e. navigational hazard) and temporary, localised displacement/avoidance. Several oil and gas facilities are located in proximity to the Trunkline Operational Area. Activities associated with the physical presence of IMMR vessels may result in localised, short-term interactions with industry vessels requiring minor course alteration or readjustment in asset management. 	<ul style="list-style-type: none"> Vessels adhere to regulatory requirements for navigational safety. Maintain a permanent 500 m Petroleum Safety Zone around FPU. Establish temporary exclusion zones around applicable vessels which are communicated to marine users. Notify relevant government departments, fishing industry representative bodies and licence holders of activities prior to commencement and upon completion of activities. Notify the Australian Hydrographic Office (AHO) prior to commencement of the activity to enable them to update maritime charts, so that marine users are aware of the activity. Consult with relevant persons so that they are informed of the proposed activities. Woodside will actively support the capacity of Traditional Custodians for ongoing engagement and consultation on environment plans, for the purpose of avoiding impacts to cultural heritage values.
Physical Presence: Seabed disturbance	<ul style="list-style-type: none"> Seabed disturbance may result from the following activities: Presence of subsea infrastructure, FPU moorings and trunkline modifying marine habitats. FPU mooring line retrieval and connection operations. Seabed disturbance during riser/umbilical hook-up to the FPU. Temporary placement of passive gravity meter, tide gauges during gravimetry surveys. Deployment of oceanographic monitoring systems. IMMR activities. Movement of a Remotely Operated Vehicle (ROV) near the seabed. 	<ul style="list-style-type: none"> Localised modification of seabed habitat within the PAA. Seabed disturbance has the potential to result in a change in habitat, water quality and sediment quality, which may affect fauna. However, impacts from seabed disturbance will be highly localised. Seabed disturbance is not expected to impact adversely on biologically important behaviours or biologically important habitat, including critical habitat. Displacement of individuals will not result in significant impacts at a population level. The Exmouth Plateau, Continental Slope Demersal Fish Communities and Ancient Coastline at 125 m depth Contour Key Ecological Features (KEFs) overlap the Operational Area. Potential seabed disturbances in this area are expected to be localised and short-term and are unlikely to affect the ecological value of the KEF. 	<ul style="list-style-type: none"> Infrastructure will be placed on the seabed within the predefined design footprint using positioning technology to limit seabed disturbance. Infrastructure wet parked (temporarily placed) on the seabed will be tracked and removed. Vessels are not planned to anchor/moor during routine operations. Monitoring and maintenance of infrastructure is undertaken in accordance with the IMMR process. Comply with regulatory requirements for Underwater Cultural Heritage.

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Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts/Risks	Proposed Mitigation and/or Management Measure ¹
Routine Light Emissions: FPU and Project Vessels	<ul style="list-style-type: none"> The FPU and vessels will use external lighting to conduct safe operations at night. Vessel lighting will also be used to communicate vessels' presence to other marine users (i.e. navigation/ warning lights). Light emissions from FPU during flaring. 	<ul style="list-style-type: none"> Light emissions have the potential to affect fauna such as fish, marine reptiles and seabirds by influencing changes in their behaviour or impacting orientation. The Operational Areas may be occasionally visited by seabirds and marine turtles. Potential impacts are expected to be limited to localised behavioural disturbance to isolated individuals, with no significant impact to seabird foraging or turtle nesting. 	<ul style="list-style-type: none"> Lighting limited to the minimum required for navigational and safety requirements, except for emergency events.
Routine Acoustic Emissions: FPU and Project Vessels	<ul style="list-style-type: none"> Generation of underwater noise from FPU and associated subsea infrastructure and vessels. Underwater noise may also be generated by geophysical sources during surveys, positioning equipment (transponders), and helicopters. 	<ul style="list-style-type: none"> Elevated underwater noise can affect marine fauna, including marine mammals, turtles and fish. Marine fauna associated with the Offshore Operational Area will be predominantly pelagic fish species, with the potential for species such as whale sharks, rays, marine turtles and whale species to transit through the Operational Area. There are no marine fauna Biologically Important Areas (BIAs) within the Offshore Operational Area. Therefore, potential impacts from FPU and vessel noise are likely to be restricted to temporary avoidance behaviour to individuals. IMMR activities occurring in the Trunkline Operational Area within the migration BIAs during migration seasons for pygmy blue whales and humpback whales, may result in a behavioural response from individuals or groups of whales transiting in proximity to vessel/s. Similarly, potential impacts from acoustic emissions on marine turtles, fish, sharks and rays from IMMR activities are likely to be restricted to localised and temporary avoidance behaviour of individuals. 	<ul style="list-style-type: none"> Comply with regulatory requirements for interactions with marine megafauna to prevent adverse interactions.
Routine and Non-routine Atmospheric and Greenhouse Gas (GHG) Emissions	<ul style="list-style-type: none"> Atmospheric emissions and GHG emissions generated through FPU, vessels and helicopters. GHG emissions associated with onshore processing of Scarborough gas. 	<ul style="list-style-type: none"> Emissions from FPU, vessels and helicopters could result in temporary, localised reductions in air quality in the immediate vicinity. Emissions associated with gas processing onshore (considered as indirect impacts from this Petroleum Activities Program) could result in temporary, localised reductions in air quality limited to the airshed of the gas plant. 	<ul style="list-style-type: none"> Comply with regulatory requirements for GHG emissions reporting. Vessel operations planned, where practicable, to minimise fuel consumption and associated GHG/air emissions. Fuel types will be selected to reduce expected GHG emissions. Project vessels will not use heavy fuel oil (HFO) or intermediate fuel oil (IFO). Optimise flaring to reduce GHG emissions and allow for safe operation of the facility.

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Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts/Risks	Proposed Mitigation and/or Management Measure ¹
Routine and Non-Routine Discharges: Subsea Operations and Activities	<p>Discharge of routine and non-routine operational discharges including:</p> <ul style="list-style-type: none"> Hydraulic fluid. Operational and non-process chemicals e.g., corrosion inhibitors biocides. <p>Discharges during typical IMMR activities:</p> <ul style="list-style-type: none"> Process and non-process chemicals. Residual hydrocarbons in subsea infrastructure. Cement and grout during span rectification. 	<ul style="list-style-type: none"> The discharges are expected to result in slight or lower (negligible) impacts including a temporary decline in water quality and sediment quality around the discharge locations with no accumulation and no lasting effect predicted. Impacts from discharges on fish, epifauna and infauna has been assessed as slight or negligible impact significance. Highly localised changes in habitats/ water quality and faunal communities within KEFs and Australian Marine Parks (AMPs) from planned routine and non-routine hydrocarbon, chemical and cement discharges. Assessed as slight impact significance. 	<ul style="list-style-type: none"> Marine discharges managed according to regulatory requirements. Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process. Subsea infrastructure flushed where practicable prior to disconnection to reduce volume/ concentration of hydrocarbons released to the environment. Limit volume of subsea control fluid discharged to the marine environment through monitoring subsea control fluid use and investigating material discrepancies.

Unplanned Events (Accidents / Incidents)			
Unplanned Hydrocarbon Release: FPU Loss of Structural Integrity	<ul style="list-style-type: none"> Surface or subsea release from flowlines and FPU to the marine environment and atmosphere. Hydrocarbon release from topsides equipment to the marine environment and atmosphere. 	<ul style="list-style-type: none"> Impacts to water and sediment quality from marine diesel oil release caused by a loss of structural integrity. Marine diesel is a relatively volatile, nonpersistent hydrocarbon with up to approximately 40% evaporating within the first 24 hours for a surface spill. Potential impacts across the EMBA will be assessed including receptors such as plankton, mangroves, seabirds and migratory shorebirds, saltmarshes, coral, tourism, recreation and cultural heritage (for example). Considering receptor sensitivity, potential loss of containment volume(s) and potential spill locations, most receptors are expected to be rated as having a potential consequence level of 'Minor' or less (Slight or Negligible). Impact assessment will be informed by loss of containment modelling and existing environment knowledge, similar to other Scarborough Environment Plans. 	<p>Preventing loss of structural integrity</p> <ul style="list-style-type: none"> The subsea infrastructure and FPU design include a range of measures that specifically aid in minimising the risk of external damage. Woodside management system implemented during operations to maintain structural safety critical element systems and safety instrumented systems to an acceptable standard. Ongoing process and structural monitoring, inspection, planned maintenance and repair, to ensure process and structural integrity are maintained within the design envelope. Communication with approaching vessels. Vessels entering the 500 m PSZ are managed in accordance with the facility operating procedures. <p>Spill response arrangements:</p> <ul style="list-style-type: none"> Develop an operations specific Oil Pollution Emergency Preparation document (OPEP) including first strike response plan. Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP) will be tested to ensure the OPEP can be implemented as planned. Emergency response activities would be implemented in line with the OPEP.

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Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts/Risks	Proposed Mitigation and/or Management Measure ¹
Unplanned Hydrocarbon Release: Vessel Collision	<p>Vessels will use marine diesel fuel, meaning a vessel collision involving a project vessel or third-party during the activity may result in the release of marine diesel.</p> <p>For a collision to result in the worst-case scenario diesel release, several factors must occur:</p> <ul style="list-style-type: none"> • Vessel interaction must result in a collision. • The collision has enough force to penetrate the vessel hull and in the location of a fuel tank. • The fuel tank must be full or at least of volume which is higher than the point of penetration. 	<ul style="list-style-type: none"> • Marine diesel is a relatively volatile, nonpersistent hydrocarbon with up to approximately 40% evaporating within the first 24 hours. • Potential impacts across the EMBA will be assessed including receptors such as plankton, mangroves, seabirds and migratory shorebirds, saltmarshes, coral, tourism, recreation and cultural heritage (for example). • Considering receptor sensitivity, potential loss of containment volume(s) and potential spill locations, most receptors are expected to be rated as having a potential consequence level of 'Minor' or less (Slight or Negligible). Impact assessment will be informed by loss of containment modelling and existing environment knowledge, similar to other Scarborough Environment Plans. 	<ul style="list-style-type: none"> • Comply with regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. • Notify relevant government departments, fishing industry representative bodies and licence holders of activities prior to commencement and on completion of activities. • Establish temporary exclusion zones around vessels which are communicated to marine users to reduce the likelihood of collision. • A management plan for simultaneous operations is in place when working in vicinity of other Woodside operations/ activities. <p>Spill response arrangements:</p> <ul style="list-style-type: none"> • Develop an operations specific Oil Pollution Emergency Preparation document (OPEP) including first strike response plan. • Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP) will be tested to ensure the OPEP can be implemented as planned. • Emergency response activities would be implemented in line with the OPEP.
Unplanned Hydrocarbon Release: Loss of Well Containment	<ul style="list-style-type: none"> • Accidental loss of gas to the marine environment due to loss of well control. 	<ul style="list-style-type: none"> • Negligible impacts to the marine environment due to Scarborough reservoir containing no measurable liquid fraction (predominantly natural gas), and as such there is expected to be no or negligible liquid component in the event of a loss of containment. There will be no lasting effect from the localised change in water quality associated with dry gas dissolution into the water column. 	<p>Preventing loss of well containment</p> <ul style="list-style-type: none"> • Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011: accepted WOMP, which describes the well design and barriers to be used to prevent a loss of well control. • As-built checks that shall be completed during well operations to establish a minimum acceptable standard of well integrity is achieved.
Unplanned Hydrocarbon Release: Trunkline, Flowline and Riser Loss of Containment	<ul style="list-style-type: none"> • Release of hydrocarbons resulting from loss of trunkline containment. • Release of hydrocarbons resulting from loss of containment of subsea flowlines, risers and infrastructure. 	<ul style="list-style-type: none"> • Temporary reduction in water quality in the immediate vicinity of the hydrocarbon release resulting in no lasting effects. The negligible liquid component of the hydrocarbon means effects will be dampened with methane gas dissolving into the surrounding water column. 	<p>Preventing loss of Trunkline, flowline and riser containment</p> <ul style="list-style-type: none"> • The Trunkline, flowline and riser design includes a range of measures that specifically aid in minimising the risk of external damage. • Woodside management system implemented during operations to maintain infrastructure integrity, communication systems and safety instrumented systems to an acceptable standard.

¹⁰ Scarborough Offshore Facility and Trunkline (Operations) Environment Plan | August 2023

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Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts/Risks	Proposed Mitigation and/or Management Measure ¹
Unplanned Hydrocarbon or Chemical Release: Hydrocarbon Release during bunkering/ refuelling and Chemical Release during Transfer, Storage and Use	<ul style="list-style-type: none"> Loss of hydrocarbons (diesel) to marine environment from bunkering/ refuelling. Chemical release to marine environment during transfer, storage and use. 	<ul style="list-style-type: none"> Localised and temporary change in water quality from a marine diesel or chemical spill. Injury/mortality to seabirds, fish, plankton, marine mammals and marine reptiles from a marine diesel or chemical spill. 	<ul style="list-style-type: none"> Bunkering equipment controls. Liquid chemical and fuel storage areas banded or secondarily contained when they are not being handled or temporarily moved. Contractor procedures include requirements to be implemented during bunkering/refuelling operations.
Unplanned Discharges: Deck and Subsea Spills	<ul style="list-style-type: none"> Accidental discharge of hydrocarbons/ chemicals from project vessels deck activities and equipment, from subsea ROV hydraulic leaks. Unplanned release of chemicals or hydraulic fluid due to failure of subsea equipment. 	<ul style="list-style-type: none"> Unplanned discharges of non-process chemicals and hydrocarbons may decrease the water quality in the immediate vicinity of the release. Only small volumes are anticipated, resulting in very short-term impacts to water quality and limited to the immediate release location. As a result of a change in water quality, further impacts to receptors may occur, however impacts to marine fauna are expected to be limited to temporary irritation of sensitive membranes to individuals and are considered slight or less (negligible). 	<ul style="list-style-type: none"> Comply with regulatory requirements for the prevention of marine pollution for project vessels. Liquid chemical and fuel storage areas are banded or secondarily contained when they are not being handled/moved temporarily on project vessels. Spill kits positioned in high-risk locations around the vessels (near potential spill points such as transfer stations). Chemicals will be selected with the lowest reasonably practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process.
Unplanned Discharges: Loss of Hazardous and Non-Hazardous Wastes/ Equipment	<ul style="list-style-type: none"> Accidental loss of hazardous or non-hazardous solid wastes / equipment to the marine environment. 	<ul style="list-style-type: none"> The potential impacts of hazardous or non-hazardous solid wastes and equipment accidentally discharged to the marine environment include contamination of the environment as well as secondary impacts relating to potential contact of marine fauna with wastes. The temporary or permanent loss of waste materials/equipment into the marine environment is not likely to have a significant environmental impact, based on the location of the Operational Area, the types, size and frequency of wastes that could occur and species present. 	<ul style="list-style-type: none"> Comply with regulatory requirements for the prevention of marine pollution and handling of hazardous wastes (i.e., Marine Orders 95 and 94). Implement waste management procedures which provide for safe handling and transportation, segregation and storage and appropriate classification of waste generated. Solid waste/equipment dropped to the marine environment is to be recovered where safe and practicable to do so. Where retrieval is not practicable and/or safe, material items (property) that are lost to the marine environment will undergo an impact assessment and will be added to the inventory for the title.

¹¹ Scarborough Offshore Facility and Trunkline (Operations) Environment Plan | August 2023

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Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts/Risks	Proposed Mitigation and/or Management Measure ¹
Physical Presence (Unplanned): Seabed Disturbance	<ul style="list-style-type: none"> Dropped objects resulting in the disturbance of benthic habitat. 	<ul style="list-style-type: none"> Unplanned seabed disturbance may result in localised changes to water and sediment quality or a localised temporary impact to benthic communities and is therefore considered to present a negligible risk. Potential impacts to KEFs which intersect the PAA of the activity are considered to be minor as they would be limited to the footprint of a dropped object resulting in potential highly localised and temporary change in habitat. 	<ul style="list-style-type: none"> Project vessel work procedures for lifts, bulk transfers and cargo loading. Subsea lifts of equipment will occur overboard in a designated deployment zone to reduce the risk of dropped objects in proximity to existing subsea infrastructure that could potentially cause damage/leaks. FPU and project vessel inductions include control measures for dropped object prevention. Dropped objects intended to be recovered and relocated where safe and practicable to do so. Where retrieval is not practicable and/or safe, material items (property) lost to the marine environment will undergo an impact assessment and will be added to the inventory for the title. Appropriate approval obtained from third party asset owner prior to IMMR activities being carried out in proximity to asset.
Physical Presence (Unplanned): Vessel Collision with Marine Fauna	<ul style="list-style-type: none"> Vessel movements have the potential to result in collisions between the vessel (hull and propellers) and marine fauna. The factors contributing to the frequency and severity of impacts due to collisions vary greatly due to vessel type, vessel operation (specific activity, speed), physical environment (e.g., water depth) and the type of animal potentially present and their behaviours. 	<ul style="list-style-type: none"> The risk of vessel collision with marine mammals is present year-round but is seasonally elevated for species such as humpback whales and pygmy blue whales during migration periods and within migration BIAs. The Offshore Operational Area does not overlap with cetacean BIAs or critical habitat. Given this, and the slow speeds at which project vessels operate, collisions with cetaceans are considered highly unlikely. Whilst a portion of the Trunkline Operational Area overlaps the pygmy blue whale and humpback whale migration BIAs, this overlap represents a very small proportion of the overall area of the BIA. Given the short duration of IMMR activities, and the slow speeds at which project vessels operate, interactions with whales are considered highly unlikely. IMMR activities within sensitive turtle areas (BIAs and critical habitat) will be short term and intermittent, reducing the potential for impact at the individual and population level. It is expected whale shark presence within the Operational Area would not comprise significant numbers and their presence would be transitory and of short duration. Given the slow speeds at which project vessels operate, vessel collisions with whale sharks are considered highly unlikely. 	<ul style="list-style-type: none"> Comply with regulatory requirements for interactions (e.g., EPBC Regulations 2000 – Part 8 Division 8.1) with marine fauna to reduce the likelihood of a collision occurring.

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Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts/Risks	Proposed Mitigation and/or Management Measure ¹
Physical Presence (Unplanned): Introduction of Invasive Marine Species (IMS)	<ul style="list-style-type: none"> Introduction and establishment of IMS within the PAA. 	<ul style="list-style-type: none"> It is not credible for IMS to be introduced and establish on the seabed or subsea structures in the Offshore Operational Area as these deep waters are not conducive to the settlement and establishment of IMS. The Trunkline Operational Area in shallower waters (30 – 40 m) present a slightly increased risk of IMS establishment, however, the risk of establishment, whilst credible, is remote. Given the low likelihood of IMS translocation to and colonisation within the PAA, project activities are unlikely to result in establishment of IMS, and as such will not adversely affect other marine user activities in the region. 	<ul style="list-style-type: none"> Ballast water and biofouling will be managed according to regulatory requirements, including the Australian Ballast Water Management Requirements, and the Australian Biofouling Management Requirements, as applicable. Woodside's IMS risk assessment process will be applied to project vessels and immersible equipment entering the PAA.

¹ These mitigation and management measures are subject to change through the consultation and subsequent assessment process and may not represent content in the publicly available EP or in the final plan once accepted.

Feedback

Woodside consults relevant persons in the course of preparing Environment Plans to notify them of the activity and to obtain relevant feedback to inform its planning for proposed petroleum activities in the region.

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before **11 September 2023** via:

E: Feedback@woodside.com
Toll free: 1800 442 977

You can subscribe on our website to receive Consultation Information Sheets for proposed activities:

www.woodside.com/sustainability/consultation-activities.

Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth) and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

1.2 Summary Consultation Information Sheet – August 2023



SCARBOROUGH OFFSHORE FACILITY AND TRUNKLINE OPERATIONS ENVIRONMENT PLAN

When preparing an environment plan (EP), Woodside needs to notify relevant persons and obtain their input. This helps confirm current measures or identify additional measures, that may need to be taken to lessen or avoid potential adverse effects of the proposed activity on the environment. Woodside wants to give relevant persons whose functions, interests or activities may be affected by the proposed activity the opportunity to identify themselves and provide feedback on our proposed activity.

This summary information sheet provides a high-level overview of the Scarborough Offshore Facility and Trunkline Operations Environment Plan. Further details, including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures, are available within the Scarborough Offshore Facility and Trunkline Operations Environment Plan Consultation Information Sheet (August 2023) which can be found at:

www.woodside.com/sustainability/consultation-activities

Overview

Woodside plans to install a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, before start-up and operations for the Scarborough project. The FPU and associated subsea production infrastructure will be installed in water depths ranging from -900 to 1000 m, in Commonwealth waters around 374 km west-northwest of Dampier, Western Australia. Gas from the FPU will be transferred through the -440 km trunkline to the Pluto LNG Plant in Dampier, Western Australia for further processing. Other activities include surveys to monitor the reservoir, as well as inspection, maintenance, monitoring and repair activities, and other contingent activities.

A map showing the location of where the activities will take place is provided below, with work planned to start in the second half of 2025.

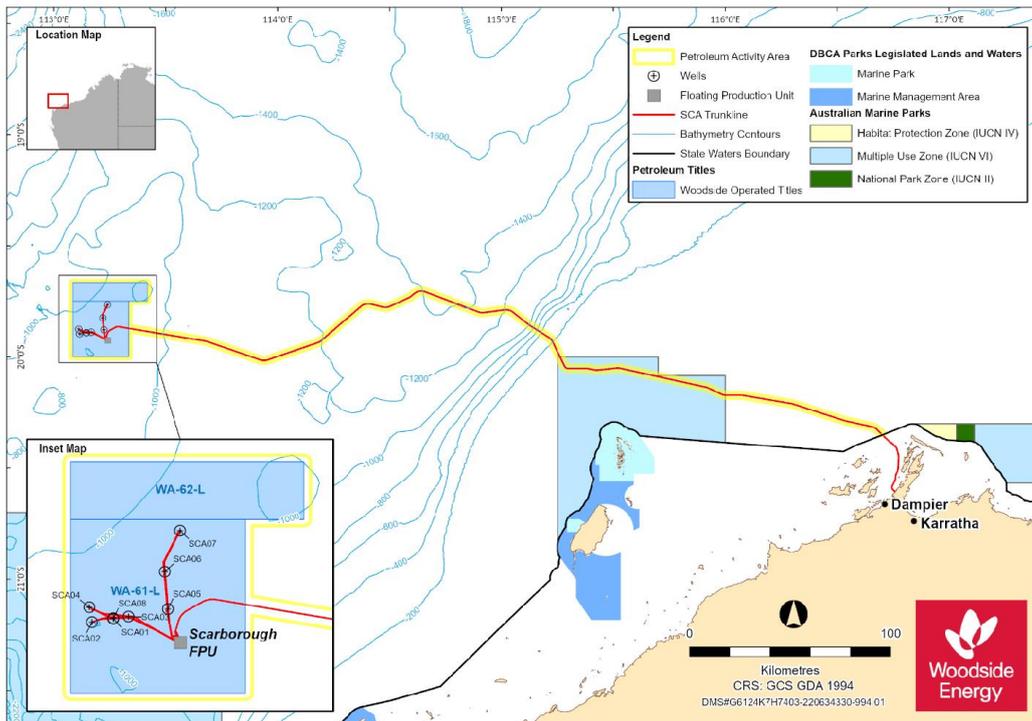


Figure 1. Petroleum Activities Area

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Work Method

Key features of the Floating Production Unit (FPU) include:

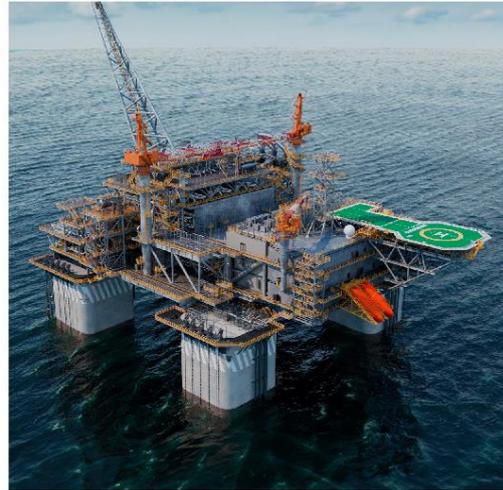
- Semi-submersible hull with integrated storage tanks, ballast and bilge systems (for balance and buoyancy).
- Connected to the seabed and subsea production system by risers, umbilicals and a chain mooring system illustrated schematically in Figure 2.
- Above the water there will be supporting gas processing systems and equipment, flare systems, utilities, cranes, laydown and storage areas, utility building, living quarters and helideck.
- The FPU provides gas processing to make the gas suitable for exporting through the trunkline.

Summary of key activities include:

- The commissioning activity involves dewatering and commissioning of the subsea production system, and activities to confirm the integrity of the entire interconnected facility, so it is ready for the introduction of reservoir hydrocarbons.
- The start-up of the FPU consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to perform to design criteria.
- Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen removal.
- Routine production operations involve transfer of reservoir fluids, including gas through the subsea infrastructure to the FPU, with gas transferred to shore via the Trunkline.
- Other activities include surveys to monitor the reservoir, as well as inspection, maintenance, monitoring and repair activities on the FPU, subsea infrastructure and gas export trunkline, and other contingent activities.

A range of vessels may be used during the FPU installation, hook-up and commissioning phase including tow, support and anchor handling tugs, light construction vessels, survey vessels, supply/support vessels and contingent accommodation support vessel.

During normal operations, vessels will typically be limited to supply/support vessels and Inspection Monitoring Maintenance and Repair (IMMR) vessels.



A floating production unit

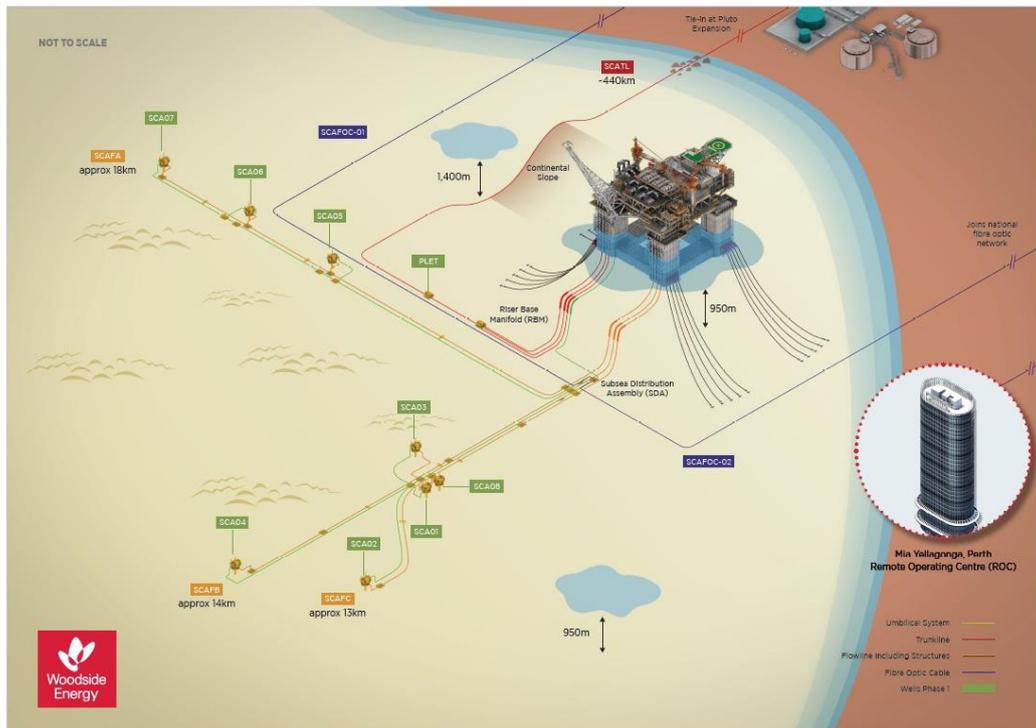


Figure 2. Indicative Scarborough field infrastructure layout

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Environment That May Be Affected (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision. This is depicted in Figure 3.

The EMBA does not represent the extent of the predicted impact of the highly unlikely marine diesel release. Rather, the EMBA represents the merged area of many possible paths a highly unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release.

This means in the highly unlikely event a hydrocarbon release does occur, the whole EMBA will not be affected at one time - the specific and minimal part of the EMBA that is affected will only be known at the time of the release.

The three hydrocarbon spill modelling sites are representative of the range of locations where a vessel collision could occur in the Petroleum Activities Area and are summarised below. The EMBA has been defined using a combination of all three locations:

- **Outside Mermaid Sound (Location 1):** Near the State Waters Boundary, this site represents the closest location to shore Inspection, Maintenance, Monitoring and Repair (IMMR) activities may occur under this EP.
- **Montebello Marine Park Multiple Use Zone (Location 2):** This location was chosen to represent around half-way along the trunkline length where IMMR activities may occur under this EP.
- **Scarborough Field (Location 3):** This location is representative of a spill in the deep-water open-ocean environment in Production License WA-61-L, where the FPU is planned to be installed and activities at the most western end of the Petroleum Activities Area.

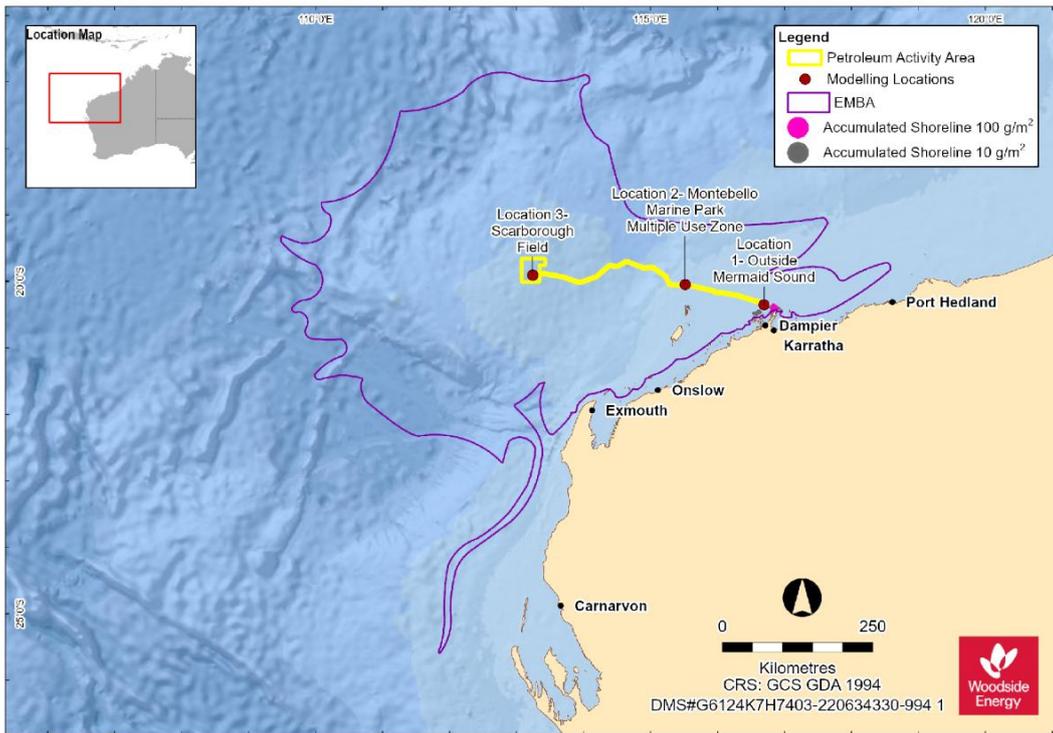


Figure 3. Environment that May Be Affected (EMBA) by a diesel release from an accident/incident during the EP Petroleum Activities Program.

Feedback

Woodside consults relevant persons in the course of preparing Environment Plans to notify them of the activity and to obtain relevant feedback to inform its planning for proposed petroleum activities in the region.

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before **18 September 2023** via:

E: Feedback@woodside.com

Toll free: 1800 442 977

You can subscribe on our website to receive Consultation Information Sheets for proposed activities:

www.woodside.com/sustainability/consultation-activities

Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth) and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.



INITIAL CONSULATATION

1.3 Email sent to Australian Border Force (ABF), Department of Transport (DoT), Pilbara Ports Authority, Ningaloo Coast World Heritage Advisory Committee (NCWHAC), Department of Biodiversity, Conservation and Attractions (DBCA), Department of Industry, Science and Resources (DISR), Department of Energy , Mines, Industry Regulation and Safety (DEMIRS), Recfishwest, Marine Tourism WA, WA Game Fishing Association, Chevron Australia, Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, INPEX Alpha Ltd, Carnarvon Energy Ltd, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, Jadestone, KATO Energy, Finder Energy, KUFPEC, Santos, Coastal Oil and Gas, Bounty Oil and Gas, Vermilion Oil and Gas, OMV Australia, JX Nippon, Australian Petroleum Production and Exploration Association (APPEA), 350 Australia (350A), Australasian Centre for Corporate Responsibility (ACCR), Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Doctors for the Environment Australia (DEA), Extinction Rebellion WA (XRWA), Friends of Australian Rock Art (FARA), Greenpeace Australia Pacific (GAP), International Fund for Animal Welfare (IFAW), Lock the Gate Alliance (LGA), Market Forces, Say No To Scarborough Gas (SNTSG), Sea Shepherd Australia (SSA), The Wilderness Society (TWS), World Wildlife Fund (WWF), University of Western Australia (UWA), Cape Conservation Group, Protect Ningaloo, Shire of Exmouth, City of Karratha, Shire of Ashburton – 9 August 2023

Dear Stakeholder

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

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Revision: 3

Page 652 of 919

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Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,

Woodside Feedback

1.4 Email sent to Department of Biodiversity, Conservation and Attractions (DBCA) – Shark Bay and Shire of Shark Bay – 31 October 2023

Dear [Individual 5] and [Individual 6],

Woodside recently met with the Shire of Shark Bay who advised you may be interested in and have feedback on the following proposed Woodside activities. We have also consulted the central DBCA agency which has provided feedback regarding the establishment of baseline survey data for nearby areas of ecological importance, light pollution guidelines, and the 'Incidents and Emergency Response' process.

Ngujima-Yin Floating Production Storage and Offloading (FPSO) Facility Operations and Pyrenees Facility Operations Environment Plans (EPs):

Woodside plans to continue producing crude oil at the Pyrenees and Ngujima-Yin FPSO facilities. Operations began in 2008 for Ngujima-Yin and 2010 for Pyrenees. Woodside is planning to submit five-year revisions of the Ngujima-Yin FPSO Facility Operations and Pyrenees Facility Operations EPs:

- The Ngujima-Yin FPSO and associated subsea infrastructure is located in Commonwealth waters approximately 57 km north of Exmouth, Western Australia, within Production Licences WA-28-L and WA-59-L, and pipeline licence WA-28-PL.
- The Pyrenees FPSO and associated subsea infrastructure is located in Commonwealth waters approximately 45 km north of Exmouth, Western Australia, within Production Licences WA-42-L and WA-43-L.

Both EPs are being revised and resubmitted for the continued production of crude oil via existing subsea infrastructure to the FPSOs, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*.

The activities that will continue at both FPSOs are:

- Routine oil production, including crude oil offloading and associated activities,
- Routine inspection, monitoring, maintenance and repair (IMMR) of the FPSOs and associated subsea infrastructure; and
- Disconnection and sail-away of the FPSO with the turret mooring and subsea infrastructure remaining in place.

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Page 655 of 919

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Scarborough Offshore Facility and Trunkline Operations EP:

Woodside is planning to submit the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Consultation Information Sheets

Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can also choose to receive updates on our consultation activities by subscribing [here](#).

Feedback

If you have feedback specific to the proposed activities, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **13 November 2023**.

Your feedback and our response will be included in our EPs, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,
Woodside Feedback

1.5 Email sent to Karratha Recreational Marine Users, Exmouth Recreational Marine Users – 9 August 2023

Dear Stakeholder

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

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Exclusionary / Cautionary Zones

There will be a fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU and a temporary 500 m exclusion zone around applicable vessels to manage vessel movements.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

A **Consultation Information Sheet** is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can subscribe to receive updates on our consultation activities by subscribing [here](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> ~ 374 km west-northwest of Dampier at closest landfall ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> FPU ~950 m Production Licenses ~900 m to 1000 m Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> FPU Hook-up and commissioning: ~4 months FPU Start-up: ~3 months FPU operations: for the life of the EP Gravimetry: ~2 months

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Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,

Woodside Feedback

1.6 Letter sent to Gascoyne Recreational Marine Users, Pilbara/Kimberley Recreational Marine Users – 9 August 2023

¶
¶
Please direct all responses/queries to: ¶
Woodside Feedback ¶
T: 1800-442-977 ¶
E: Feedback@woodside.com.au ¶
¶
9 August 2023 ¶
¶
Attn: [Name], [Title] ¶
[Company] ¶
[Address 1] ¶
[Address 2] ¶
¶
Dear Stakeholder ¶
¶
SCARBOROUGH OFFSHORE FACILITY AND TRUNKLINE OPERATIONS ENVIRONMENT PLAN ¶
¶
Woodside is planning to submit the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-81-L and WA-82-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing. ¶
¶
We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800-442-977, or feedback form on our website by 11 September 2023. ¶
¶
Overview ¶
The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning. ¶
¶
The commissioning activity involves: ¶
• → Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines. ¶
• → Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons. ¶
¶
The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N2) removal. ¶
¶
Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the [EPL](#) and gas export via the Trunkline. ¶
¶
Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities. ¶
¶
Exclusionary / Cautionary Zones* ¶
There will be a fixed 500-m radius petroleum safety zone (PSZ) around the Scarborough FPU and a temporary 500-m exclusion zone around applicable vessels to manage vessel movements. ¶
¶



Woodside Energy Group Ltd ¶
ACN 004 85695 ¶
Mia Vellacrosse ¶
11 Mount Street ¶
Perth WA 6000 ¶
Australia ¶
T: +61 8 9348 4000 ¶
www.woodside.com ¶

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 661 of 919

Uncontrolled when printed. Refer to electronic version for most up to date information.

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Environment that May Be Affected (EMBA) ¶

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity. ¶

¶

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision. ¶

¶

A Consultation Information Sheet is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our website at woodside.com. You can subscribe to receive updates on our consultation activities by subscribing on our website. ¶

¶

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan ¶

¶

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> → ~374 km west-northwest of Dampier at closest landfall → ~244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> → FPU ~950 m → Production Licenses ~900 m to 1000 m → Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP-275 of the trunkline route)
Timing	Anticipated around H2-2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> → FPU Hook-up and commissioning: ~4 months → FPU Start-up: ~3 months → FPU operations: for the life of the EP → Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> → Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> → Facility: 2000 m around future location of the FPU → Subsea: 1500 m from the centerline of subsea infrastructure → Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L → Trunkline Operational Area for activities includes a radius of:

1.7 Email sent to Australian Fisheries Management Authority (AFMA), Department of Primary Industries and Regional Development (DPIRD), North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery, Western Tuna and Billfish Fishery, Commonwealth Fisheries Association (CFA), Tuna Australia, Onslow Prawn Managed Fishery, Exmouth Gulf Prawn Managed Fishery, Demersal Scalefish Fishery: Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery by Woodside – 9 August 2023

Dear Stakeholder

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Exclusionary / Cautionary Zones

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	<ul style="list-style-type: none"> ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L ● Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> ● Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. ● Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> ● Moored Floating Production Unit (FPU) with gas processing equipment and utilities ● Suction piles and anchor chains ● Wells, Christmas trees, manifolds, flowlines, umbilicals and risers ● Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> ● Tow, Support and Anchor Handling Tugs (AHT) ● Light Construction Vessel (LCV) ● Survey vessel ● Supply and support vessel ● Accommodation support vessel (contingency)
Relevant fisheries	<p><u>State fisheries</u></p> <ul style="list-style-type: none"> ● Operational Area: Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2 and 3); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Exmouth Gulf Prawn Managed Fishery; Demersal Scalefish Fishery: Pilbara Trawl Fisher, Pilbara Trap Fishery and Pilbara Line Fishery ● EMBA: Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2 and 3); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Exmouth Gulf Prawn Managed Fishery; Gascoyne Demersal Scalefish Fishery; Demersal Scalefish Fishery: Pilbara Trawl Fisher, Pilbara Trap Fishery and Pilbara Line Fishery <p><u>Commonwealth fisheries</u></p> <ul style="list-style-type: none"> ● Operational Area: North West Slope Trawl Fishery, Western Deepwater Trawl Fishery ● EMBA: North West Slope and Trawl Fishery; Western Deepwater Trawl Fishery; Western Tuna and Billfish Fishery

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Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

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Kind regards,

Woodside Feedback

1.8 Letter sent to Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Nickol Bay Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Gascoyne Demersal Scalefish Fishery by Woodside – 9 August 2023



Woodside Energy Group Ltd

ACN 004 888 982

Mia Yellagonga

11 Mount Street

Perth WA 6000

Australia

T: +61 8 9348 4000

www.woodside.com

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

9 August 2023

Attn: [Name], [Title]
[Company]
[Address 1]
[Address 2]

Dear Stakeholder

SCARBOROUGH OFFSHORE FACILITY AND TRUNKLINE OPERATIONS ENVIRONMENT PLAN

Woodside is planning to submit the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Exclusionary / Cautionary Zones

There will be a fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU and a temporary 500 m exclusion zone around applicable vessels to manage vessel movements.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

A **Consultation Information Sheet** is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our website at woodside.com. You can subscribe to receive updates on our consultation activities by subscribing on our website.

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> • FPU ~950 m • Production Licenses ~900 m to 1000 m • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of:

	<ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)

Feedback

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Regards,

Woodside Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in v @

1.9 Email sent to Western Australian Fishing Industry Council (WAFIC) – 9 August 2023

Dear WAFIC

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

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Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> • FPU ~950 m • Production Licenses ~900 m to 1000 m • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)

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Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)
Relevant fisheries	<p><u>State fisheries</u></p> <ul style="list-style-type: none"> • Operational Area: Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2 and 3); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Exmouth Gulf Prawn Managed Fishery; Demersal Scalefish Fishery: Pilbara Trawl Fisher, Pilbara Trap Fishery and Pilbara Line Fishery • EMBA: Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2 and 3); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Exmouth Gulf Prawn Managed Fishery; Gascoyne Demersal Scalefish Fishery; Demersal Scalefish Fishery: Pilbara Trawl Fisher, Pilbara Trap Fishery and Pilbara Line Fishery <p><u>Commonwealth fisheries</u></p> <ul style="list-style-type: none"> • Operational Area: North West Slope Trawl Fishery, Western Deepwater Trawl Fishery • EMBA: North West Slope and Trawl Fishery; Western Deepwater Trawl Fishery; Western Tuna and Billfish Fishery

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)

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for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,
Woodside Feedback

1.10 Email sent to Australian Hydrographic Office (AHO), Australian Maritime Safety Authority (AMSA) – Marine Safety, Australian Maritime Safety Authority (AMSA) – Marine Pollution – 9 August 2023

Dear AHO / AMSA

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

A **Consultation Information Sheet** is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). **A shipping lane map is also attached.** You can subscribe to receive updates on our consultation activities by subscribing [here](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> ~ 374 km west-northwest of Dampier at closest landfall ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> FPU ~950 m Production Licenses ~900 m to 1000 m Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> FPU Hook-up and commissioning: ~4 months FPU Start-up: ~3 months FPU operations: for the life of the EP Gravimetry: ~2 months

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Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

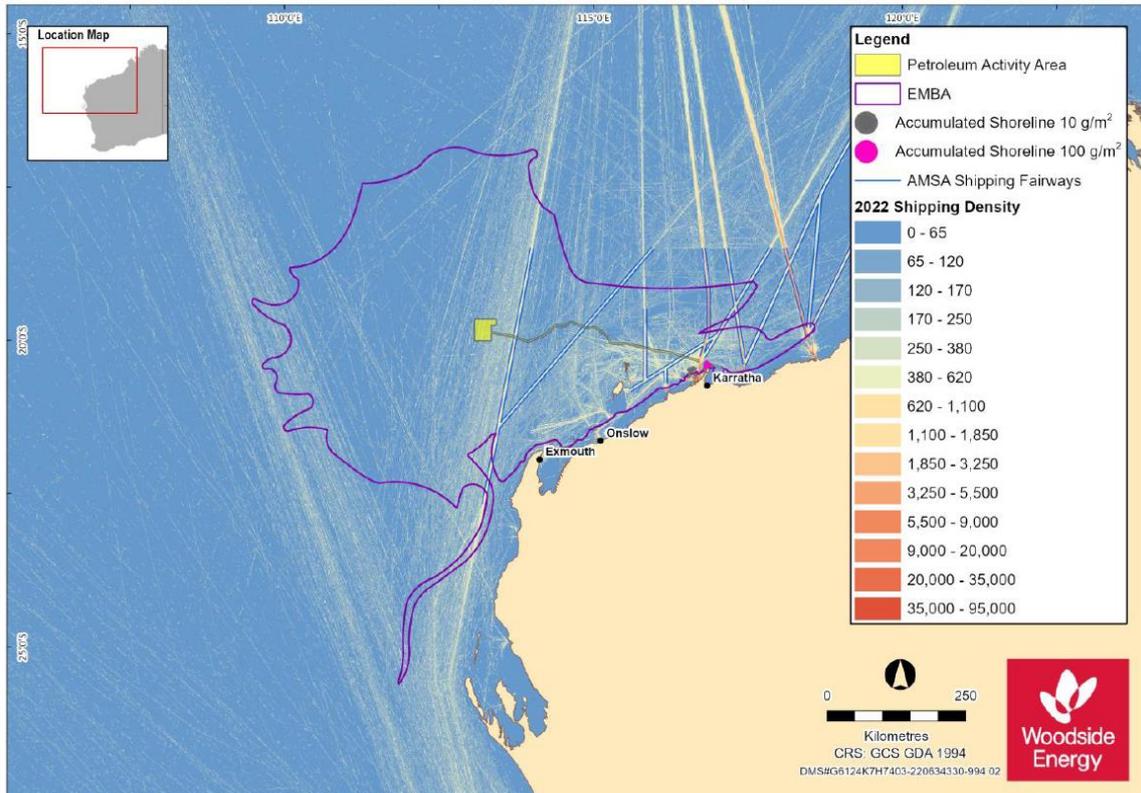
Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

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Kind regards,

Woodside Feedback



1.11 Email sent to Australian Hydrographic Office (AHO), Australian Maritime Safety Authority (AMSA) – Marine Safety, Australian Maritime Safety Authority (AMSA) – Marine Pollution – 9 August 2023

Dear AHO / AMSA

Please see attached the operational area and consultation EMBA GIS shape files for this environmental plan.

Regards,

Woodside Feedback

1.12 Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries and Biosecurity – 9 August 2023

Dear DAFF – Fisheries and Biosecurity

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 677 of 919

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(FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Exclusionary / Cautionary Zones

There will be a fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU and a temporary 500 m exclusion zone around vessels to manage vessel movements.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

A **Consultation Information Sheet** is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can subscribe to receive updates on our consultation activities by subscribing [here](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> • FPU ~950 m • Production Licenses ~900 m to 1000 m • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.

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Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)
Relevant fisheries	<p><u>State fisheries</u></p> <ul style="list-style-type: none"> • Operational Area: Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2 and 3); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Exmouth Gulf Prawn Managed Fishery; Demersal Scalefish Fishery: Pilbara Trawl Fisher, Pilbara Trap Fishery and Pilbara Line Fishery • EMBA: Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2 and 3); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Exmouth Gulf Prawn Managed Fishery; Gascoyne Demersal Scalefish Fishery; Demersal Scalefish Fishery: Pilbara Trawl Fisher, Pilbara Trap Fishery and Pilbara Line Fishery <p><u>Commonwealth fisheries</u></p> <ul style="list-style-type: none"> • Operational Area: North West Slope Trawl Fishery, Western Deepwater Trawl Fishery • EMBA: North West Slope and Trawl Fishery; Western Deepwater Trawl Fishery; Western Tuna and Billfish Fishery

Biosecurity:

With respect to the biosecurity matters, please note the following information below:

Environment description:

The Offshore Operation Area is located in water depths of approximately 900 to 1000 m on the Exmouth Plateau. The Trunkline Operational Area extends from the State-Commonwealth waters boundary on the inner continental shelf, onto the continental slope where it traverses the continental slope westwards to the Exmouth Plateau. The water depth ranges from ~31 m (trunkline route at State waters boundary) to 1400 m (KP 275 of

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the trunkline route). The seabed in the Petroleum Activity Area is likely to be dominated by soft sediment comprised of fine to coarse sands, which typify the sediments of the North West Marine Region.

Potential IMS risk	IMS mitigation management
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Accidental introduction and establishment of invasive marine species	Vessels are required to comply with the Australian Biosecurity Act 2015, specifically the Australian Ballast Water Management Requirements (as defined under the Biosecurity Act 2015) (aligned with the International Convention for the Control and Management of Ships' Ballast Water and Sediments) and the Australian Biofouling Management Requirements to prevent introducing IMS. Vessels will be assessed and managed to prevent the introduction of invasive marine species in accordance with Woodside's IMS risk assessment process. Woodside's IMS risk assessment process is applied to vessels undertaking the Petroleum Activities Program. Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as the treatment of internal systems, IMS inspections or cleaning) will be implemented to minimise the likelihood of IMS being introduced.
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Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

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The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,

Woodside Feedback

1.13 Email sent to Department of Defence (DoD) – 9 August 2023

Dear Department of Defence

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 681 of 919

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Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

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Overview

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The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

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Environment that May Be Affected (EMBA)

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A **Consultation Information Sheet** is attached which provides additional background information on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). **A defence map is also attached**. You can subscribe to receive updates on our consultation activities by subscribing [here](#).

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Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan

Summary Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.

Permit Area Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL

Location

- ~ 374 km west-northwest of Dampier at closest landfall
- ~ 244 km north-northwest of Exmouth at closest landfall

Approx. Water Depth (m)

- FPU ~950 m
- Production Licenses ~900 m to 1000 m
- Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)

Timing Anticipated around H2 2025 pending approvals

Approx. Estimated Duration

- FPU Hook-up and commissioning: ~4 months
- FPU Start-up: ~3 months
- FPU operations: for the life of the EP
- Gravimetry: ~2 months

Operational Areas The Petroleum Activities Area (PAA) consists of the following Operational Areas

- Offshore Operational Area for activities includes a radius of:
 - Facility: 2000 m around future location of the FPU
 - Subsea: 1500 m from the centerline of subsea infrastructure
 - Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L
- Trunkline Operational Area for activities includes a radius of:
 - 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)

Exclusionary/ Cautionary Zone

- Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU.
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- Infrastructure Key infrastructure includes, but is not limited to:
- Moored Floating Production Unit (FPU) with gas processing equipment and utilities
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- Vessels Key vessels include, but are not limited to:
- Tow, Support and Anchor Handling Tugs (AHT)
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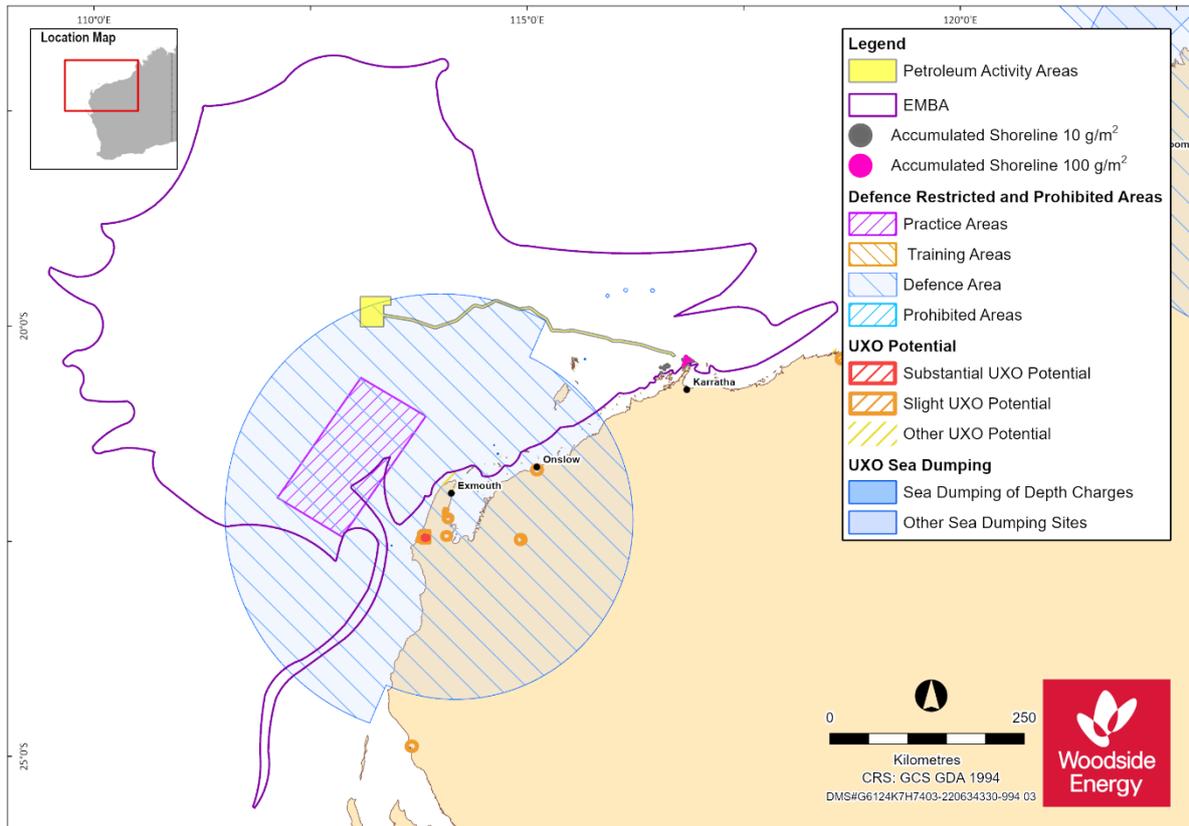
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Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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1.14 Email sent to Western Australian Museum, Department of Planning, Lands and Heritage – DPLH) – 9 August 2023

Dear Stakeholder

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or 1800 442 977 by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
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The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

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Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

A **Consultation Information Sheet** is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). **Also attached is a list of shipwrecks in State waters within the EMBA.** You can subscribe to receive updates on our consultation activities by subscribing [here](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan

Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none">• ~ 374 km west-northwest of Dampier at closest landfall• ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none">• FPU ~950 m• Production Licenses ~900 m to 1000 m• Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)

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Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

WA Historical Shipwrecks 0998

NAME	COMMENTS	WHEN LOST	WHERE LOST	LON	LAT
Trial	First European wreck on the Australia coast	24/5/1622	Trial Rocks	-20.28716667	115.3736667
Lady Ann	Check Lats and Lons. Oil rig tender	18/9/1982	24 miles north of NW Cape	-21.4	114.2

1.15 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) – Underwater Heritage & Petroleum and Fisheries – 9 August 2023

Dear Department of Climate Change, Energy, the Environment and Water

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or 1800 442 977 by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

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Scarborough Offshore Facility and Trunkline Operations Environment Plan

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Permit Area Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL

Location

- ~ 374 km west-northwest of Dampier at closest landfall
- ~ 244 km north-northwest of Exmouth at closest landfall

Approx. Water Depth (m)

- FPU ~950 m
- Production Licenses ~900 m to 1000 m
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Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
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AUSTRALIA NATIONAL SHIPWRECK DATABASE

VESSEL NAME	VESSEL_T_1	YEAR WRECK	WHERE LOST	LATITUDE	LONGITUDE
Parks Lugger	Sailing vessel		Hermite Island. Montebello Islands	-20.477082	115.528518
Perseverant's Boat	Unknown	1841	South of Java Head	-24.25	112
Vergo	Sailing vessel	1893	Shark Bay area	-24.25	112
Vianen	Sailing vessel	1628	Barrow Island Area	-20	115.1666667
Sydney HMAS	Cruiser	1941	113 n miles W of Steep Point	- 26.2436111	111.2175
Wild Wave (China)	Sailing vessel	1873	Monte Bello Island	-20	115.1666667
Seagull	Sailing vessel	1893	Shark Bay area	-24.25	112
Gift	Sailing vessel	1898	Shark Bay Area	-24.25	112
Idahlia	Sailing vessel	1898	Shark Bay, Willieman	-24.25	112
Kadna	Unknown	1902	1902	- 17.9616666	112.2363833
Marietta	Unknown	1905	Barrow Island	-20	115.1666667
Marutta	Unknown	1905		- 20.7278333	115.4261667
Lady Ann	Sailing vessel	1982	24 miles north of NW Cape	-21.4	114.2
Anxiety	Sailing vessel	1898	Shark Bay area	-24.25	112
Beatrice	Sailing vessel	1899	Off North-West Cape	- 21.6166666	113.9833333
Tanami	Sailing vessel		Trial Rocks	-20.28333	115.36666
Trial	Sailing vessel	1622	Trial Rocks	- 20.2859833	115.3752333

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Perentie	Unknown	1976	Barrow Island	- 20.7278333 3	115.4261667
Perseverant's Boat	Unknown	1841		-24.25	112
Veronica	Sailing vessel	1928	Sunday Island, Exmouth Gulf	- 21.6833333 3	114.3833333
Rose	Sailing vessel	1908	Ashburton	- 21.5833333 3	114.8333333
Star	Sailing vessel	1876	Shark Bay to Geraldton	-24.5	112
Zelma	Unknown	1990	Dampier Archipelago	- 20.3771666 7	116.8746667
Gem	Sailing vessel	1893	North West Cape	- 21.6166666 7	113.9833333
Crighton	Launch	1921	Island Homestead	-24.25	112
Just In Time	Sailing vessel	1898	Williemia	-24.25	112
Maratta	Unknown	1905		- 20.7278333 3	115.4261167
Curlew	Sailing vessel	1911	At Onslow, Monte Bellos Group	-20	115.1666667
Dampier	Trawler		Enderby Island, Dampier Archipelago	- 20.5233333 3	116.2366667
McCormack		1989	N.E. tip of Eaglehawk Island West of Dampier,	- 20.1366666 7	115.9533333
McDermott Derrick Barge No 20	Barge	1989	N.E. tip of Eaglehawk Island, Dampier Archipelago	- 20.1366666 7	115.9533333
Plym HMS	Frigate	1952		- 20.4034666 7	115.5658333
Tropic Queen		1975		- 20.4333333 3	115.5008333

1.16 Email sent to Director of National Parks (DNP) – 9 August 2023

Dear Director of National Parks

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

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Overview

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The commissioning activity involves:

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Australian Marine Parks (AMPs)

- We note Australian Government Guidance on consultation activities and confirm that:
 - The Trunkline Operational Area overlaps the Montebello Marine Park (Cwlth).
 - The Dampier Marine Park (Cwlth) is ~ 20 km east of KP40
 - The Gascoyne Marine Park (Cwlth) is ~ 80 km south-west of KP350
 - The Ningaloo Marine Park (Cwlth) is ~184 km south of KP350
- We have assessed potential impacts to AMPs in the development of the proposed Environment Plan and given the Trunkline Operational Area overlaps the Montebello Marine Park Multiple Use Zone, there may be slight (or lower) impacts to benthic habitats and marine fauna associated with Inspection Maintenance, Monitoring and Repairs activities along the Trunkline.
- The worst-case credible spill scenario assessed in this EP is the highly unlikely event of damage to the production facility or vessel collision resulting in a release of marine diesel. Through review of hydrocarbon spill modelling, and with consideration of a 50 ppb dissolved and 100 ppb entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:
 - Gascoyne (National Park Zone II, Habitat Protection Zone IV, Multiple Use Zone VI)
 - Dampier (National Park Zone II, Habitat Protection Zone IV, Multiple Use Zone VI)
 - Montebello (Multiple Use Zone VI)
 - Ningaloo (Recreational Use Zone IV)

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- A Commonwealth Government-approved oil spill response plan will be in place for the duration of the activities, which will include notification to relevant agencies and organisations as to the nature and scale of the event, as soon as practicable following an occurrence. The Director of National Parks will be advised if an environmental incident occurs that may impact on the values of the AMP.

Environment that May Be Affected (EMBA)

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Scarborough Offshore Facility and Trunkline Operations Environment Plan	
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Timing	Anticipated around H2 2025 pending approvals
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Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
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Feedback

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Kind regards,
Woodside Feedback

1.17 Email sent Karratha Community Liaison Group (KCLG), Exmouth Community Liaison Group and Exmouth Chamber of Commerce and Industry (CCI) – 10 August 2023)

Dear Exmouth Community Liaison Group

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

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The commissioning activity involves:

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Feedback

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Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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1.18 Email sent to Western Australian Marine Science Institution (WAMSI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Institute of Marine Science (AIMS), Edith Cowan University, Murdoch University, and Curtin University – 11 August 2023

Dear Stakeholder

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Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

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A **Consultation Information Sheet** is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can subscribe to receive updates on our consultation activities by subscribing [here](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> • FPU ~950 m • Production Licenses ~900 m to 1000 m • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.

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Infrastructure Key infrastructure includes, but is not limited to:

- Moored Floating Production Unit (FPU) with gas processing equipment and utilities
- Suction piles and anchor chains
- Wells, Christmas trees, manifolds, flowlines, umbilicals and risers
- Gas export trunkline

Vessels Key vessels include, but are not limited to:

- Tow, Support and Anchor Handling Tugs (AHT)
- Light Construction Vessel (LCV)
- Survey vessel
- Supply and support vessel
- Accommodation support vessel (contingency)

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,
Woodside Feedback

1.19 Email sent to Carnarvon Chamber of Commerce and Industry, Shire of Carnarvon, Port Hedland Chamber of Commerce, Town of Port Hedland, Karratha & Districts Chamber of Commerce and Industry – 16 August 2023

Dear Stakeholder

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

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We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

A **Consultation Information Sheet** is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can subscribe to receive updates on our consultation activities by subscribing [here](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

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Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> • FPU ~950 m • Production Licenses ~900 m to 1000 m • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers

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- Gas export trunkline

Vessels

Key vessels include, but are not limited to:

- Tow, Support and Anchor Handling Tugs (AHT)
- Light Construction Vessel (LCV)
- Survey vessel
- Supply and support vessel
- Accommodation support vessel (contingency)

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

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Kind regards,

Woodside Feedback

1.20 Email sent to Onslow Chamber of Commerce and Industry – 31 August 2023

Dear Onslow Chamber of Commerce and Industry

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 704 of 919

Uncontrolled when printed. Refer to electronic version for most up to date information.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

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A **Consultation Information Sheet** is attached which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can subscribe to receive updates on our consultation activities by subscribing [here](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan

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Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
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Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline

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Vessels

Key vessels include, but are not limited to:

- Tow, Support and Anchor Handling Tugs (AHT)
- Light Construction Vessel (LCV)
- Survey vessel
- Supply and support vessel
- Accommodation support vessel (contingency)

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,
Woodside Feedback

1.21 Email sent to [Individual 4], [Individual 3] and Save Our Songlines – 3 September 2023

Dear [Individual 4], [Individual 3] and Save Our Songlines,

We are contacting you regarding Woodside's Scarborough Offshore Facility and Trunkline Operations Environment Plan. Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

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Woodside is seeking to understand the nature of the interests you may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **30 September 2023**. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let us know.

You can also provide feedback directly to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

We look forward to hearing from you.

Regards,
Woodside Feedback

1.22 Email sent to Shire of Shark Bay – 31 October 2023

Dear [Individual 8], [Individual 9] and [Individual 10],

Following Woodside's recent visit, please find an overview of proposed Woodside activities you may be interested in providing feedback on.

Also below is the previous email we sent to admin@sharkbay.wa.gov.au on 16 October regarding the Ngujima-Yin FPSO Facility Operations and Pyrenees Facility Operations Environment Plans.

Ngujima-Yin Floating Production Storage and Offloading (FPSO) Facility Operations and Pyrenees Facility Operations Environment Plans (EPs):

Woodside plans to continue producing crude oil at the Pyrenees and Ngujima-Yin FPSO facilities. Operations began in 2008 for Ngujima-Yin and 2010 for Pyrenees. Woodside is planning to submit five-year revisions of the Ngujima-Yin FPSO Facility Operations and Pyrenees Facility Operations EPs:

- The Ngujima-Yin FPSO and associated subsea infrastructure is located in Commonwealth waters approximately 57 km north of Exmouth, Western Australia, within Production Licences WA-28-L and WA-59-L, and pipeline licence WA-28-PL.

- The Pyrenees FPSO and associated subsea infrastructure is located in Commonwealth waters approximately 45 km north of Exmouth, Western Australia, within Production Licences WA-42-L and WA-43-L.

Both EPs are being revised and resubmitted for the continued production of crude oil via existing subsea infrastructure to the FPSOs, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth) (Environment Regulations).

The activities that will continue at both FPSOs are:

- Routine oil production, including crude oil offloading and associated activities,
- Routine inspection, monitoring, maintenance and repair (IMMR) of the FPSOs and associated subsea infrastructure; and
- Disconnection and sail-away of the FPSO with the turret mooring and subsea infrastructure remaining in place.

Scarborough Offshore Facility and Trunkline Operations EP:

Woodside is planning to submit the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Consultation Information Sheets

Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated

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management measures. These are also available on our [website](#). You can also choose to receive updates on our consultation activities by subscribing [here](#).

Feedback

If you have feedback specific to the proposed activities, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **13 November 2023**.

Your feedback and our response will be included in our EPs, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,
Woodside Feedback

1.23 Email sent to Shark Bay Recreational Marine Users, RAC Monkey Mia Dolphin Resort, Dirk Hartog Island, Shark Bay Community Resource Centre, [Individual 1] MLA, Shark Bay Aviation, Shark Bay Coastal Tours, Naturetime Tours, Wula Gula Nyinda Eco Cultural Tours – 31 October 2023

Dear Stakeholder,

Woodside recently met with the Shire of Shark Bay who advised you may be interested in and have feedback on the following proposed Woodside activities:

Ngujima-Yin Floating Production Storage and Offloading (FPSO) Facility Operations and Pyrenees Facility Operations Environment Plans (EPs):

Woodside plans to continue producing crude oil at the Pyrenees and Ngujima-Yin FPSO facilities. Operations began in 2008 for Ngujima-Yin and 2010 for Pyrenees.

Woodside is planning to submit five-year revisions of the Ngujima-Yin FPSO Facility Operations and Pyrenees Facility Operations EPs:

- The Ngujima-Yin FPSO and associated subsea infrastructure is located in Commonwealth waters approximately 57 km north of Exmouth, Western Australia, within Production Licences WA-28-L and WA-59-L, and pipeline licence WA-28-PL.
- The Pyrenees FPSO and associated subsea infrastructure is located in Commonwealth waters approximately 45 km north of Exmouth, Western Australia, within Production Licences WA-42-L and WA-43-L.

Both EPs are being revised and resubmitted for the continued production of crude oil via existing subsea infrastructure to the FPSOs, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)* (Environment Regulations).

The activities that will continue at both FPSOs are:

- Routine oil production, including crude oil offloading and associated activities,
- Routine inspection, monitoring, maintenance and repair (IMMR) of the FPSOs and associated subsea infrastructure; and
- Disconnection and sail-away of the FPSO with the turret mooring and subsea infrastructure remaining in place.

Scarborough Offshore Facility and Trunkline Operations EP:

Woodside is planning to submit the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Consultation Information Sheets

Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can also choose to receive updates on our consultation activities by subscribing [here](#).

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Feedback

If you have feedback specific to the proposed activities, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **13 November 2023**.

Your feedback and our response will be included in our EPs, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,
Woodside Feedback

1.24 Email sent to Australian Communications and Media Authority (ACMA) – 7 December 2023

Dear Stakeholder

Woodside is planning to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **20 December 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

	<ul style="list-style-type: none"> • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)

Feedback

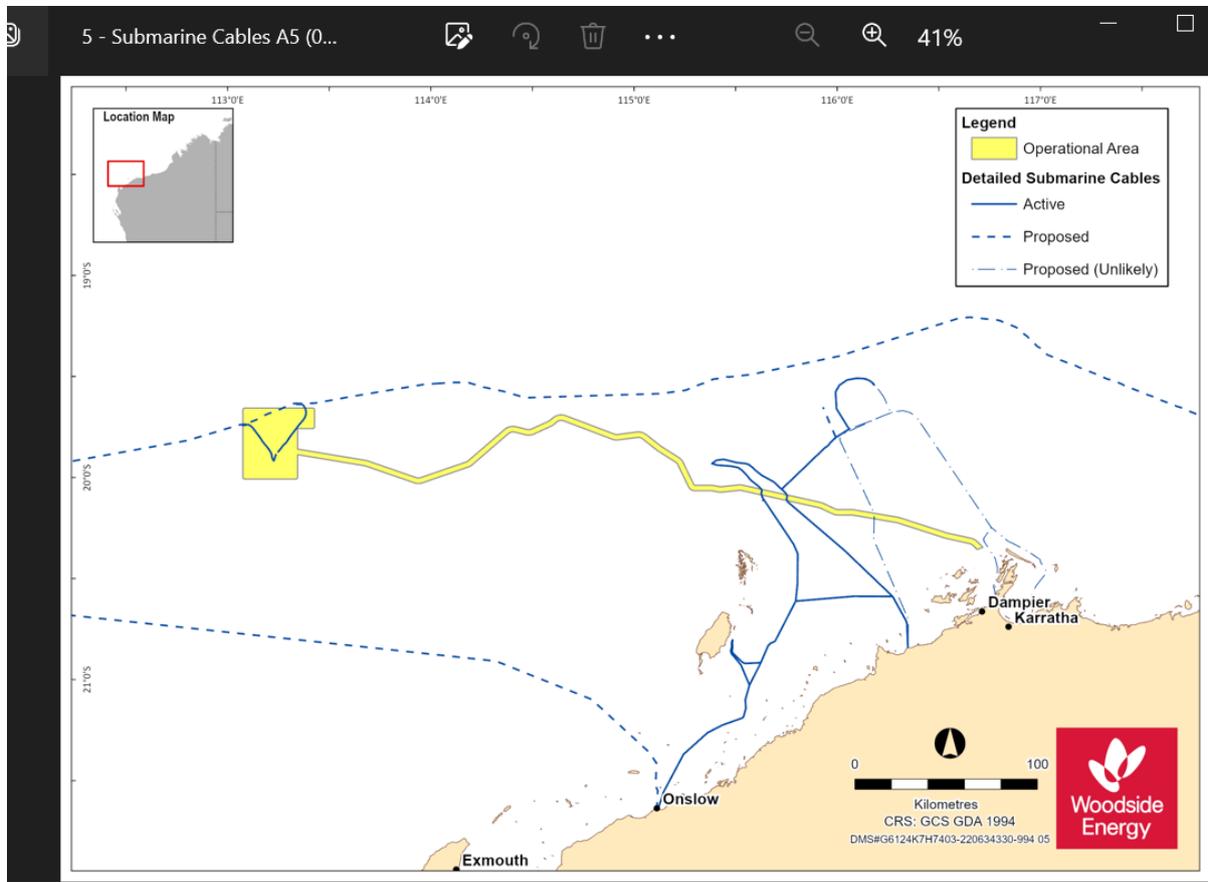
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If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **20 December 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

Kind regards,
Woodside Energy Feedback



1.25 Email sent to Wanparta Aboriginal Corporation – 28 August 2023

Dear [Individual 11]

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 715 of 919

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Although we are meeting this Thursday, I thought it best to email Scarborough Offshore Facility and Trunkline Operations environment plan information and we will speak to this EP on Thursday.

I am contacting you regarding Woodside's plans in relation to near future activities:

1. Scarborough Offshore Facility and Trunkline Operations Environment Plan. Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Wanparta Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **28 September 2023**. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Wanparta Aboriginal Corporation members as required. Woodside would be pleased to speak with Wanparta Aboriginal Corporation members in addition to the Wanparta Aboriginal Corporation Board / office holders.

Kind regards,

1.26 Email sent to Kariyarra Aboriginal Corporation – 29 August 2023

Dear [Individual 12]

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Revision: 3

Page 716 of 919

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I am contacting you regarding Woodside's plans in relation to near future activities:

1. Scarborough Offshore Facility and Trunkline Operations Environment Plan.
Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Kariyarra Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **29 September 2023**. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Kariyarra Aboriginal Corporation members as required. Woodside would be pleased to speak with Kariyarra Aboriginal Corporation members in addition to the Kariyarra Aboriginal Corporation Board / office holders.

Kind regards,

1.27 Email sent to Murujuga Aboriginal Corporation (MAC) – 1 September 2023

Hi [Individual 13]

I hope this message finds you well.

I am contacting you regarding Woodside's plans in relation to near future activities as part of the Scarborough Offshore Facility and Trunkline Operations Environment Plan. Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and

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complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that MAC and its members may have in the 'environment that may be affected' (EMBA) by this activity. The Summary Information sheet (attached) provides more detail. We are interested in hearing:

- 2 How the activity could impact your interests and activities and/or your cultural values
- 3 Your concerns about the proposed activity and what you think we should do about those concerns.
- 4 Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by 2 October 2023. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

As always you can provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to MAC members as required. Woodside would be pleased to speak with MAC members in addition to the MAC Board and office holders. I look forward to hearing from you.

Kind regards

1.28 Email sent to Ngarluma Aboriginal Corporation (NAC) – 1 September 2023

Hi [Individual 14] and [Individual 15]

I hope this message finds you well.

I am contacting you regarding Woodside's plans in relation to near future activities as part of the Scarborough Offshore Facility and Trunkline Operations Environment Plan. Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 718 of 919

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Woodside is seeking to understand the nature of the interests that NAC and its members may have in the 'environment that may be affected' (EMBA) by this activity. The Summary Information sheet (attached) provides more detail. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by 2 October 2023. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

As always you can provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to NAC members as required. Woodside would be pleased to speak with NAC members in addition to the NAC Board / office holders. I look forward to hearing from you.

Many thanks

1.29 Email sent to Wirrawandi Aboriginal Corporation (WAC) – 28 August 2023

Dear [Individual 16]

I hope this message finds you well. Hoping to have the template we discussed last week soon and will then forward on to you.

I am contacting you regarding Woodside's plans in relation to near future activities:

1. Scarborough Offshore Facility and Trunkline Operations Environment Plan.
Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Wirrawandi Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values

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- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **28 September 2023**. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Wirrawandi Aboriginal Corporation members as required. Woodside would be pleased to speak with Wirrawandi Aboriginal Corporation members in addition to the Wirrawandi Aboriginal Corporation Board / office holders.

Kind regards,

1.30 Email sent to Yinggarda Aboriginal Corporation – 1 September 2023

Dear [Individual 17] and [Individual 18]

I write regarding Woodside's near future activities under the Scarborough Offshore Facility and Trunkline Operations Environment Plan. In summary, Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through a trunkline to Woodside's Pluto LNG Plant on the Burrup Peninsula.

Please find attached a summary information sheet that explains the activities we plan to undertake. A detailed consultation information sheet can be found at the link below:

- [scarborough-project-offshore-facility-and-trunkline-operations-environment-plan.pdf \(woodside.com\)](#)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned activities and unplanned events. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Yinggarda Aboriginal Corporation (YAC) and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the attached Summary Information sheet. We are interested in hearing:

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- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **2 October 2023**. Please also let us know as soon as possible if a meeting would be beneficial, and how you would like us to engage with you. We will also include this activity in the draft consultation framework / agreement that has been the subject of our previous correspondence.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to YAC members as required. Woodside would be pleased to speak with YAC members in addition to the YAC Board / office holders.

We look forward to hearing from you.

Sincerely,

1.31 Email sent to Yindjibarndi Aboriginal Corporation (YAC) – 28 August 2023

Hi [Individual 19]

As spokesperson for Yindjibarndi Aboriginal Corporation;

Once again, I know we are meeting Wednesday to discuss ongoing engagement/consultation with NYFL, however I thought best to send this new environment plan information ahead of our meeting.

I am contacting you regarding Woodside's plans in relation to near future activities:

1. Scarborough Offshore Facility and Trunkline Operations Environment Plan. Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 721 of 919

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Woodside is seeking to understand the nature of the interests that Yindjibarndi Aboriginal Corporation (YAC) and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **28 September 2023**. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to YAC members as required. Woodside would be pleased to speak with YAC members in addition to the YAC Board / office holders.

Kind regards,

1.32 Email sent to Buurabalayji Thalanyji Aboriginal Corporation (BTAC) – 1 September 2023

Dear [Individual 20]

Thank you for your time on the phone this morning.

As we discussed, I write regarding Woodside's near future activities under the Scarborough Offshore Facility and Trunkline Operations Environment Plan. In summary Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to Woodside's Pluto LNG Plant on the Burrup Peninsula.

Please find attached a summary information sheet that explains the activities we plan to undertake. A detailed consultation information sheet can be found at the link below: [N N Scarborough project offshore facility and trunkline operations environment plan.pdf \(woodside.com\)](#)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned activities and

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unplanned events. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Buurabalayji Thalanyji Aboriginal Corporation (BTAC) and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the attached Summary Information sheet. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **2 October 2023**. Please also let us know as soon as possible if a meeting would be beneficial, and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to BTAC members as required. Woodside would be pleased to speak with BTAC members in addition to the BTAC Board / office holders.

We look forward to hearing from you.

Sincerely,

1.33 Email sent to Robe River Kuruma Aboriginal Corporation (RRKAC) – 29 August 2023

Dear [Individual 21]

I am contacting you regarding Woodside's plans in relation to near future activities: Scarborough Offshore Facility and Trunkline Operations Environment Plan. Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

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Woodside is seeking to understand the nature of the interests that Robe River Kuruma Aboriginal Corporation (RRKAC) and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached. We are interested in hearing:

How the activity could impact your interests and activities and/or your cultural values
Your concerns about the proposed activity and what you think we should do about those concerns.

Whether there are any other individuals, groups, or organisations you think we should talk to. If you would like to speak with us, please let us know by 29 September 2023. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to RRKAC members as required. Woodside would be pleased to speak with RRKAC members in addition to the RRKAC Board / office holders.

Kind regards,

1.34 Email sent to Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) via Yamatji Marlpa Aboriginal Corporation (YMAC) – 1 September 2023

Hi [Individual 22] and [Individual 23]

This will be the last one for the week I promise!

This email is regarding Woodside's plans in relation to near future activities as part of the Scarborough Offshore Facility and Trunkline Operations Environment Plan. For background, Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that NTGAC and its members may have in the 'environment that may be affected' (EMBA) by this activity. The Summary Information sheet (attached) provides more detail however I note your feedback regarding

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our material at our last meeting and as previously mentioned we are reviewing these resources.

We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to discuss this further please let me know by **2 October 2023**. I appreciate there are a few matters we need to discuss therefore a meeting may be more appropriate and we can include this on the agenda. Even if it is with you both in the first instance and NTGAC down the track, noting their limited availability. We would also be more than happy to speak with NTGAC members if required.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

As always you can provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to NTGAC members as required. I look forward to hearing from you.

Many thanks

1.35 Email sent to Malgana Aboriginal Corporation – 1 September 2023

Dear [Individual 24]

I hope this message finds you well and thank you for your correspondence earlier this week.

I write regarding Woodside's near future activities under the Scarborough Offshore Facility and Trunkline Operations Environment Plan. In summary Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to Woodside's Pluto LNG Plant on the Burrup Peninsula.

Please find attached a summary information sheet that explains the activities we plan to undertake. A detailed consultation information sheet can be found at the link below:

- [scarborough-project-offshore-facility-and-trunkline-operations-environment-plan.pdf \(woodside.com\)](#)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned activities and

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unplanned events. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Malgana Aboriginal Corporation (MAC) and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the attached Summary Information sheet. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **2 October 2023**. Please also let us know as soon as possible if a meeting would be beneficial, and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to MAC members as required. Woodside would be pleased to speak with MAC members in addition to the MAC Board / office holders.

We look forward to hearing from you.

Sincerely,

1.36 Email sent to Yamatiji Marlpa Aboriginal Corporation (YMAC) – 29 August 2023

Hi [Individual 22] and [Individual 23]

This will be the last one for the week I promise!

This email is regarding Woodside's plans in relation to near future activities as part of the Scarborough Offshore Facility and Trunkline Operations Environment Plan. For background, Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned

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activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that NTGAC and its members may have in the 'environment that may be affected' (EMBA) by this activity. The Summary Information sheet (attached) provides more detail however I note your feedback regarding our material at our last meeting and as previously mentioned we are reviewing these resources.

We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to discuss this further please let me know by **2 October 2023**. I appreciate there are a few matters we need to discuss therefore a meeting may be more appropriate and we can include this on the agenda. Even if it is with you both in the first instance and NTGAC down the track, noting their limited availability. We would also be more than happy to speak with NTGAC members if required.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

As always you can provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to NTGAC members as required. I look forward to hearing from you.

Many thanks

1.37 Email sent to Ngarluma and Yindjibarndi Foundation Ltd (NYFL) – 29 August 2023

Hi [Individual 19]

I know we are meeting Wednesday to discuss ongoing engagement/consultation, however I thought best to send this new environment plan information ahead of our meeting.

I am contacting you regarding Woodside's plans in relation to near future activities:

1. Scarborough Offshore Facility and Trunkline Operations Environment Plan. Woodside plans to install a Floating Production Unit (FPU), 374 km west-northwest of Dampier and complete subsequent hook-up and commissioning activities before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the trunkline to the Pluto LNG Plant.

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In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Ngarluma Yindjibarndi Foundation Limited (NYFL) and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached. We are interested in hearing:

- How the activity could impact your interests and activities and/or your cultural values
- Your concerns about the proposed activity and what you think we should do about those concerns.
- Whether there are any other individuals, groups, or organisations you think we should talk to.

If you would like to speak with us, please let us know by **28 September 2023**. Please also let us know as soon as possible if a meeting would be beneficial and please advise how you would like us to engage with you.

If there is any support or specific information, maps, images that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700. Please feel free to forward this email and, the attached documents to NYFL members as required. Woodside would be pleased to speak with NYFL members in addition to the NYFL Board / office holders.

Kind regards,

1.38 Email sent to Clean Energy Regulator – 11 September 2024

As part of the Scarborough Energy Project, Woodside is developing the Scarborough Offshore Facility and Trunkline (Operations) Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Please see below for further information. We have also attached a Consultation Information Sheet which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures.

The EP is also publicly available on the [NOPSEMA website](#).

We have an existing relationship with the Clean Energy Regulator (CER) in its role in administering schemes legislated by the Australian Government for measuring, managing, reducing or offsetting Australia's carbon emissions.

Could you please advise by **25 September 2024** if you have any comments regarding the impacts of the specific activities associated with the EP on CER's functions, interests or activities.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

Activity: Scarborough Offshore Facility and Trunkline (Operations) Environment Plan

Scarborough Offshore Facility and Trunkline (Operations) Environment Plan

Summary

Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough

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	Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> • FPU ~950 m • Production Licenses ~900 m to 1000 m • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel

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- Supply and support vessel
- Accommodation support vessel (contingency)

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or the feedback form on our website.

Your feedback on these specific activities and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,

1.39 Email sent to Vocus – 12 September 2024

Dear [Individual 25],

As part of the Scarborough Energy Project, Woodside is developing the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Woodside values the ongoing relationship with Vocus on the Scarborough Project. We are seeking your feedback specific to these activities as there are submarine communication cables in proximity to the Operational Area.

Please see below for further information. We have also attached a Consultation Information Sheet which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures.

The EP is also publicly available on the [NOPSEMA website](#).

Could you please advise if you have any comments regarding the impacts of these specific activities on Vocus's functions, interests or activities.

Overview

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 731 of 919

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	<ul style="list-style-type: none"> • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)

If you have feedback specific to the proposed activities described under the Scarborough Offshore Facility and Trunkline Operations EP, we welcome your feedback at feedback@woodside.com or phone call at 1800 442 977 or the feedback form on our website, by 12 October 2024.

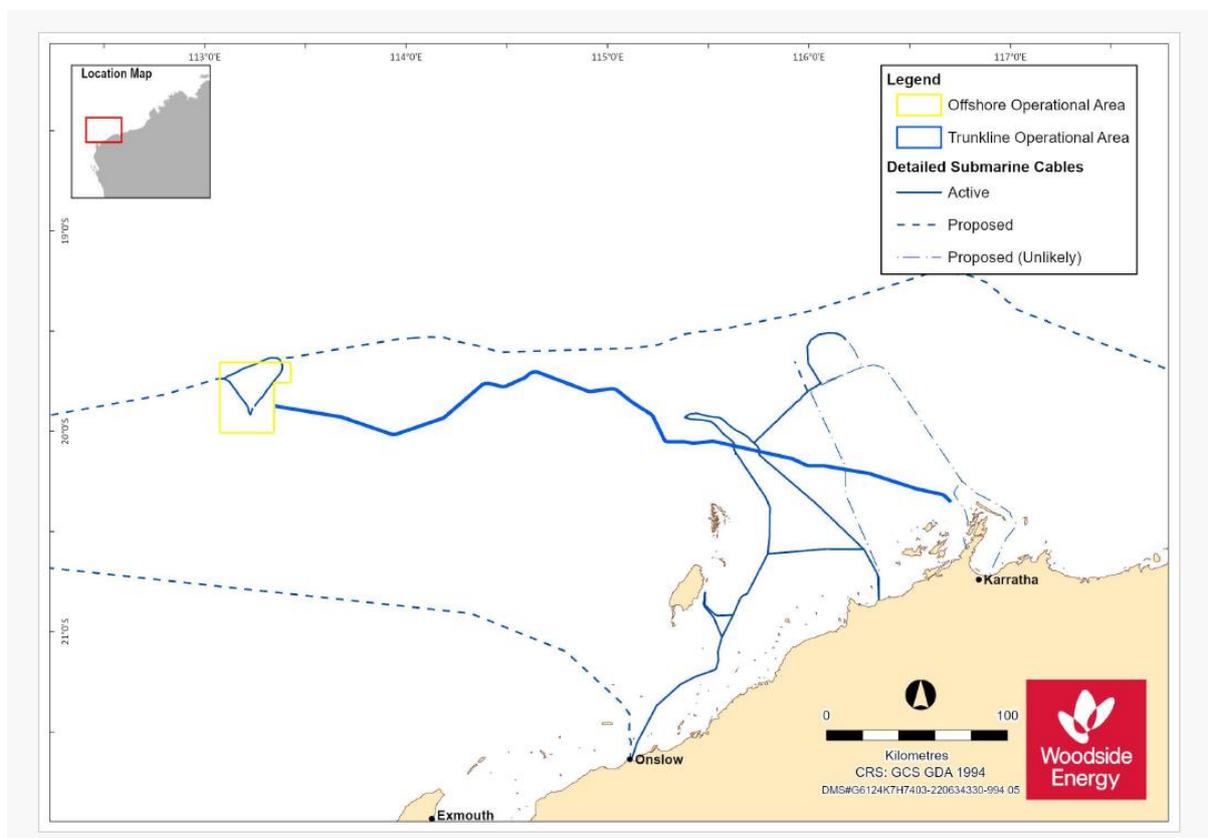
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Your feedback on these activities and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if you request that particular information that you provide in the consultation not be published. If so, we will make your request known to NOPSEMA.

NOPSEMA has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,



1.40 Email sent to Telstra – 4 November 2024

Dear [Individual 26]

As part of the Scarborough Energy Project, Woodside is developing the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L.

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 734 of 919

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Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Woodside values the ongoing relationship with Telstra on the Scarborough Project. We are seeking your feedback specific to these activities as there are submarine communication cables in proximity to the Operational Area.

Please see below for further information. We have also attached a Consultation Information Sheet which provides additional background on the proposed activities including summaries of potential key impacts and risks, and associated management measures.

The EP is also publicly available on the [NOPSEMA website](#).

Could you please advise if you have any comments regarding the impacts of these specific activities on Telstra's functions, interests or activities.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

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Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> • FPU ~950 m • Production Licenses ~900 m to 1000 m • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline

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Vessels

Key vessels include, but are not limited to:

- Tow, Support and Anchor Handling Tugs (AHT)
- Light Construction Vessel (LCV)
- Survey vessel
- Supply and support vessel
- Accommodation support vessel (contingency)

If you have feedback specific to the proposed activities described under the Scarborough Offshore Facility and Trunkline Operations EP, we welcome your feedback at feedback@woodside.com or phone call at 1800 442 977.

Your feedback on these activities and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if you request that particular information that you provide in the consultation not be published. If so, we will make your request known to NOPSEMA.

NOPSEMA has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Kind regards,

Woodside Energy Feedback

2 FOLLOW-UP CONSULTATION

2.1 Email sent to Australian Border Force (ABF), Pilbara Ports Authority, Ningaloo Coast World Heritage Advisory Committee (NCWHAC), Department of Biodiversity, Conservation and Attractions (DBCA), Department of Industry, Science and Resources (DISR), Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), Marine Tourism WA, WA Game Fishing Association, Chevron Australia, Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, INPEX Alpha Ltd, Carnarvon Energy Ltd, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, Jadestone, KATO Energy, Finder Energy, KUFPEC, Santos, Coastal Oil and Gas, Bounty Oil and Gas, Vermilion Oil and Gas, OMV Australia, JX Nippon, Australian Petroleum Production and Exploration Association (APPEA), Australasian Centre for Corporate Responsibility (ACCR), Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Doctors for the Environment Australia (DEA), Extinction Rebellion WA (XRWA), Friends of Australian Rock Art (FARA), Greenpeace Australia Pacific (GAP), International Fund for Animal Welfare (IFAW), Lock the Gate Alliance (LGA), Say No To Scarborough Gas (SNTSG), Sea Shepherd Australia (SSA), The Wilderness Society (TWS), World Wildlife Fund (WWF), University of Western Australia (UWA), Cape Conservation Group, Protect Ningaloo, Karratha Recreational Marine Users, Exmouth Recreational Marine Users, Shire of Exmouth, City of Karratha, Shire of Carnarvon, Karratha Community Liaison Group, Exmouth Community Liaison Group, Exmouth Chamber of Commerce and Industry (CCI), Australian Fisheries Management Authority (AFMA), North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery, Commonwealth Fisheries Association (CFA), Onslow Prawn Managed Fishery, Exmouth Gulf Prawn Managed Fishery, Demersal Scalefish Fishery: Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery – 30 August 2023

Dear Stakeholder

Woodside previously consulted you on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 11 September 2023.

Kind regards,
Woodside Feedback

2.2 Email sent to Australian Maritime Safety Authority (AMSA) – Marine Safety, Australian Maritime Safety Authority (AMSA) – Marine Pollution – 30 August 2023

Dear AMSA

Woodside previously consulted you on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 11 September 2023.

Kind regards,
Woodside Feedback

2.3 Email sent to Department of Defence (DoD). Included the Defence Map – 30 August 2023

Dear Department of Defence

Woodside previously consulted you on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 11 September 2023.

Kind regards,
Woodside Feedback

2.4 Email sent to Department of Planning, Lands and Heritage (DPLH). Included the WA Historical Shipwrecks List – 30 August 2023

Dear Stakeholder

Woodside previously consulted you on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses

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WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 11 September 2023.

Kind regards,
Woodside Feedback

2.5 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) – Underwater Heritage & Petroleum and Fisheries (DAFF – Fisheries). Included the Australia National Shipwreck List – 30 August 2023

Dear Stakeholder

Woodside previously consulted you on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 11 September 2023.

Kind regards,

Woodside Feedback

2.6 Email sent to Director of National Parks (DNP) – 30 August 2023

Dear Director of National Parks

Woodside previously consulted you on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 11 September 2023.

Kind regards,

Woodside Feedback

2.7 Email sent to Western Australian Marine Science Institution (WAMSI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Edith Cowan University (ECU), Murdoch University, and Curtin University – 30 August 2023

Dear Stakeholder

Woodside previously consulted you on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 11 September 2023.

Kind regards,

Woodside Feedback

2.8 Email sent to Carnarvon Chamber of Commerce and Industry, Port Hedland Chamber of Commerce, Town of Port Hedland, Karratha & Districts Chamber of Commerce and Industry – 30 August 2023

Dear Stakeholder

Woodside previously consulted you on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 11 September 2023.

Kind regards,

Woodside Feedback

2.9 Letter sent to Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Nickol Bay Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Gascoyne Demersal Scalefish Fishery by Woodside – 31 August 2023

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

30 August 2023

A - 1
PELTOWN PTY LTD
35 HARVEST ROAD
NORTH FREMANTLE WA 6159



Woodside Energy Group Ltd
ACN 004 898 962
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T: +61 8 9348 4000
www.woodside.com

Dear Stakeholder

SCARBOROUGH OFFSHORE FACILITY AND TRUNKLINE OPERATIONS ENVIRONMENT PLAN

Woodside previously consulted you (correspondence dated 9 August 2023) regarding the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au, phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

- Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
- Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up (RFSU) with the introduction of reservoir hydrocarbons.

The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen (N₂) removal.

Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Exclusionary / Cautionary Zones

There will be a fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU and a temporary 500 m exclusion zone around applicable vessels to manage vessel movements.

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Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

You were previously sent a Consultation Information Sheet (also available on our website woodside.com), which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. You can subscribe to receive updates on our consultation activities by subscribing on our website.

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL.
Location	<ul style="list-style-type: none"> ~ 374 km west-northwest of Dampier at closest landfall ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> FPU ~950 m Production Licenses ~900 m to 1000 m Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> FPU Hook-up and commissioning: ~4 months FPU Start-up: ~3 months FPU operations: for the life of the EP Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> Facility: 2000 m around future location of the FPU Subsea: 1500 m from the centerline of subsea infrastructure Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)

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Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Moored Floating Production Unit (FPU) with gas processing equipment and utilities Suction piles and anchor chains Wells, Christmas trees, manifolds, flowlines, umbilicals and risers Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> Tow, Support and Anchor Handling Tugs (AHT) Light Construction Vessel (LCV) Survey vessel Supply and support vessel Accommodation support vessel (contingency)
Relevant fisheries	<p>State fisheries</p> <ul style="list-style-type: none"> Operational Area: Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2 and 3); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Exmouth Gulf Prawn Managed Fishery; Demersal Scalefish Fishery: Pilbara Trawl Fisher, Pilbara Trap Fishery and Pilbara Line Fishery EMBA: Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2 and 3); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Exmouth Gulf Prawn Managed Fishery; Gascoyne Demersal Scalefish Fishery; Demersal Scalefish Fishery: Pilbara Trawl Fisher, Pilbara Trap Fishery and Pilbara Line Fishery <p>Commonwealth fisheries</p> <ul style="list-style-type: none"> Operational Area: North West Slope Trawl Fishery, Western Deepwater Trawl Fishery EMBA: North West Slope and Trawl Fishery; Western Deepwater Trawl Fishery; Western Tuna and Billfish Fishery

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Regards,

Woodside Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in v @

2.10 Email sent to Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Onslow Prawn Managed Fishery, Nickol Bay Prawn Managed Fishery, Western Australia Sea Cucumber Fishery Demersal Scale Fish Fishery: Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery by Western Australian Fishing Industry Council (WAFIC) – 11 September 2023

Dear Commercial Licence Holders

WAFIC is now working with Woodside to strategically streamline consultation with the commercial fishing industry, noting you may have previously received notifications regarding this proposed activity.

Woodside is planning to submit the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.

Overview of Activities:

- The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.
- The commissioning activity involves:
 - Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
 - Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up with the introduction of reservoir hydrocarbons.

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- The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen removal.
- Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.
- Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

The table below provides a summary of the proposed activities under this EP. The attached Information Sheet provides additional information including a map of impacted areas, summaries of potential impacts and risks relating to the proposed activities, and associated management measures. These are also available on Woodside's [website](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> ○ ~ 374 km west-northwest of Dampier at closest landfall ○ ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> ○ FPU ~950 m ○ Production Licenses ~900 m to 1000 m ○ Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> ○ FPU Hook-up and commissioning: ~4 months ○ FPU Start-up: ~3 months ○ FPU operations: for the life of the EP ○ Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area consists of the following Operational Areas</p> <ul style="list-style-type: none"> ○ Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure

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	<ul style="list-style-type: none"> ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L ○ Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> ○ Fixed 500 m radius petroleum safety zone around the Scarborough FPU. ○ Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> ○ Moored FPU with gas processing equipment and utilities ○ Suction piles and anchor chains ○ Wells, Christmas trees, manifolds, flowlines, umbilicals and risers ○ Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> ○ Tow, Support and Anchor Handling Tugs ○ Light Construction Vessel ○ Survey vessel ○ Supply and support vessel ○ Accommodation support vessel (contingency)
Relevant fisheries	<p><u>State fisheries</u> Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Demersal Scalefish Fishery; Pilbara Trawl Fishery, Pilbara Trap Fishery and Pilbara Line Fishery</p>

Feedback

Please provide any feedback specific to the proposed activities to [Individual 26] at WAFIC at [Individual 26 email address] by **11 October 2023**.

Your feedback and Woodside's response will be included in the Environment Plan which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*. Your feedback may also be used to support other regulatory processes associated with the proposed activities (which may or may not be confidential). Please advise if you would like any information to remain confidential and Woodside will make this known to NOPSEMA upon submission of the Environment Plan.

To receive updates on Woodside's consultation activities, please subscribe [here](#).

Best regards

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[Individual 26]
WAFIC

2.11 Email sent to Demersal Fish Fishery: Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery by Western Australian Fishing Industry Council (WAFIC) – 23 September 2023

Dear Commercial Licence Holders

WAFIC is now working with Woodside to strategically streamline consultation with the commercial fishing industry, noting you may have previously received notifications regarding this proposed activity.

Woodside is planning to submit the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.

Overview of Activities:

- The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.
- The commissioning activity involves:
 - Dewatering and commissioning of the subsea production system, comprising wellheads, manifolds, flowlines, umbilicals, and communication lines.
 - Activities to confirm the integrity of the entire interconnected facility, so it is ready for start-up with the introduction of reservoir hydrocarbons.
- The FPU start-up consists of initiating the subsea production system and FPU to allow reservoir gas and processing equipment to reach operational pressures and temperatures, as well as obtaining sufficient and stable equipment inlet flow to enable the equipment to perform to design criteria. Well clean-up and commissioning will also be carried out and gas export trunkline pressurisation and nitrogen removal.
- Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.
- Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

The table below provides a summary of the proposed activities under this EP. The attached Information Sheet provides additional information including a map of impacted areas, summaries of potential impacts and risks relating to the proposed activities, and associated management measures. These are also available on Woodside's [website](#).

Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan

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Summary	Install a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> ○ ~ 374 km west-northwest of Dampier at closest landfall ○ ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> ○ FPU ~950 m ○ Production Licenses ~900 m to 1000 m ○ Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> ○ FPU Hook-up and commissioning: ~4 months ○ FPU Start-up: ~3 months ○ FPU operations: for the life of the EP ○ Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area consists of the following Operational Areas</p> <ul style="list-style-type: none"> ○ Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L ○ Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> ○ Fixed 500 m radius petroleum safety zone around the Scarborough FPU. ○ Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> ○ Moored FPU with gas processing equipment and utilities ○ Suction piles and anchor chains ○ Wells, Christmas trees, manifolds, flowlines, umbilicals and risers ○ Gas export trunkline

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Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> ○ Tow, Support and Anchor Handling Tugs ○ Light Construction Vessel ○ Survey vessel ○ Supply and support vessel ○ Accommodation support vessel (contingency)
Relevant fisheries	<p><u>State fisheries</u> Marine Aquarium Managed Fishery; Mackerel Managed Fishery (Area 2); Pilbara Crab Managed Fishery; West Coast Deep Sea Crustacean Managed Fishery; Specimen Shell Managed Fishery; Onslow Prawn Managed Fishery; Nickol Bay Prawn Managed Fishery; Western Australia Sea Cucumber Fishery; Demersal Scalefish Fishery; Pilbara Trawl Fishery, Pilbara Trap Fishery and Pilbara Line Fishery</p>

Feedback

Please provide any feedback specific to the proposed activities to [Individual 26] at WAFIC at [Individual 26 email address] by **11 October 2023**.

Your feedback and Woodside’s response will be included in the Environment Plan which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*. Your feedback may also be used to support other regulatory processes associated with the proposed activities (which may or may not be confidential). Please advise if you would like any information to remain confidential and Woodside will make this known to NOPSEMA upon submission of the Environment Plan.

To receive updates on Woodside’s consultation activities, please subscribe [here](#).

Best regards

[Individual 26]
 WAFIC

2.12 Letter sent to Gascoyne Recreational Marine Users, Pilbara/Kimberley Recreational Marine Users – 31 August 2023

Dear Stakeholder

SCARBOROUGH OFFSHORE FACILITY AND TRUNKLINE OPERATIONS ENVIRONMENT PLAN

Woodside previously consulted you (correspondence dated 9 August 2023) regarding the Scarborough Offshore Facility and Trunkline Operations Environment Plan which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are seeking any feedback you may have specific to the proposed activities by a response to Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Overview

The FPU will be installed and connected to a pre-installed 20-point suction-piled mooring system and the riser pull-in(s) carried out. Hook-up and connection to subsea infrastructure will also occur, prior to commissioning.

The commissioning activity involves:

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Routine production operations involve transfer of reservoir fluids, including gas and produced water from the reservoir, along with Mono Ethylene Glycol (MEG) injection at the wells, through the subsea infrastructure to the FPU; and gas export via the Trunkline.

Other activities include gravimetry surveys for the purposes of reservoir monitoring, as well as IMMR activities on the FPU, subsea infrastructure (excluding well intervention or well workover activities) and gas export trunkline, and other contingent activities.

Exclusionary / Cautionary Zones

There will be a fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU and a temporary 500 m exclusion zone around applicable vessels to manage vessel movements.

Environment that May Be Affected (EMBA)

Following changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations who are located within the EMBA by a proposed petroleum activity.

The EMBA is the largest spatial extent where the Scarborough FPU Installation, Commissioning and Operations activities could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this Environment Plan (EP) is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

You were previously sent a Consultation Information Sheet (also available on our website woodside.com), which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. You can subscribe to receive updates on our consultation activities by subscribing on our website.

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Activity: Scarborough Offshore Facility and Trunkline Operations Environment Plan

Scarborough Offshore Facility and Trunkline Operations Environment Plan	
Summary	Install a Floating Production Unit and complete subsequent hook-up and commissioning activities, prior to start-up and operations for the Scarborough Operations. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant for further processing.
Permit Area	Activities will occur in permit areas WA-61-L, WA-62-L and WA-32-PL
Location	<ul style="list-style-type: none"> • ~ 374 km west-northwest of Dampier at closest landfall • ~ 244 km north-northwest of Exmouth at closest landfall
Approx. Water Depth (m)	<ul style="list-style-type: none"> • FPU ~950 m • Production Licenses ~900 m to 1000 m • Trunkline ~31 m (trunkline route at State waters boundary) to 1400 m (deepest point at KP 275 of the trunkline route)
Timing	Anticipated around H2 2025 pending approvals
Approx. Estimated Duration	<ul style="list-style-type: none"> • FPU Hook-up and commissioning: ~4 months • FPU Start-up: ~3 months • FPU operations: for the life of the EP • Gravimetry: ~2 months
Operational Areas	<p>The Petroleum Activities Area (PAA) consists of the following Operational Areas</p> <ul style="list-style-type: none"> • Offshore Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ Facility: 2000 m around future location of the FPU ○ Subsea: 1500 m from the centerline of subsea infrastructure ○ Gravimetry: 1000 m beyond the boundary of the WA-61-L and WA-62-L • Trunkline Operational Area for activities includes a radius of: <ul style="list-style-type: none"> ○ 1500 m radius from the centerline of the gas export trunkline (WA-32-PL)
Exclusionary/ Cautionary Zone	<ul style="list-style-type: none"> • Fixed 500 m radius petroleum safety zone (PSZ) around the Scarborough FPU. • Temporary 500 m exclusion zone around applicable vessels to manage vessel movements.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> • Moored Floating Production Unit (FPU) with gas processing equipment and utilities • Suction piles and anchor chains • Wells, Christmas trees, manifolds, flowlines, umbilicals and risers • Gas export trunkline
Vessels	<p>Key vessels include, but are not limited to:</p> <ul style="list-style-type: none"> • Tow, Support and Anchor Handling Tugs (AHT) • Light Construction Vessel (LCV) • Survey vessel • Supply and support vessel • Accommodation support vessel (contingency)

Feedback

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If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or phone call at 1800 442 977, or feedback form on our website by **11 September 2023**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Regards,

Woodside Feedback

2.13 Email sent to Australian Marine Conservation Society – 16 November 2023

Dear Australian Marine Conservation Society

Consultation - Scarborough Offshore Facility and Trunkline Operations Environment Plan

In 2022, Woodside consulted AMCS on the following Environment Plans:

- Scarborough 4D Baseline Marine Seismic Survey (Seismic)
- WA-61-L Scarborough Drilling and Completions (D&C)
- Scarborough Seabed Intervention and Trunkline Installation (SITI).

In response to consultation on the Seismic EP, AMCS advised it was involved in a large number of consultations and needed to prioritise limited resources but requested Woodside continue to send notifications and reminders of future consultation.

As per this previous request, on 9 and 30 August 2023 Woodside sent AMCS information and requested feedback on the Scarborough Offshore Facility and Trunkline Operations Environment Plan. The consultation information for this Environment Plan is located [here](#).

Proposed activities under this Environment Plan involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licenses WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 753 of 919

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At this stage Woodside has not received a response from AMSC. We are now reaching out one final time to see if AMCS has any feedback or if you'd like to meet to discuss the Scarborough Offshore Facility and Trunkline Operations Environment Plan.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)* and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

We would welcome your feedback or request for a meeting at Feedback@woodside.com.au or 1800 442 977 by 8 December 2023.

Kind regards,
Woodside Energy Feedback

2.14 Email sent to [Individual 4], [Individual 3] and Save Our Songlines & and cc: Environmental Defenders Office (EDO) – 22 November 2023

Dear [Individual 4], [Individual 3] and Save Our Songlines

Woodside previously provided you with consultation information on its plans to submit the **Scarborough Offshore Facility and Trunkline Operations Environment Plan** which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activity is provided in the email below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 8 December 2023.

Kind regards,

Woodside Feedback

2.15 Email sent to Director of National Parks (DNP) – 23 November 2023

Dear Director of National Parks

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 754 of 919

Uncontrolled when printed. Refer to electronic version for most up to date information.

We are now reaching out one final time to notify you that consultation in the course of preparing the Operations EP closes on 8 December 2023 and to enquire as to whether DNP has any feedback or if you'd like to meet to discuss the Operations EP.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)* and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

We would welcome your feedback or request for a meeting at Feedback@woodside.com.au or 1800 442 977 before 8 December 2023 when consultation closes.

Kind regards,
Woodside Energy Feedback

2.16 Email sent to Say No to Scarborough Gas (SNTSG) with letter attached – 5 December 2023

Dear Say No to Scarborough Gas

Please find attached a letter seeking feedback or the opportunity to meet before consultation on the Scarborough Offshore Facility and Trunkline Operations Environmental Plan closes on 20 December 2023.

Kind regards,

Woodside Energy Feedback



Woodside Energy Ltd.
 ACN 004 898 962
 Mia Yellagonga
 11 Mount Street
 Perth WA 6000
 Australia
 T +61 8 9348 4000
www.woodside.com

Please direct all responses/queries to:
Woodside Feedback
 T: 1800 442 977
 E: Feedback@woodside.com

Dear Say No To Scarborough Gas

Consultation - Scarborough Offshore Facility and Trunkline Operations Environment Plan

Woodside met with Say No To Scarborough Gas on 14 October 2022 to provide a briefing on the Scarborough Project and related Environment Plans including:

- Scarborough 4D B1 Marine Seismic Survey (Seismic)
- WA-61-L Scarborough Drilling and Completions (D&C)
- Scarborough Seabed Intervention and Trunkline Installation (SITI)
- WA-61-L and WA-62-L Subsea Infrastructure Installation (Subsea)

Since this meeting, Say No To Scarborough Gas and Woodside have engaged in correspondence on the Seismic, D&C, SITI and Subsea EPs where Say No To Scarborough Gas provided feedback to Woodside. This feedback has been addressed.

On 9 and 30 August 2023, Woodside provided Say No To Scarborough Gas with consultation information and requested feedback on the Scarborough Offshore Facility and Trunkline Operations Environment Plan (Operations EP). The consultation information for this Environment Plan is located [here](#).

In the absence of specific feedback from Say No To Scarborough Gas on the Operations EP, Woodside has reviewed previous feedback provided by Say No To Scarborough Gas on the Seismic, D&C, SITI and Subsea EPs which may be relevant to the Operations EP. This feedback is summarised below, including Woodside’s assessment and response.

Summary of previous feedback which may be relevant to the Operations EP	Woodside assessment and response ¹
Say No To Scarborough Gas concerns related to the nature and process of Woodside’s community consultation, its thoroughness in nature, and whether it is genuine in intent, or purely a box-ticking exercise.	<p>Consultation requirements set out in Regulation 11A of the Environment Regulations have been complied with in relation to the consultation process for the EPs which Woodside detailed during its consultation meeting with SNTSG on 13 October 2022. Woodside’s consultation process has continued to evolve based on ongoing Regulator feedback.</p> <p>Where feedback is received which informs Woodside of measures that it may take to mitigate potential environmental impacts from the Petroleum Activities Program (PAP), Woodside incorporates this feedback into</p>

¹ Woodside’s current working assumption (which is subject to change) is that the information above is relevant to this Environment Plan.

<p>Ecosystem impacts: Say No To Scarborough Gas concerns as to whether changing environmental conditions due to climate change will affect the interactions between marine life and the disturbance and pollution caused by the project. Where have the effects of climate change and subsequent ocean changes such as higher water temperatures increasing the toxicity of petroleum hydrocarbons, expansion of oxygen minimum zones and further oxygen depletion, and ocean acidification been considered? What is the impact of these changes on increased metabolic demand? Which ecological parameters are used to assess impacts on species, populations, assemblages and ecosystems? (i.e., biodiversity, biomass, productivity). Which ecological baselines are used for these assessments? What was the process of the deep-water environment survey? And from this, which species are most likely to suffer losses? What assessments were done on microbial communities and processes? And what grounds do Woodside propose for not suspending work during pygmy blue whale migration season?</p>	<p>All emissions and discharges including from atmospheric and greenhouse gases, as well as discharges of commingled produced water and cooling water streams will be assessed in the EP. This includes an evaluation of all receptors that may be impacted from these.</p> <p>Impacts on pygmy blue whales will be assessed throughout the EP and impacts and risks reduced to ALARP and Acceptable levels.</p> <p>In the course of preparing an EP, Woodside engages suitably qualified environmental consultants and experts to inform what ecological parameters are required to be considered to inform potential risks and impacts from activities. Additionally, Woodside has extensive experience working in the Western Australian offshore environment and has developed a comprehensive database of information related to the existing environment. Woodside draws on this experience when evaluating all aspects relating to the risks and impacts of the activity and in developing appropriate control measures to mitigate impacts to environmental receptors.</p>
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Proposed activities under this Environment Plan involve the installation of a Floating Production Unit (FPU) and subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are now reaching out one final time to notify you that consultation in the course of preparing the Operations EP closes on 20 December 2023 and to enquire as to whether Say No To Scarborough Gas has any feedback or if you'd like to meet to discuss the Operations EP.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

We would welcome your feedback or request for a meeting at Feedback@woodside.com.au or 1800 442 977 before 20 December 2023 when consultation closes.

Kind regards,

Woodside Energy Feedback

The personal information that Woodside Energy Group Ltd (Woodside) collects in our engagement with you will be processed in accordance with our [privacy statement](#).

Email our [Privacy Officer](#) if you have questions about how we handle your personal information.



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in v @

2.17 Email sent to Doctors for the Environment Australia (DEA) with letter attached – 5 December 2023

Dear Doctors for the Environment Australia

Please find attached a letter seeking feedback or the opportunity to meet before consultation on the Scarborough Offshore Facility and Trunkline Operations Environmental Plan closes on 20 December 2023.

Kind regards,

Woodside Energy Feedback



Woodside Energy Ltd.
 ACN 004 898 962
 Mia Yellagonga
 11 Mount Street
 Perth WA 6000
 Australia
 T +61 8 9348 4000
www.woodside.com

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Woodside Feedback
 T: 1800 442 977
 E: Feedback@woodside.com

Dear Doctors for the Environment Australia

Consultation - Scarborough Offshore Facility and Trunkline Operations Environment Plan

In 2022, Doctors for the Environment Australia (DEA) self-identified for the following Scarborough EPs:

- Scarborough 4D B1 Marine Seismic Survey (Seismic)
- WA-61-L Scarborough Drilling and Completions (D&C)
- Scarborough Seabed Intervention and Trunkline Installation (SITI).

In response to the D&C, SITI and Seismic EPs, DEA provided feedback to Woodside which Woodside has addressed.

On 9 and 30 August 2023, Woodside provided the DEA with consultation information and requested feedback on the Scarborough Offshore Facility and Trunkline Operations Environment Plan (Operations EP). The consultation information for this Environment Plan is located [here](#).

In the absence of specific feedback from DEA on the Operations EP, Woodside has reviewed previous feedback provided by the DEA on the Seismic, D&C, and SITI EPs which may be relevant to the Operations EP. This feedback is summarised below, including Woodside’s assessment and response.

Summary of previous feedback which may be relevant to the Operations EP	Woodside assessment and response ¹
<ul style="list-style-type: none"> • DEA members will be affected by the Scarborough project because climate change and the use of gas as an energy source for domestic and commercial use produces both direct and indirect health impacts. • Climate change has impacts on health directly, indirectly, and via social mechanisms. Worldwide, including in Western Australia, we are already seeing these impacts. This includes the impacts of extreme heat, increasingly severe extreme weather events, drought, changing infectious disease patterns, and resource scarcity, among others. • In addition to the contribution to climate change, gas itself has also been recognised as a health threat. For example, the use of gas in domestic 	<p>Greenhouse Gas (GHG) emissions relevant to the Petroleum Activities Program (PAP), including sources and volumes, will be presented and assessed in the EP. GHG emissions will be estimated using the National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008. The EP will assess Direct Emissions (Scope 1) and Indirect Emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the National Greenhouse and Energy Reporting Regulations 2008 (Cth).</p> <p>The EP will assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. Direct GHG emissions of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) and Total carbon dioxide equivalent (Total CO₂e) emissions will be estimated, including from fuel use, flaring, non-routine</p>

¹ Woodside’s current working assumption (which is subject to change) is that the information above is relevant to this Environment Plan.

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<p>premises has been demonstrated to cause a significant proportion of childhood asthma.</p> <ul style="list-style-type: none"> The processing of the gas at facilities on the Burrup Peninsula will also increase existing levels of nitrogen dioxide, sulphur dioxide, ozone, mercury, other heavy metals and many thousands of tonnes of volatile organic compounds. Air pollutants of this type can cause serious health impacts, including heart disease, stroke, lung cancer, asthma and diabetes, even at low levels of exposure. 	<p>venting of process hydrocarbons via flare system, and fugitive emissions.</p> <p>Indirect emissions attributed to the Scarborough Project from offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users will be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.</p> <p>An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions has been undertaken. This includes development of a decarbonisation plan for the Pluto Hub.</p> <p>Woodside also has in place a Climate Strategy which is an integral part of the company strategy. The strategy has two key elements: reducing Woodside's net equity Scope 1 and 2 GHG emissions, and investing in the products and services that Woodside's customers need as they secure their energy needs and reduce their emissions.</p> <p>Woodside's net equity reduction targets have an aspiration of net zero by 2050 or sooner. In 2022, Woodside achieved 11% reduction compared to starting base. Woodside plans to achieve net equity Scope 1 and 2 GHG emissions reduction targets in three ways:</p> <ul style="list-style-type: none"> Avoiding GHG emissions through the way we design our assets Reducing GHG emissions through the way we operate our assets Originating and acquiring carbon credits to use as offsets for the remainder. <p>Avoiding and reducing emissions are Woodside's first priorities for meeting the net equity emissions reduction targets. However, offsetting emissions will allow Woodside more flexibility to meet these targets, while asset and technology decarbonisation plans are matured and implemented. In the longer term, where emissions prove to be hard-to-abate, any such residual emissions would also need to be offset using carbon credits in order to achieve our net zero aspiration.</p>
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Proposed activities under this Environment Plan involve the installation of a Floating Production Unit (FPU) and subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are now reaching out one final time to notify you that consultation in the course of preparing the Operations EP closes on 20 December 2023 and to enquire as to whether DEA has any feedback or if you'd like to meet to discuss the Operations EP.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with

the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

We would welcome your feedback or request for a meeting at Feedback@woodside.com.au or 1800 442 977 before 20 December 2023 when consultation closes.

Kind regards,

Woodside Energy Feedback

The personal information that Woodside Energy Group Ltd (Woodside) collects in our engagement with you will be processed in accordance with our [privacy statement](#).

Email our [Privacy Officer](#) if you have questions about how we handle your personal information.



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in v @

2.18 Email sent to Lock The Gate Alliance (LGA) with letter attached – 5 December 2023

Dear Lock the Gate Alliance

Please find attached a letter seeking feedback or the opportunity to meet before consultation on the Scarborough Offshore Facility and Trunkline Operations Environmental Plan closes on 20 December 2023.

Kind regards,

Woodside Energy Feedback



Woodside Energy Ltd.
 ACN 004 898 982
 Mia Yellagonga
 11 Mount Street
 Perth WA 6000
 Australia
 T +61 8 9348 4000
www.woodside.com

Please direct all responses/queries to:
Woodside Feedback
 T: 1800 442 977
 E: Feedback@woodside.com

Dear Lock the Gate Alliance

Consultation - Scarborough Offshore Facility and Trunkline Operations Environment Plan

In 2022, Lock the Gate Alliance (LGA) self-identified for the following Scarborough EPs:

- Scarborough 4D B1 Marine Seismic Survey (Seismic)
- WA-61-L Scarborough Drilling and Completions (D&C)
- Scarborough Seabed Intervention and Trunkline Installation (SITI)

In response to the Seismic, D&C, and SITI EPs, LGA provided feedback to Woodside which Woodside has addressed.

On 9 and 30 August 2023, Woodside provided the LGA with consultation information and requested feedback on the Scarborough Offshore Facility and Trunkline Operations Environment Plan (Operations EP). The consultation information for this Environment Plan is located [here](#).

In the absence of specific feedback from LGA on the Operations EP, Woodside has reviewed previous feedback provided by the LGA on the Seismic, D&C, and SITI EPs which may be relevant to the Operations EP. This feedback is summarised below, including Woodside’s assessment and response.

Summary of previous feedback which may be relevant to the Operations EP	Woodside assessment and response ¹
<ul style="list-style-type: none"> • LGA and its members will be affected by climate change which will be increased by the Scarborough project. It will especially affect our members who live in the Pilbara and Kimberley, the many people who depend on groundwater, and areas that are subject to flooding, especially the Kimberley. • The Scarborough gas field development will lead to the production of 1.6 billion tonnes of carbon emissions over the next 25 years, adding to WA’s 	<p>Greenhouse Gas (GHG) emissions relevant to the Petroleum Activities Program (PAP), including sources and volumes, will be presented and assessed in the EP. GHG emissions will be estimated using the National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008 and other industry standard database. The EP will assess Direct Emissions (Scope 1) and Indirect Emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the National Greenhouse and Energy Reporting Regulations 2008 (Cth).</p> <p>The EP will assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. Direct GHG emissions of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) and Total carbon dioxide equivalent (Total CO₂e) emissions will be estimated, including from fuel use,</p>

¹ Woodside’s current working assumption (which is subject to change) is that the information above is relevant to this Environment Plan.

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<p>emissions and the planet's burden of climate change impacts. LGA and its supporters stand to be directly affected by the climate impacts of the project, which will cause increasing severity in heatwaves, bushfires, floods, storms, etc., and socio-economic pressures that will arise from these environmental changes.</p> <ul style="list-style-type: none"> The Scarborough gas field development will support further industrialisation of the Burrup Peninsula which will damage the National Heritage values of this area. 	<p>flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.</p> <p>Indirect emissions attributed to the Scarborough Project from offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users will be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.</p> <p>An impact assessment of GHG emissions from the Scarborough facility and mitigation and management controls to reduce GHG emissions has been undertaken. This includes development of a decarbonisation plan for the Pluto Hub.</p> <p>Woodside also has in place a Climate Strategy which is an integral part of the company strategy. The strategy has two key elements: reducing Woodside's net equity Scope 1 and 2 GHG emissions, and investing in the products and services that Woodside's customers need as they secure their energy needs and reduce their emissions.</p> <p>Woodside's net equity reduction targets have an aspiration of net zero by 2050 or sooner. In 2022, Woodside achieved 11% reduction compared to starting base. Woodside plans to achieve net equity Scope 1 and 2 GHG emissions reduction targets in three ways:</p> <ul style="list-style-type: none"> Avoiding GHG emissions through the way we design our assets Reducing GHG emissions through the way we operate our assets Originating and acquiring carbon credits to use as offsets for the remainder. <p>Avoiding and reducing emissions are Woodside's first priorities for meeting the net equity emissions reduction targets. However, offsetting emissions will allow Woodside more flexibility to meet these targets, while asset and technology decarbonisation plans are matured and implemented. In the longer term, where emissions prove to be hard-to-abate, any such residual emissions would also need to be offset using carbon credits in order to achieve our net zero aspiration.</p>
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Proposed activities under this Environment Plan involve the installation of a Floating Production Unit (FPU) and subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are now reaching out one final time to notify you that consultation in the course of preparing the Operations EP closes on 20 December 2023 and to enquire as to whether LGA has any feedback or if you'd like to meet to discuss the Operations EP.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to the National Offshore Petroleum Safety

and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

We would welcome your feedback or request for a meeting at Feedback@woodside.com.au or 1800 442 977 before 20 December 2023 when consultation closes.

Kind regards,

Woodside Energy Feedback

The personal information that Woodside Energy Group Ltd (Woodside) collects in our engagement with you will be processed in accordance with our [privacy statement](#).

Email our [Privacy Officer](#) if you have questions about how we handle your personal information.



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in v @

2.19 Email sent to The Wilderness Society (TWS) with letter attached – 5 December 2023

Dear The Wilderness Society

Please find attached a letter seeking feedback or the opportunity to meet before consultation on the Scarborough Offshore Facility and Trunkline Operations Environmental Plan closes on 20 December 2023.

Kind regards,

Woodside Energy Feedback



Woodside Energy Ltd.
 ACN 004 898 982
 Mia Yellagonga
 11 Mount Street
 Perth WA 6000
 Australia
 T +61 8 9348 4000
www.woodside.com

Please direct all responses/queries to:
Woodside Feedback
 T: 1800 442 977
 E: Feedback@woodside.com

Dear The Wilderness Society

Consultation - Scarborough Offshore Facility and Trunkline Operations Environment Plan

Woodside met with The Wilderness Society on 6 October 2022 to provide a briefing on the Scarborough Project and related Environment Plans:

- Scarborough 4D B1 Marine Seismic Survey (Seismic)
- WA-61-L Scarborough Drilling and Completions (D&C)
- Scarborough Seabed Intervention and Trunkline Installation (SITI)
- WA-61-L and WA-62-L Subsea Infrastructure Installation (Subsea)

Since this meeting, The Wilderness Society and Woodside have engaged in correspondence on the D&C, Subsea, Seismic and SITI EPs where The Wilderness Society provided feedback to Woodside which Woodside has addressed.

In a letter sent 17 October 2022, Woodside also noted The Wilderness Society’s more general interest in carbon offsets, biodiversity and native vegetation, and although outside of the scope of the Scarborough Project consultation, we welcomed the opportunity to meet with The Wilderness Society to discuss the work Woodside is undertaking in this space. This offer has not been taken up by The Wilderness Society.

On 9 and 30 August 2023, Woodside provided The Wilderness Society with consultation information and requested feedback on the Scarborough Offshore Facility and Trunkline Operations Environment Plan (Operations EP). The consultation information for this Environment Plan is located [here](#).

In the absence of specific feedback from The Wilderness Society on the Operations EP, Woodside has reviewed previous feedback provided by The Wilderness Society on the Seismic, D&C, SITI and Subsea EPs which may be relevant to the Operations EP. This feedback is summarised below, including Woodside’s assessment and response.

Summary of previous feedback which may be relevant to the Operations EP	Woodside assessment and response ¹
The work undertaken to understand marine fauna populations and their migration patterns in relation to Woodside’s proposed activities and	In development of the EP Woodside engages qualified Environmental Consultants to provide information related to the existing environment. This includes information on the migratory patterns and behaviours associated with marine mammals, which informs Woodside’s assessment of potential

¹ Woodside’s current working assumption (which is subject to change) is that the information above is relevant to this Environment Plan.

(Cth) and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

We would welcome your feedback or request for a meeting at Feedback@woodside.com.au or 1800 442 977 before 20 December 2023 when consultation closes.

Kind regards,

Woodside Energy Feedback

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Email our [Privacy Officer](#) if you have questions about how we handle your personal information.



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in o @

2.20 Email sent to The Australian Conservation Foundation (ACF) with letter attached – 5 December 2023

Dear The Australian Conservation Society

Please find attached a letter seeking feedback or the opportunity to meet before consultation on the Scarborough Offshore Facility and Trunkline Operations Environmental Plan closes on 20 December 2023.

Kind regards,

Woodside Energy Feedback



Woodside Energy Ltd.
 ACN 004 888 962
 Mia Yellagonga
 11 Mount Street
 Perth WA 6000
 Australia
 T +61 8 9348 4000
www.woodside.com

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Woodside Feedback
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 E: Feedback@woodside.com

Dear The Australian Conservation Foundation

Consultation - Scarborough Offshore Facility and Trunkline Operations Environment Plan

Woodside met The Australian Conservation Foundation on 11 October 2022 to provide a briefing on the Scarborough Project and related Environment Plans including:

- Scarborough 4D B1 Marine Seismic Survey (Seismic)
- WA-61-L Scarborough Drilling and Completions (D&C)
- Scarborough Seabed Intervention and Trunkline Installation (SITI)
- WA-61-L and WA-62-L Subsea Infrastructure Installation (Subsea)

Since this meeting, The Australian Conservation Foundation and Woodside have engaged in correspondence on the Seismic, D&C, SITI and Subsea EPs where The Australian Conservation Foundation provided feedback to Woodside which was addressed.

On 9 and 30 August 2023, Woodside provided The Australian Conservation Foundation with consultation information and requested feedback on the Scarborough Offshore Facility and Trunkline Operations Environment Plan (Operations EP). The consultation information for this Environment Plan is located [here](#).

In the absence of specific feedback from The Australian Conservation Foundation on the Operations EP, Woodside has reviewed previous feedback provided by The Australian Conservation Foundation on the Seismic, D&C, SITI and Subsea EPs which may be relevant to the Operations EP. This feedback is summarised below, including Woodside’s assessment and response.

Summary of previous feedback which may be relevant to the Operations EP	Woodside assessment and response ¹
The Scarborough Gas Project EPs should include an evaluation of all impacts and risks related to the greenhouse gas emissions that will be caused by the Project.	Greenhouse Gas (GHG) emissions relevant to the Petroleum Activities Program (PAP), including sources and volumes, will be presented and assessed in the EP. GHG emissions will be estimated using the National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008 and other industry standard database. The EP will assess Direct Emissions (Scope 1) and Indirect Emissions, aligned with the definitions of the GHG Protocol Corporate Standard and the National Greenhouse and Energy Reporting Regulations 2008 (Cth).

¹ Woodside’s current working assumption (which is subject to change) is that the information above is relevant to this Environment Plan.

	<p>The EP will assess both direct and indirect impacts and risks associated with the PAP, having regard to the nature and scale of the proposed PAP. Direct GHG emissions of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) and Total carbon dioxide equivalent (Total CO₂e) emissions will be estimated, including from fuel use, flaring, non-routine venting of process hydrocarbons via flare system, and fugitive emissions.</p> <p>Indirect emissions attributed to the Scarborough project from offshore vessel and helicopter use, hydrocarbon processing (onshore), third party transport of products, regassification, distribution and combustion by end users will be estimated using vessel fuel consumption rate estimates, helicopter fuel consumption data and emission factors from the NGER Scheme and other industry standard databases.</p>
<p>There are several vulnerable, endangered and critically endangered marine species within both the operational area and the environment that may be affected including loggerhead and leatherback turtles, blue whales and the eastern curlew.</p>	<p>In accordance with Regulation 13(2) and 13(3) of the Environment Regulations the EP will describe the existing environment that may be affected by the activity, including details of the particular relevant values and sensitivities of the environment. This includes presence of turtles, whales and seabirds.</p> <p>Controls will be implemented to reduce risks to As Low as Reasonably Possible (ALARP) and acceptable levels.</p>
<p>Light emissions from the activities are expected to have potential impacts and risks including behavioural disturbance, injury and mortality to seabirds while the activities are underway</p>	<p>Evaluation of risks and impacts associated with routine light emissions from the Field Production Unit (FPU) and Project Vessels will be presented in the EP. This includes routine lighting from FPU and vessel operation. As the FPU is ~430km offshore and away from islands or other emergent features, including a 105 km separation from a breeding Biologically Important Area (BIA) for the wedgetailed shearwater, any presence of seabirds or shorebirds is considered likely to be of a transient nature only.</p> <p>The Trunkline Operational Area is in proximity to and overlaps breeding and foraging habitat for a number of seabird species, with descriptions and impacts evaluated in the EP. However, planned activities in the Trunkline Operational Area are minimal, limited to infrequent and short-term vessel presence. The Trunkline Operational Area also represents a relatively small portion of the seabird BIAs and while seabird presence may occur, it is considered likely to be of a transient nature only.</p> <p>Further details including demonstration that impacts of lighting on seabirds will be reduced to ALARP and acceptable levels, with controls implemented will be presented in the EP.</p>
<p>Acoustic emissions from the activities are expected to have potential impacts and risks on marine species, including:</p> <ul style="list-style-type: none"> a. Recognition that noise interference is a key threat to migratory and threatened cetaceans 	<p>The Petroleum Activities Program will be comprised of different acoustic emissions sources, primarily associated with infield vessel operations and support activities, such as geophysical surveys and other IMMR activities. Some sound will also be associated with the start-up and operation phase of the FPU and subsea facilities. Sound levels will fluctuate over the course of the Petroleum Activities Program.</p>

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<p>and marine turtles within the operational area</p> <p>b. The potential for pygmy blue whales to deviate from their migration course</p> <p>c. Noise emissions exceeding thresholds for behavioural impacts on cetaceans</p> <p>d. A risk of moderate impacts on marine turtles, in the context of a "paucity of data" on these species</p> <p>e. Behavioural impacts on fish and sharks in the operational area</p>	<p>Generally, sound associated with steady state operations will be limited, due to the FPU being moored and not dynamic positioned, with periodic and short-term increases in sound associated with activities such as FPU installation, commissioning and start-up, and Inspection, Maintenance, Monitoring and Repair (IMMR).</p> <p>Woodside has undertaken a comprehensive assessment of routine acoustic emissions, including underwater noise emissions modelling, with full justification of the impacts and risks for the Regulator to assess in accordance with:</p> <ul style="list-style-type: none"> • Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (the Environment Regulations), and • NOPSEMA Guidance Note (N-04750-GN1344 A339814) EP Content Requirement.
<p>Localised impacts to benthic habitat and communities including displacement and/or permanent loss of epifauna and infauna within the physical footprint.</p>	<p>Disturbance to the seabed and impacts to benthic habitat and communities is assessed in the EP. Benthic epifauna and infauna living on or in the sediments may be impacted by the activities that cause disturbance to the seabed. Permanent infrastructure will be present for the duration of field life and will result in the displacement and/or permanent loss of epifauna and infauna within the physical footprint. Gravimetry surveys or IMMR activities may cause temporary disturbance to the seabed as a result of working close to or on the seabed.</p> <p>No threatened or migratory species, or ecological communities (as defined under the EPBC Act), were identified in the benthic communities during studies completed in the Petroleum Activities Area (PAA). The epifauna and infauna benthic communities known to exist in the PAA are likely to be well represented elsewhere in the region, with impacts restricted to a highly localised proportion of benthic communities.</p> <p>Demonstration of impacts reduced to ALARP and acceptable levels, with appropriate controls measures is defined in the EP.</p>
<p>Hydrocarbon spill to Ningaloo Coast and Gascoyne Marine Park</p>	<p>The EP will assess potential impacts of a highly unlikely hydrocarbon spill. This includes a combination of modelling at three locations in the PAA from a worst-case release of marine diesel from a vessel collision resulting in rupture of a tank. Worst-case modelling results are evaluated in the EP and will show the probability of hydrocarbon contact (entrained hydrocarbon ≥ 100 ppb) with Gascoyne Marine Park and Ningaloo Marine Park.</p>

Proposed activities under this Environment Plan involve the installation of a Floating Production Unit (FPU) and subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are now reaching out one final time to notify you that consultation in the course of preparing the Operations EP closes on 20 December 2023 and to enquire as to whether The Australian Conservation Foundation has any feedback or if you'd like to meet to discuss the Operations EP.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

We would welcome your feedback or request for a meeting at Feedback@woodside.com.au or 1800 442 977 before 20 December 2023 when consultation closes.

Kind regards,

Woodside Energy Feedback

The personal information that Woodside Energy Group Ltd (Woodside) collects in our engagement with you will be processed in accordance with our [privacy statement](#).

Email our [Privacy Officer](#) if you have questions about how we handle your personal information.



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in v @

**2.21 Email sent to Friends of Australian Rock Art (FARA) with letter attached –
5 December 2023**

Dear Friends of Australian Rock Art

Please find attached a letter seeking feedback or the opportunity to meet before consultation on the Scarborough Offshore Facility and Trunkline Operations Environmental Plan closes on 20 December 2023.

Kind regards,

Woodside Energy Feedback



Woodside Energy Ltd.
 ACN 004 888 882
 Mia Yellagonga
 11 Mount Street
 Perth WA 6000
 Australia
 T +61 8 9348 4000
www.woodside.com

Please direct all responses/queries to:
Woodside Feedback
 T: 1800 442 977
 E: Feedback@woodside.com

5 December 2023

Dear Friends of Australian Rock Art

Consultation - Scarborough Offshore Facility and Trunkline Operations Environment Plan

In 2022, Friends of Australian Rock Art (FARA) self-identified as a 'relevant person' for the following Scarborough EPs:

- Scarborough 4D B1 Marine Seismic Survey (Seismic)
- WA-61-L Scarborough Drilling and Completions (D&C)
- Scarborough Seabed Intervention and Trunkline Installation (SITI).

On 9 and 30 August 2023, Woodside provided FARA with consultation information and requested feedback on the Scarborough Offshore Facility and Trunkline Operations Environment Plan (Operations EP). The consultation information for this Environment Plan is located [here](#).

In the absence of specific feedback from FARA on the Operations EP, Woodside has reviewed previous feedback provided by the FARA on the Seismic, D&C, and SITI EPs which may be relevant to the Operations EP. This feedback is summarised below, including Woodside's assessment and response.

Summary of previous feedback which may be relevant to the Operations EP	Woodside assessment and response ¹
<ul style="list-style-type: none"> • FARA is a relevant person/organisation. • "We have since consulted with NOPSEMA and understand further why you do not consider us 'relevant persons' with Letters from FARA regard to your current deepwater EPs - although it is just the first part of an operation which ultimately links to development which we don't condone. However, we understand that it is appropriate you consult with us as relevant persons when it comes to the preparation of your Construction and Operations EP plans." 	<ul style="list-style-type: none"> • Woodside recognises that FARA [is/considers itself/has self-identified as] a relevant person for the Scarborough Offshore Facility and Trunkline Operations Environment Plan. • In recognition of this fact, Woodside has provided FARA with consultation information and requested feedback on 9 August 2023 and 30 August 2023. • Woodside is now contacting FARA a final time to offer an opportunity to provide feedback or request a meeting by 20 December 2023.

¹ Woodside's current working assumption (which is subject to change) is that the information above is relevant to this Environment Plan.

11 50 in

<ul style="list-style-type: none"> • Preservation and conservation of the Murujuga rock art and surrounding cultural landscape. • Harmful effects of acidic gas emissions from Woodside's LNG processing facilities on rock art. 	<ul style="list-style-type: none"> • Research to date on the impacts of emissions on rock art has not been conclusive. • Woodside recognises the need for further research and supports the Murujuga Rock Art Monitoring Program (MRAMP), run by the Murujuga Aboriginal Corporation and Western Australian Department of Water and Environmental Regulation. • In the absence of scientific certainty on the level of emissions which theoretically may affect rock art, Woodside is taking reasonable and practicable measures across its operations and growth projects to minimise emissions. <ul style="list-style-type: none"> ◦ Pluto LNG's Air Quality Management Plan has been reviewed and approved by the Western Australian Environment Protection Authority as meeting the requirement for best available practicable and efficient technologies to be used to minimise and monitor air emissions from the plant. This included independent peer review assessment which concluded that the design of Pluto Train 2 is consistent with best practice in the context of air emissions control for LNG plants. ◦ A number of technologies have been assessed by Woodside; we understand that FARA has previously advocated for the use of "scrubber technology", which we interpret to refer to some form of selective catalytic reduction (SCR) technology. The installation of SCR systems would introduce new hazards, including significant importation and handling of ammonia or urea, may introduce risks associated with ammonia emissions when operating SCR, and have adverse impacts on greenhouse efficiency.
<p>Impact of the Scarborough development on Traditional Custodians of Murujuga and the Dampier Archipelago, as they consider themselves responsible for the cultural landscape and the significant cultural heritage contained in the rock art of those places.</p>	<ul style="list-style-type: none"> • Woodside has consulted extensively with the Traditional Custodians of Murujuga through their nominated representatives for all Scarborough Environment Plans. • This consultation has included the appropriate management of cultural heritage on Murujuga, and all of the matters raised are directly addressed through the Environment Plans. • Woodside believes it has addressed all of the potential impacts which Traditional Custodian representatives have themselves identified. • Woodside does not provide comment on the content of consultation undertaken with Traditional Custodians or their representatives, which may include confidential or culturally sensitive material.
<p>The Scarborough gas field development will lead to the production of 1.5 billion tonnes of carbon emissions over coming decades, adding to WA's emissions</p>	<ul style="list-style-type: none"> • GHG emissions relevant to the PAP, including sources and volumes, will be presented and assessed in the EP. GHG emissions will be estimated using the National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008 and other industry

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<p>Compromise of the Murujuga World Heritage consideration.</p>	<ul style="list-style-type: none"> • Woodside has operated on Murujuga in the Pilbara region of Western Australia for more than 35 years. Woodside understands that the World Heritage nomination has been progressed with full awareness of existing and future industry on the peninsula and reflects the ongoing co-existence of heritage and industry. • Our support for the World Heritage listing of the Burrup Peninsula reflects the successful co-existence of heritage and industry.
<p>Impacts from pollution sources on all potential receptors, specifically to the marine environment and biodiversity from "catastrophic marine pollution events".</p>	<ul style="list-style-type: none"> • While impacts to potential receptors are possible in the event of an unplanned diesel release from vessel collision (the worst case credible spill scenario for this PAP), Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of occurrence.
<p>Robust decommissioning plans with funds set aside to ensure all infrastructure is properly decommissioned.</p>	<ul style="list-style-type: none"> • Woodside proactively plans for decommissioning and has developed a Scarborough Decommissioning Strategy which will be used to plan for infrastructure decommissioning at the end of field life. All decommissioning activities will be subject to future Environment Plan approvals. <p>Decommissioning activities will comply with Section 572 of the OPGGS Act.</p>
<p>Endorse and support the requests made by Murujuga custodians Josie Alec and Raelene Cooper that they are relevant persons to be consulted on all potential impacts at each stage of the Scarborough Project.</p>	<ul style="list-style-type: none"> • Woodside consults extensively with First Nations communities and stakeholders for all Environment Plans. • Woodside does not provide comment on the extent of consultation with specific individuals, including their status as relevant persons.

Proposed activities under this Environment Plan involve the installation of a Floating Production Unit (FPU) and subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

We are now reaching out one final time to notify you that consultation in the course of preparing the Operations EP closes on 20 December 2023 and to enquire as to whether FARA has any feedback or if you'd like to meet to discuss the Operations EP.

Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

We would welcome your feedback or request for a meeting at Feedback@woodside.com.au or 1800 442 977 before 20 December 2023 when consultation closes.

2.22 Email sent to Shire of Shark Bay, Shark Bay Recreational Marine Users, Department of Biodiversity, Conservation and Attractions – Shark Bay, RAC Monkey Mia Dolphin Resort, Dirk Hartog Island, Shark Bay Community Resource Centre, [Individual 1] MLA, Shark Bay Aviation, Shark Bay Coastal Tours, Naturetime Tours, Wula Gula Nyinda Eco Cultural Tours – 15 December 2023

Dear

Woodside previously consulted you regarding its plans to submit:

1. Five-year revisions of the Ngujima-Yin Floating Production Storage and Offloading (FPSO) Facility Operations and Pyrenees Facility Operations Environment Plans:
 - The Ngujima-Yin FPSO and associated subsea infrastructure is located in Commonwealth waters approximately 57 km north of Exmouth, Western Australia, within Production Licences WA-28-L and WA-59-L, and pipeline licence WA-28-PL.
 - The Pyrenees FPSO and associated subsea infrastructure is located in Commonwealth waters approximately 45 km north of Exmouth, Western Australia, within Production Licences WA-42-L and WA-43-L;
2. The Scarborough Offshore Facility and Trunkline Operations Environment Plan, which involves the installation of a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, prior to start-up and operations within Production Licences WA-61-L and WA-62-L. Gas from the FPU will be transferred through the gas export trunkline (the Trunkline - Pipeline Licence WA-32-PL) to the Pluto LNG Plant for further processing.

Information on the proposed activities is provided in the email below and in the Consultation Information Sheets which are available on our website [here](#) (Ngujima-Yin FPSO Facility and Pyrenees Facility Operations) and [here](#) (Scarborough Offshore Facility and Trunkline Operations).

If you have feedback specific to the proposed activities, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **22 December 2023**.

Please let us know if your feedback for this activity is sensitive and we will make this known to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

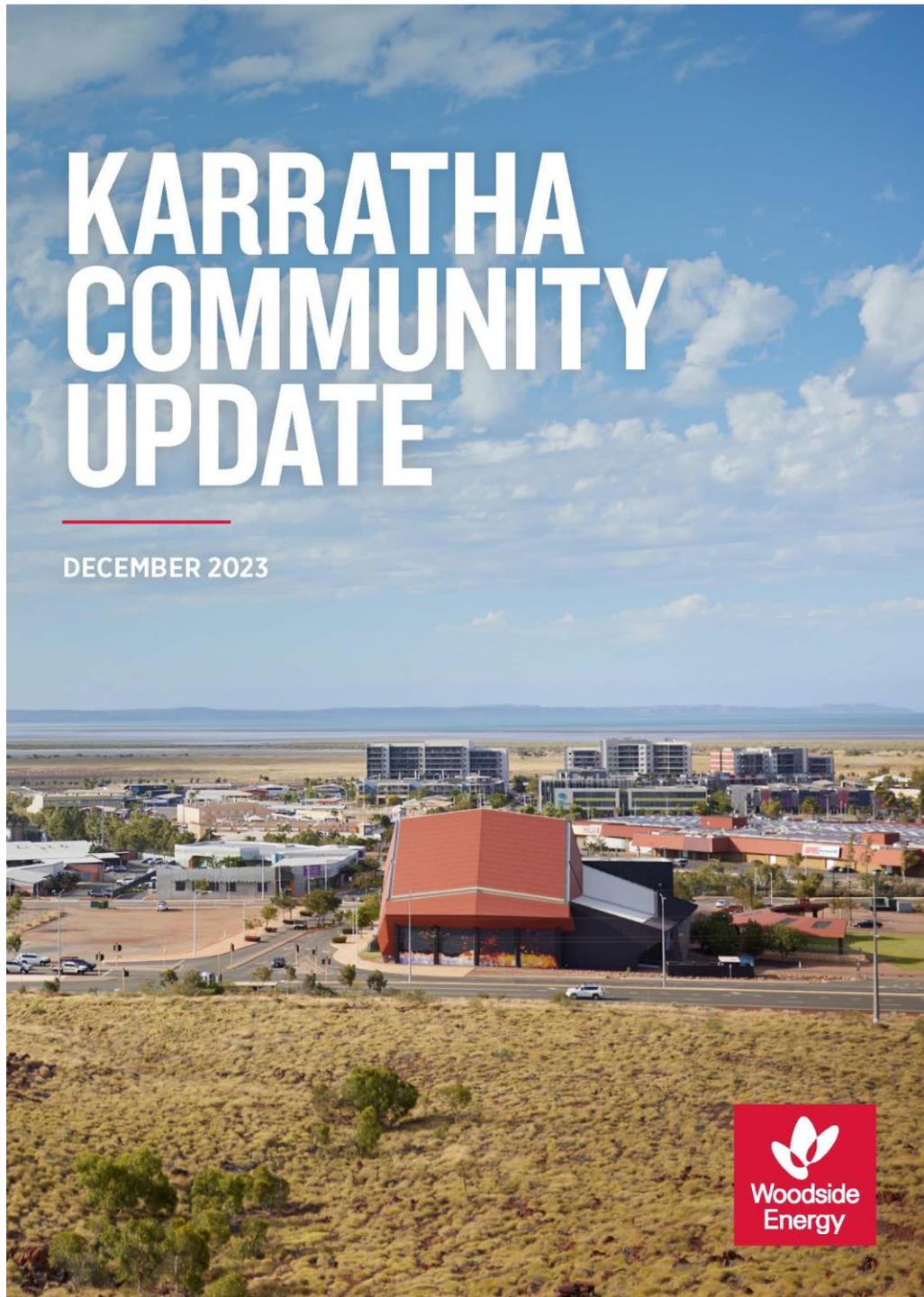
Kind regards,
Woodside Energy Feedback

3 COMMUNITY CONSULTATION

3.1 Community Newsletters

3.1.1 Karratha Community Update

Q4 - 2023



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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 782 of 919

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Woodside Energy recognises Aboriginal and Torres Strait Islander peoples as Australia's first peoples.

We acknowledge the unique connection of the Traditional Custodians to land, waters and the environment where we operate in the City of Karratha. We extend this recognition and respect to First Nations peoples and communities around the world.



Liz Westcott,
Executive Vice President
Australian Operations.



Karratha Community House Chairperson, Niamh and Operations Manager, Kat with Pluto Train 2 Site Manager, Chris Quinn.

Karratha is the heartbeat of Woodside's Australian operations and we are proud of the contribution that we've made to the community over almost four decades.

This year, our Pilbara operations along with our Scarborough and Pluto Train 2 projects, continued to deliver important benefits in the City of Karratha, including ongoing investment in community partnerships, contracting opportunities for local businesses and employment and training pathways for local residents. You can read more about these in this newsletter. 2024 promises to be just as dynamic. We will recognise 40 years of operations at Karratha Gas Plant and continue work on our Scarborough Energy Project. This new development, some 400 km offshore from Karratha, will deliver long term benefits to the Karratha community while the gas produced will help power industry and homes, supplying reliable energy to Western Australia and the world.

On behalf of the team at Woodside, have a safe and enjoyable festive season, and we look forward to 2024.

Liz Westcott
Executive Vice President Australian Operations.

15 years of partnership and counting - Karratha Community House

Woodside and its joint venture partners recently celebrated a three-year partnership extension with Karratha Community House.

The new partnership builds on 15 years of support for the not-for-profit, community-driven organisation whose mission is to connect families through play-based learning.

Over this time, Woodside's contribution has helped Karratha Community House to deliver initiatives such as Once Upon a Time, a walk-in educational program which aims to facilitate early learning and interest in literacy for children under five years old. The partnership also supports Ready, Set, School, which helps build school readiness in three-year-old children prior to their entry into pre-school.

Karratha Community House Chairperson, Niamh Herd said she was grateful for the commitment from Woodside and its joint venture partners.

"The partnership has enabled us to positively impact the lives of over 1,000 children through Ready, Set, School and countless other families who have been part of the Once Upon a Time program.

"The dedication to our community through the partnership has truly made a difference, and we look forward to continuing our shared journey towards a brighter future," said Niamh.

Local students learn about career opportunities

Eighteen students from Year 11 and 12 at St Luke's College and Karratha Senior High School participated in work experience at the Karratha Gas Plant, Pluto LNG Plant and the King Bay Supply Facility this year.

Through our recruitment partner Programmed, the students spent time at our operations, learning about trade pathways and engineering.

As well as rotating between various on-site teams, students were also taken on a cultural tour of Ngajarli, boarded an LNG tanker and had a technology session with the Woodside Robotics Team.

St Luke's College Year 12 student, Indiana said she wanted to get a feel for working on-site at Woodside.

"The first day as soon as we got there, we went straight out to the ship they were loading, and the pilot gave us permission to go on and we got to move the loading arms. It was so cool. It was unreal," said Indiana.

Indiana was exploring her options of either university or doing a traineeship at a company like Woodside. She says the work experience was extremely valuable in helping her make a decision.

"I like the hands-on side of the operator role and how they weren't doing one thing, but working on many different things, and making sure the place was safe to work. So, the Operator role is something I could see myself doing," said Indiana.



“ I LIKE THE HANDS-ON SIDE OF THE OPERATOR ROLE

- Indiana, work experience participant.

Training Academy set for 2024 intake

Woodside Energy is committed to providing employment and training opportunities locally and assisting our trainees and apprentices to gain the skills needed for future careers in the sector.

Our local training programs in Karratha are integral to our operations, with more than 260 apprentices and trainees completing their training at the Woodside Training Academy since it began in 2010.

The Woodside Training Academy currently has 102 apprentices and trainees building their knowledge and experience at Karratha Gas Plant. The 2024 intake will see an additional 13 Operations Trainees, 12 Apprentices, 5 Operations Support Trainees and 4 Pre-Pathway Trainees join the Academy.

Woodside is supporting 14 school leavers and 12 mature age recruits from the Karratha area. Out of the 34 new recruits, more than a third are female and over half are Indigenous.

Operations Support Trainee and local recruit, Phil said he is looking forward to developing new skills with the role.

"I've just started my Operations Support Traineeship with Woodside. I'm excited to build a career around the oil and gas industry and understand the process from exploration to production, and learn from supportive trainers in the Academy."

If you're interested in trainee and apprenticeship pathways in 2024, visit programmed.com.au/woodside to find out more.



Murujuga Commercial Transport and Woodside Energy representatives.

New buses for North West

Woodside Energy has appointed Murujuga Commercial Transport (MCT) as its new bussing services provider.

MCT is a joint venture between Murujuga Commercial Ltd (the commercial arm of Murujuga Aboriginal Corporation) and Australian Transit Group.

Under the contract, MCT will service Woodside's Karratha onshore facilities bus transport requirements, including turnaround, onshore project, airport and heliport transfers.

The MCT contract will support local employment outcomes including two positions for Indigenous employees, including an administration traineeship and a heavy-duty diesel fitter apprenticeship in the first year of its contract. In the second year of its contract, the company will further develop the career path of an employee through an operations manager traineeship.

The contract supports Woodside bus transport requirements which aim to reduce the number of vehicles on local roads and improve community safety outcomes.

"This is an important milestone for Woodside - the agreement is the first direct Woodside contract to be signed with a Murujuga Joint Venture and supports our ongoing commitment to working with our Traditional Owner businesses," said Mike Price, Vice President Pluto Scarborough Woodside Energy.

"This contract is pivotal to the success of MCT and provides a solid foundation for the further development of the company that in turn will provide longer term benefits to the members of the Murujuga Aboriginal Corporation. We would like to also recognise the commitment from Woodside to make this a commercial reality," said Derek (Jig) Albert, Director Murujuga Commercial Transport.

Woodside announces 15-year build and lease with Yurra

Woodside (as operator of the Pluto LNG Project) has entered into a long-term agreement with local Traditional Owner business Karratha Housing Pty Ltd (a subsidiary of Yurra Pty Ltd) for the build and lease back of 20 houses in Karratha with construction planned to commence in the first quarter of 2024.

The lease of the houses is for 15 years (with two five-year extension options), making it Woodside's longest Traditional Owner business direct award, providing long-term revenue and capital assets to support the business into the future.

Under the agreement, 10 homes will be built by GBSC Yurra and another 10 will be constructed by Ngarluma Yindjibarndi Foundation Limited (NYFL) in partnership with Thomas Building. All of the houses will be maintained by Karratha Housing Pty Ltd for the duration of the leases.

The houses will be leased by Woodside for its residential workforce. Seventy-five per cent of Woodside's Burrup workforce is currently residential, up from 56% in 2018.

Woodside and Yurra have worked collaboratively to deliver a sustainable long-term agreement to support local Indigenous business and employment outcomes.

This agreement demonstrates the commitment of Woodside Energy and its fellow Pluto joint venture participants to contribute to the long-term sustainability of communities in their area of operations.

The agreement is subject to conditions precedent which are targeted to be satisfied by the end of this year.

"This is an important agreement that supports local Traditional Owner businesses and employment opportunities as well as providing additional quality housing stock to support our Karratha residential workforce," said Ryan Beccarelli, Asset Manager Pluto LNG.

"The build to lease back model also provides a long-term legacy asset to Yurra, improved housing choice for our employees and supports normalisation of the Karratha housing market in the long term," said Mr Beccarelli.

"We are very proud of the Yurra team and the partnership that has been established with Woodside over recent years. This successful housing development process builds on the existing scaffold supply contract at Karratha Gas Plant and hopefully other opportunities over time as the sophistication of the relationship grows," said Michael Woodley, Chief Executive Officer at Yindjibarndi Aboriginal Corporation and Yurra Founder.

"Having long term contracts such as this enables us to work collaboratively with Woodside Energy on mutually beneficial plans that will create real legacy for our community," said Mr Woodley.

Would you like to know what Woodside has planned on land and sea?

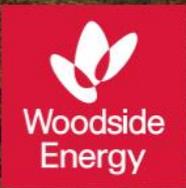
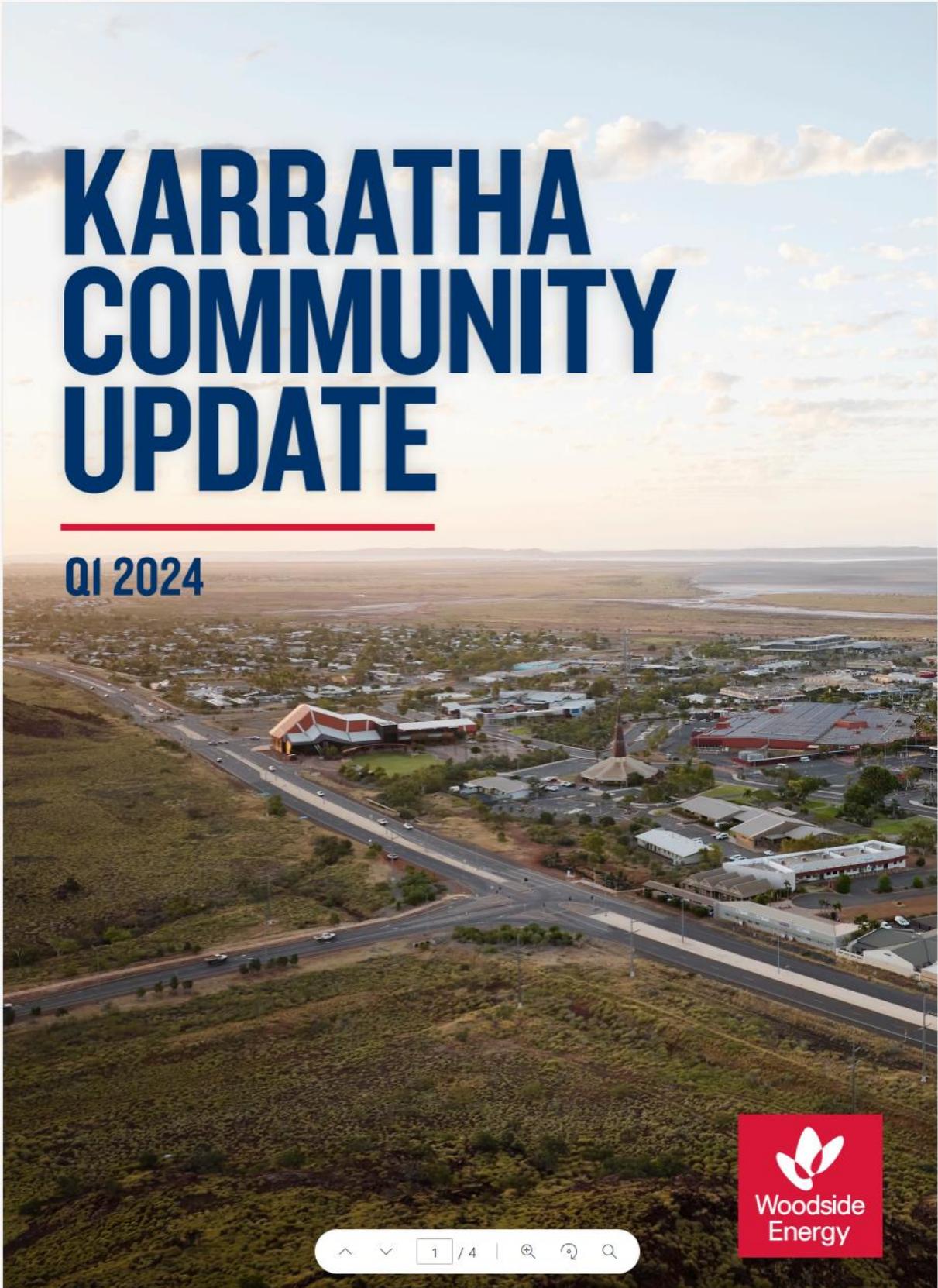
If you think your functions, interests or activities may be affected by our offshore projects, we want to hear from you. Scan the QR code and call, email or register online to receive information on our Environment Plans.



Q1 – 2024

KARRATHA COMMUNITY UPDATE

Q1 2024



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Mike Robinson
Vice President
Scarborough.



Graduating apprentices and trainees
at Red Earth Arts Precinct.

The Scarborough Energy Project will see gas from the Scarborough fields piped approximately 430 km to be processed onshore at the Pluto LNG facility, where Pluto Train 2 is currently under construction. Scarborough gas will also be processed through the existing Pluto Train 1 plant following modifications, which are expected to commence in late 2024.

The Project is now more than 55% complete¹, and in March 2024, Pluto Train 2 achieved a key milestone, the arrival of the first modules in Karratha. This year, a total of 51 modules will be delivered to Pluto for installation.

This year, Woodside also celebrates its 70th anniversary and the North West Shelf Project marks 40 years of domestic gas production and 35 years of LNG exports from Karratha. Over this period, we have provided reliable energy to Australia and the world from the community we continue to call home. Karratha is where the Woodside story began and the Scarborough Energy Project will build on the legacy of supporting the world's energy needs from this region.

We are proud of the Scarborough Energy Project and what it will deliver for the Karratha community and the nation.

Mike Robinson
Vice President Scarborough

¹ The completion percentage excludes the Pluto Train 1 modifications project.

**Celebrating success:
Woodside Training Academy
Graduation and Awards**

The Karratha Gas Plant-based Woodside Training Academy has seen more than 750 apprentices and trainees commence their learning journey with Woodside since it opened its doors in 2010.

The Academy plays an integral role in hosting those who are building their employable skills and experience, supporting the development of local workforce capabilities.

This March, Woodside welcomed 21 apprentices and trainees into roles across its Burrup assets. The Woodside Training Academy Graduation and Awards held at Red Earth Arts Precinct saw the graduating cohort celebrated for their achievements in completing their training. The event also recognised and awarded the outstanding performance of particular individuals throughout their training process. The award recipients were selected for their dedication, commitment and consistent demonstration of Woodside's values.

An additional 33 apprentices, trainees and pre-pathway trainees, including 17 school leavers from the Karratha area, have been recruited by Woodside's training partner, Programmed Training Services and are being hosted by Woodside in 2024. We're proud to have close to 100 apprentices and trainees learning their craft at the Woodside Training Academy and offshore assets this year.



Scan the QR code or click [here](#) to get to know a few of Woodside's new team members.

Woodside extends investment in education initiative

Woodside was recently joined in Karratha by the WA Minister for Education Dr. Tony Buti MLA and Kevin Michel MLA to share news of our ongoing collaboration with schools in the local community.

Together with our joint venture partners, we were pleased to announce our extended support for education in the City of Karratha after signing five-year community partnership agreements for the ongoing delivery of the Karratha and Roebourne Education Initiative (KREI).

The extension builds on more than 15 years of investment by the Woodside-operated North West Shelf Project to bridge the gap between the opportunities and resources available to students residing in the Pilbara and their metropolitan peers, and support students on their pathway to employment.

The renewed agreements with the Department of Education and St Luke's College increases funding provided for programming at local high schools and extends that support to primary schools in the community.

The funding will enable the delivery of quality educational opportunities, including ATAR revision seminars, additional STEM curriculum, student leadership programs, employment and career pathway planning, and teacher development.

Western Australia's Minister for Education, Hon Dr Tony Buti MLA, said he is thrilled support for the Initiative will continue for years to come, benefitting even more students in the Pilbara.

"It has proved to be a very successful partnership over the years helping many students achieve their best and guiding them to a range of careers," Minister Buti said.

Woodside CEO, Meg O'Neill, said the renewed agreements reflected Woodside's commitment to improving capability and capacity in its host communities.

"The Initiative has delivered strong educational outcomes and its success is a testament to what can be achieved when we work collaboratively with a student-centred approach," she said.



Baynton West Primary School Principal Lisa Ledger, WA Minister for Education Hon Dr Tony Buti MLA, Woodside Energy Corporate Affairs Manager North West Amanda Fuery, Pilbara Education Regional Office Program Coordinator Amanda Lawrence, Member for Pilbara Kevin Michel MLA and students from Baynton West Primary School.

Apprentice takes home Citizen of the Year

Meet Rhian. She's a fourth-year, Programmed Electrical Instrumentation Apprentice at Karratha Gas Plant and was recently named the City of Karratha's Citizen of the Year.

Rhian joined the Karratha Volunteer Fire and Rescue Service to meet people and make friends when she first moved to Karratha. She now holds a senior position and is on-call 24/7 with requests for jobs, including road crash rescues, house fires, HAZMAT incidents and assisting the local police.

But Rhian's contribution to the community doesn't stop at fire and rescue. Five years ago, she joined St John Ambulance as an Emergency Medical Technician volunteer.

She's attended more than 800 jobs in and around Karratha, and she also helped at the 2019-2020 Black Summer fire in QLD. Rhian also volunteers at community events like Speedway, Karratha's FeNaCING festival, Santa lolly runs, youth cadets and school visits.

"I just love giving back to the community and helping people in times of need. It's what I enjoy doing in my spare time. Some people play sport. I volunteer," said Rhian.



Electrical Instrumentation Apprentice and City of Karratha Citizen of the Year, Rhian

Indigenous Collegiate leads cargo loading

As the Woodside-operated North West Shelf Project prepares to mark 35 years of delivering LNG cargoes to our international customers, another achievement was recently recognised at Karratha Gas Plant.

In January, an LNG cargo was loaded at Karratha Gas Plant's berths by a team made up entirely of Indigenous employees.

The team consisted of nine members from Storage and Loading, including Operations Support Trainees through to Maintenance Technicians and Supervisors. The vessel was also piloted by Woodside and Australia's first Indigenous master mariner.

Woodside's Indigenous Liaisons Coach, Josh Hill, said the activity demonstrated the progress Woodside has made in creating employment opportunities for First Nation's people.

"It was inspiring to see and reflects Woodside's work to increase Indigenous recruitment and provide career support for members of the Indigenous Collegiate," he said.



Pluto Train 2 modules arriving in Karratha.

Making significant progress on the Scarborough Energy Project

The Scarborough Energy Project's Pluto Train 2 achieved a major milestone with the first three modules now safely installed on site in Karratha.

The modules, which arrived in February 2024, weigh a combined total of more than 4,000 metric tonnes, equivalent to the weight of 30 houses or 24 Boeing 787 Dreamliner aircraft. The modules were transported from Pilbara Ports to the construction site at the existing Pluto LNG facility using 21 specialised hydraulic transporters with 126 axles and 504 wheels.

Our CEO, Meg O'Neill, said the delivery of the first Pluto Train 2 module was a key milestone towards the delivery of the Scarborough Energy Project, which will help meet the growing demand for the low-cost, lower-carbon, reliable energy the world needs today and into the future.

"The safe and timely arrival of the module is a testament to the hard work and dedication of the Woodside team and our lead contractor Bechtel," she said.

The Scarborough Energy Project will contribute significantly to the Australian economy and create thousands of job opportunities during its construction phase.

The Project is already benefiting local Karratha businesses, including almost 30 Indigenous businesses that have been engaged. It is also supporting Woodside's investment in social contribution partnerships that provide positive impacts for those living in the Karratha community.



Scan the QR code or click [here](#) to see the arrival of the modules in Karratha.

Local businesses set to benefit from the Scarborough Energy Project

The Scarborough Energy Project, including Pluto Train 2 is providing opportunities for local businesses in Karratha. To date, with collaboration from Woodside's construction partner Bechtel, the Project has injected more than \$90 million locally and contracted with close to 70 Karratha businesses.

Local, family-owned business, ATOM is one of these businesses. ATOM was recently awarded a contract to supply industrial consumables, safety supplies and personal protective equipment products for the Pluto Train 2 construction.

ATOM believes locals serve locals best, which is why their 22 employees supporting the project are all local to Karratha. Nearly half of the team are female and there is one Indigenous employee.

The contract has supported ATOM to expand its workforce increasing local employment opportunities.

Long-term, it's estimated Pluto Train 2 will sustain around 600 roles, once the project is operational, across Western Australia, including 70 residential positions in Karratha.

Like Woodside, ATOM is a nationwide company, with roots in Western Australia. ATOM opened its Karratha branch in 1980, where during the same decade, we commissioned the North West Shelf Project.

ATOM also shares Woodside's commitment to invest where we operate, building meaningful relationships and supporting our local community.

Phil Donders, National Team Leader of ATOM said, "At ATOM, we believe in investing in the success and sustainability of the communities we operate within. This is why ATOM welcomed the opportunity to support the Pluto Train 2 Project through the supply of industrial consumables and PPE."



Would you like to know what Woodside has planned on land and sea?

Click [here](#) or scan the QR code to subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.



Q2 – 2024



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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 790 of 919

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Woodside Energy recognises Aboriginal and Torres Strait Islander peoples as Australia's first peoples.

We acknowledge the unique connection of the Traditional Custodians to land, waters and the environment where we operate in the City of Karratha. We extend this recognition and respect to First Nations peoples and communities around the world.



Volunteering WA Regional Community Engagement Coordinator Kelly Nunn (left) with Woodside volunteers at Gumala Early Learning Centre.

This year, Woodside celebrates its 70th anniversary and four decades of operations in Karratha.

Over this time, we have provided the reliable energy our state needs to power homes and industry.

2024 also marks 35 years since the North West Shelf Project loaded its first liquefied natural gas (LNG) cargo. After delivering more than 6,500 cargoes from the Karratha Gas Plant and Pluto LNG, we continue to supply the gas our international customers require to continue their decarbonisation journeys.

Since 1984, Woodside and its joint venture partners have made lasting contributions to the Karratha community through valued social contribution partnerships, employment and training pathways and opportunities for local businesses. These important and positive impacts were front of mind 40 years ago, and they will be as we embark on a period of change across our North West operations.

As the North West Shelf reserves gradually decline, we are assessing our future infrastructure requirements. We have previously said that we will be retiring one LNG processing train at the Karratha Gas Plant, which could happen as early as this year. We also continue to pursue opportunities to process other resource owners' gas and are focused on remaining a world-class tolling facility, albeit one that may become smaller over time.

At the same time, we are progressing our Scarborough Energy Project and building a second train at our Pluto LNG facility. We are pursuing local new energy opportunities, including the proposed Woodside Solar facility and we are investigating a potential carbon capture and storage project to help decarbonise industry in the Pilbara.

While the North West Shelf will operate differently over the next 40 years, our commitment to the Karratha community remains strong.

Just as the North West Shelf marked itself in Australia's history books in 1984, as we start to write a new chapter in the North West, we will do so together with the Karratha community.

Breyden Lonnie
Vice President North West Shelf

WOODSIDE VOLUNTEERS MAKE VALUED CONTRIBUTIONS

At Woodside, we take pride in giving back to the communities in which we operate. One of the ways we do this is through our corporate volunteering program.

Since the launch of the program with Volunteering WA in 2010, Woodsiders have been lending a helping hand with all kinds of community projects. Most recently, volunteers have participated in a range of activities from cooking meals for The Salvation Army to building a sandpit at Gumala Early Learning Centre and assembling furniture for the redevelopment of Roebourne District High School.

Our program partner, Volunteering WA, plays a crucial role in the success of Woodside's volunteering efforts by connecting us with local organisations in need of assistance and facilitating the opportunities to participate.

Volunteering WA's Regional Community Engagement Coordinator, Kelly Nunn said the partnership has delivered some important outcomes for the local community.

"Corporate volunteering offers fantastic opportunities for community organisations to complete ongoing maintenance or projects with the help of Woodside's employees, allowing them to focus on what they do best - providing programs and events for our community," she said.

STAY UP TO DATE ON OUR CONTINUED CONTRIBUTION TO THE COMMUNITY WE CALL HOME.

SEARCH ON FACEBOOK OR CLICK BELOW.

 **WOODSIDE NORTH WEST**

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WORK READINESS PROGRAM CREATES CAREER PATHWAYS

A new Work Ready Program being run as part of the Pluto Train 2 Project is supporting skills development for local participants.

The latest round of the program commenced in February 2024, with participants offered the opportunity to build employable skills and industry experience. Participants complete Construction White Card, First Aid and site induction certifications. During the program, Bechtel offered job shadow placements of participants' choice which provided invaluable insights into the industry, helping them make informed decisions about their futures.

Gaining on the job experience with Bechtel also built work-life balance skills to prepare the graduates for full-time employment.

Sixteen individuals are now ready to commence full-time employment with Bechtel on the Pluto Train 2 site as Trade Assistants. The roles vary for these dedicated participants across various disciplines, including electrical, mechanical, warehousing and concreting.

A large part of the Work Ready Program's success is the camaraderie and culture that has been fostered within the group. As their skills have grown, so have integral and supportive relationships.

Woodside will continue to provide wrap-around support for these motivated participants, identifying long-term training and development opportunities such as apprenticeships, traineeships or roles within operations and projects.

Pluto Train 2 Project Manager, Tom Feutrill said the experience is creating pathways into fulfilling careers and building capability in the local community.

"Woodside's involvement in the program is aimed at establishing employment opportunities and providing successful and meaningful careers while developing critical life skills and confidence," he said.

Working with an experienced construction contractor such as Bechtel provides a unique opportunity to be involved in a program that supports meeting the growing demand for the low-cost, lower-carbon, reliable energy the world needs today and into the future.

The Work Ready Program is run by the Ngarlyarndu Bindirri Aboriginal Corporation (NBAC), supported by the Pluto Train 2 Project and the engineering, procurement and construction contractor, Bechtel.



NBAC team members with Work Ready Program graduates.

KARRATHA CENTRAL HEALTHCARE SOLAR POWER SYSTEM INSTALL A SUCCESS

Social contribution plays an important role in building the capacity and capability of community partners to deliver positive impacts in the regions where we live and work. Together with our joint venture partners, Woodside is proud to support those who support others in the City of Karratha.

Allied health services provider, Karratha Central Healthcare is one of the valued organisations Woodside has proudly partnered with. In 2023, the Scarborough Energy Project assisted Karratha Central Healthcare to review its operations and strategies developed to support the not-for-profit's long-term sustainability. The review identified a reduction in operating costs as a key opportunity, with a particular focus on power expenditure.

The Pluto Train 2 Project was pleased to provide funding alongside the City of Karratha for the installation of a solar power system at Karratha Central Healthcare's premises. The system, which was installed by local business Coastal Electrical and Data, will go a long way in helping Karratha Central Healthcare to reduce its power costs.

Karratha Central Healthcare's Operations Manager, Kingsley Murray said the solar power system would help the organisation allocate resources into programs for the local community.

"The solar system has already made a notable difference to our operating costs; on a good day the system is supplying up to 95% of our power needs, and in overcast and lowlight conditions about 35-40%.

"These savings can then be used for our not-for-profit and charitable programs, it's a win for us and a win for our community," he said.



Karratha Central Healthcare clinic.

ACCOMMODATION INITIATIVE ACKNOWLEDGED AT EXCELLENCE AWARDS

In May 2024, the City of Karratha Service Worker Accommodation Initiative was recognised as a finalist in the Community Development category of the Australian Energy Producers' Excellence Awards.

The Service Worker Accommodation Initiative is a partnership between the City of Karratha, Woodside and industry that aims to provide additional affordable rental options for people working in critical service worker sectors in Karratha, like childcare and allied health.

Launched in 2021, the initiative established a pool of housing managed by the City of Karratha and Woodside, offering affordable rental options for service workers. Woodside and joint venture partners at Pluto LNG and the North West Shelf Project are pleased to now contribute 30 houses to the accommodation pool.

If you would like to find out more about the Service Worker Accommodation Initiative, visit the [City of Karratha website](#).

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BUILDING MOMENTUM WITH LOCAL HOUSING CONTRACT

We understand that housing is an important issue for the Karratha community. And that's why Woodside is working closely with the City of Karratha and other stakeholders to help overcome this challenge.

Some initiatives established to support housing in Karratha include contributing 30 properties to the City of Karratha's Service Worker Accommodation Initiative, the incremental divestment of older housing stock as well as making a small number of properties available for lease on the open market.

Late last year, the Pluto LNG Project also entered into a long-term agreement with Traditional Owner business Karratha Housing Pty Ltd (a subsidiary of Yurra Pty Ltd) for the build and lease back of 20 houses in Karratha.

Under the agreement, 10 homes are being built by GBSC Yurra and another 10 will be constructed by Ngarluma Yindjibarndi Foundation Limited (NYFL) in partnership with Thomas Building.

Work is now well underway on the construction of these new homes, which will be leased back to Woodside for a period of 15 years and are targeted to be completed by the end of 2025.

All of the houses will be maintained by Karratha Housing Pty Ltd as part of the lease agreement that will provide long-term revenue and capital assets to support the Yurra business into the future.

Michael Woodley, Chief Executive Officer at Yindjibarndi Aboriginal Corporation and Yurra Founder said he is very proud of the Yurra team and the partnership that has been established with Woodside over recent years.

"Having long-term contracts such as this enables us to work collaboratively with Woodside Energy on mutually beneficial plans that will create real legacy for our community," he said.

Woodside is also investigating potential options to build up to 60 additional new homes in Karratha to address its future workforce needs.



WOODSIDE JOINS THE FUN AT RED EARTH ARTS FESTIVAL

Woodside and some of our joint venture partners were pleased to support the City of Karratha's Red Earth Arts Festival (REAF) which featured over 70 performances, workshops, and experiences over four days in May 2024.

This year saw the introduction of REAF at The Quarter which offered a suite of free, family-friendly activities, activating and transforming the area into a hub of artistic and cultural activity.

The Plants of the Pilbara installation was a highlight, a pop-up flower dome sculpture invited viewers to experience the magic of Western Australia's native flora on a larger-than-life scale. Artists from Yinjaa-Barni Art Group painted and displayed art on site, welcoming the public to engage.

Locals were spoilt for dinner choices as part of Karratha City Eats, picnicking on the Quarter grass while enjoying an open-air performance featuring captivating handpan artist Sam Maher and Indigenous songwriter Frank Yamma, crossing cultural and musical boundaries.

The Community Development partnership between the City of Karratha and Woodside and our joint venture partners was extended last year, with support from the Scarborough Energy Project. This supports the continued provision of important and much-loved community events like REAFs as well as liveability initiatives and significant City projects.

City of Karratha Mayor Daniel Scott said working together was an integral part of delivering high quality community programs and well-attended community events.

"This support is incredibly important, assisting City operations in the delivery of exceptional events, programming and projects for our residents to enjoy," he said.

LET'S TALK

OUR PLANS, YOUR SAY

Head to [woodside.com/consultation-activities](https://www.woodside.com/consultation-activities) to read the latest edition of Let's Talk and our Environment Plan consultation information.

We welcome feedback on your relevant functions, activities or interests. Alternatively, you can contact us at feedback@woodside.com or on 1800 442 977.

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 793 of 919

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Karratha Community Update

Edition 3 | 2024



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Revision: 3

Page 794 of 919

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Earlier this year, I relocated to Karratha and commenced as Asset Manager of the North West Shelf Project's Karratha Gas Plant.

It was a real pleasure to join Woodside's local team at a time when we were celebrating 70 years of Woodside and 40 years of operations right here in the North West.

Karratha is where our story began in Western Australia and Woodside has a proud history of contribution to the place we continue to call home. This year's milestones gave me insight into the longstanding partnerships and strong relationships we've developed with the community over this time.

The North West Shelf Project has contributed more than \$300 million within the City of Karratha since our operations began. This investment in the local community and economy continues as we support partnerships and businesses like the ones you will read about in this update.

We are entering a period of change at the Karratha Gas Plant as we undertake work to prepare for the retirement of one of our LNG processing trains later this year. This is an important step in the journey ahead as we navigate the gradual decline of the North West Shelf reserves and continue to pursue opportunities to process other resource owners' gas.

As we manage the future of the North West Shelf alongside our Pluto LNG operations and the growth of the Scarborough Energy Project, we will continue to engage and collaborate with those we work with, partner with and live alongside. We look forward to engaging and involving the local community in the future of Woodside in Karratha, working together to create opportunities in the place we call home.

Derek Paulgaard
Asset Manager North West Shelf Onshore.

Celebration sundowner

On the evening of 18 September, as the sun set over Karratha, we gathered with our local community partners to celebrate both Woodside's 70th year as a proud Australian company and 40 years of operations in the North West.

Our sundowner event, held at the Red Earth Arts Precinct, provided an opportunity to share our appreciation for the local community which has supported Woodside over its decades of operations in Karratha.

Woodside Executive Vice President and Chief Operating Officer Liz Wescott joined us at the event and expressed her gratitude for the role those in attendance continue to play in shaping Karratha into a thriving and connected community.

Liz also announced a one-off large grant round, supported by Woodside and its Joint Venture participants in the North West Shelf Project and the Scarborough Energy Project's Pluto Train 2.

With applications open throughout October, the Woodside Anniversary Grants will provide funding of up to \$100,000 to community groups and not-for-profit organisations in the City of Karratha to support health, liveability, sustainability and environmental outcomes.

Thank you to all who joined us in marking such a special occasion.



Stay up to date on our continued contribution to the local community [Woodside North West](#)

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Winyama awarded construction contract

This year, Woodside awarded its largest ever Traditional Owner construction contract to Karratha company Winyama Contracting Group (Winyama). The contract was awarded for the delivery of civil works for the Pluto Train 1 Modifications Project. Winyama will work alongside Kellogg Brown & Root Pty Ltd., the project's engineering, procurement and construction management contractor.

Winyama is a 100% Karratha-owned and 50% Indigenous-owned provider of civil, construction and mining services and renewable asset hire that prioritises spend with local and Indigenous suppliers. The name Winyama, meaning Sea Eagle in the Ngarluma language, symbolises the company's mission to provide economic opportunities and prosperity for local Aboriginal people. It is a bird that has held significance through the female line of Ngarluma majority owner Arthur Ramirez's family for generations.

Woodside Pluto Expansion Project Manager Paul Baker said Woodside was thrilled to be partnering with Winyama for the delivery of the civil works for the Pluto Train 1 Modifications Project and supporting the delivery of local business and employment outcomes for the Pilbara.

"By engaging a local Indigenous-led and owned contractor, we're securing the delivery of an important service while contributing to the local economy. The contract will also support the growth of Winyama, increasing the company's capacity to deliver services to other industries across the Pilbara," he said.

Arthur Ramirez, Winyama Chairman and Indigenous Business Manager, said the new supply agreement with Woodside was a major milestone for Winyama.

"This project will allow our team to grow by about another 65 new employees, with the majority being residential employees.

"Being engaged on the Pluto Train 1 Modifications Project will help fulfil Winyama Contracting Group's vision to increase its footprint in the region, which will enable us to increase our focus on outcomes for Aboriginal people through our reflection Reconciliation Action Plan.

"We are really proud that Woodside has chosen a local Karratha-based Indigenous business to execute a major portion of one of their largest current projects, showing they live their values and support local and Indigenous business growth in the region," he said.



Winyama, KBR and Woodside representatives at Pluto LNG.

Healing comes from Country

Roebourne-based start-up Warridahs of the Ngurra (WOTN) aims to build awareness and respect for traditional bush medicine and share cultural knowledge. Meaning 'Women of Country' in Ngarluma language, WOTN was founded in 2023 by Ngarluma and Banjima woman, Kylie Mowarin.

Kylie's years of dedication to exploring the uses and benefits of native plants have seen her experiment with the ingredients in teas and ointments. The healing properties of these plants have recently been reinforced by modern scientific research conducted in partnership with Griffith University.

"We are working with Griffith University, testing two traditional plants for their antimicrobial, antioxidant and anti-inflammatory properties. So far, we are seeing very positive results," said Kylie.

With support from Woodside, Kylie recently held a bush medicine workshop on Murujuga alongside local Elders, representatives from Murujuga Aboriginal Corporation, Griffith University and a leading archaeologist.

Students from Roebourne District High School were among the attendees at the workshop at Hearson's Cove. Kylie spoke with students about the scientific attributes of traditional medicines and their gathering methods.

"It's important to pass on our knowledge from our ancestors and for our young ones to understand our cultural connections to Country and how it can help with healing our bodies and minds," said Kylie.

Liz Ritchie, Roebourne District High School Principal, said the students' involvement in the workshop was part of Connected Learning, a program developed with support from the Karratha and Roebourne Education Initiative to link classroom curriculum with cultural knowledge and community.

"We are deeply committed to delivering education that is culturally respectful and meaningful. This work can only be achieved when we

have the guidance, support and expertise of our families, community advisors, and Elders.

"Participating in the Warridahs of the Ngurra workshops enables our young people to demonstrate practical applications of the learning that occurs in class and on-Country throughout the term.

"The day was an authentic example of how curriculum delivery in a culturally responsive and connected way leads to deep two-way learning of skills and knowledge," she said.

Looking ahead, WOTN plans to create a healing hub in Roebourne, which aims to balance education, wellbeing, and a sustainable business by building upon a range of products Kylie has been developing with native plants.

"We also plan to provide on-Country tours, which will provide economic prosperity for our people through employment and educating women in how to run a business," said Kylie.



Kylie Mowarin with students from Roebourne District High School at Hearson's Cove.

Stay up to date on our continued contribution to the local community  Woodside North West

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 796 of 919

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KREI supports student revision seminars

For more than 15 years, Woodside and its Joint Venture participants have contributed to programs aimed at enhancing academic achievements among students in the City of Karratha. Since the establishment of the Karratha and Roebourne Education Initiative (KREI), a key focus has been to bridge the gaps in opportunities available to local students and their peers in metropolitan areas.

During the recent school holidays, the KREI supported a group of Year 12 students from St Luke's College to travel to Perth for a 10-day educational experience. The local students participated in a series of intensive revision seminars, designed to prepare them for their WACE examinations. With small class sizes and personalised help from specialist teachers, students were able to delve into the course material and discuss valuable exam strategies.

While in Perth, the students dedicated time outside the seminars to learn about life at university. They visited several campuses where they engaged in pre-arranged faculty workshops and met with student ambassadors to gain valuable insights into the university environment, academic workload, course offerings and entry pathways.

The students also took the opportunity to explore the university accommodation colleges, helping them to envision their potential future living arrangements and supporting their readiness for their upcoming transition to higher education.

St Luke's College Upper School Pathways Coordinator Carol Potter said this year's revision seminars were an outstanding success.

"We are very fortunate to have the support of the Karratha and Roebourne Education funding, which made both the revision seminars and university visits possible. Our students are now feeling more prepared ahead of their final examinations and transition into tertiary education, away from their family to a big city," she said.

Supporting local students from St Luke's College and Karratha Senior High School to travel to Perth for revision seminars is just one example of Woodside and its Joint Venture participants' contribution to schools in the City of Karratha. Earlier this year, Woodside announced the renewal of the KREI, with five-year community partnership agreements. The renewal builds on a strong history of collaboration and provides continued investment to help local high school and primary school students thrive.



Scarborough trunkline installation a success

This October, Woodside marked an important milestone as it announced the completion of the Scarborough Energy Project's trunkline installation. Once operational, the 433 km trunkline will transport gas from the offshore Scarborough field to the onshore Pluto LNG facility for processing.

Reaching depths of up to 1400 m, the trunkline took around 12 months to install and had numerous teams and contractors contributing to the successful work program.

Woodside Executive Vice President and Chief Operating Officer Australia Liz Westcott said the trunkline was a critical piece of infrastructure for the Scarborough Energy Project.

"The completion of installation is a significant accomplishment, reflecting the dedication of all involved in achieving this project milestone.

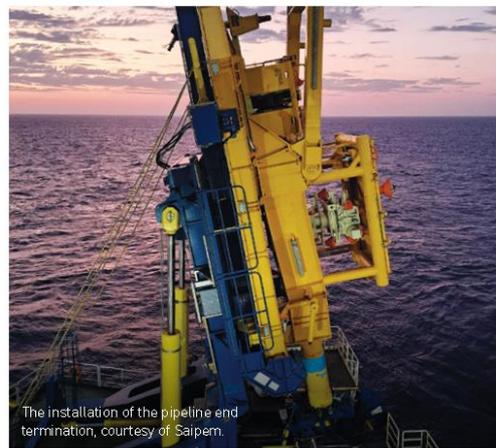
"With the last components of the trunkline in place, the focus will be maintained on safely executing the remaining project scopes to support the targeted first Scarborough LNG cargo in 2026," she said.

Following the successful installation of the trunkline, work will now commence on the pre-commissioning in preparation for hook-up of the subsea infrastructure.

The Scarborough Energy Project was 73% complete in October¹, and is set to help meet demand for the reliable energy the world needs today and into the future. This includes up to 225 terajoules a day of domestic gas supply into the Western Australian market from operations in Karratha.

These volumes will be processed by the recently delivered Pluto Train 2 domestic gas module. The important piece of infrastructure, which arrived in Karratha and was installed in early September, weighs over 1500 tonnes and will connect to the domestic gas export compressor. The domestic gas module is one of the 51 modules that is targeted to be delivered to site by the end of this year.

¹ Excluding Pluto Train 1 modifications.



Let's Talk

Our plans, Your say

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 797 of 919

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3.1.2 Let's Talk – Our Plans, Your Say

March 2024

Let's Talk Newsletter Hard Copy Distribution – March 2024 Edition

Date	Location	Event (if applicable)
28 February 2024	Karratha	KDCCI Business Breakfast
6 March 2024	Exmouth	Exmouth Chamber of Commerce and Industry office Exmouth Community Liaison Group
7 March 2024	Exmouth	Gascoyne Development Commission office Exmouth Shire office
8 March 2024	Karratha	KDCCI International Women's Day
13 – 15 March 2024	Perth	AOG Energy Conference
22-24 March 2024	Karratha, Dampier, Roebourne	Regional Woodside Environment Plan consultation roadshow
3 April 2024	Karratha	Employees at the Woodside Karratha Gas Plant
10 April 2024	Perth	Meeting with WAFIC
17 April 2024	Karratha	KDCCI Business After Hours
24 April 2024	Perth	Employees at the Woodside MY Building Woodside Annual General Meeting

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LET'S TALK

MARCH 2024
OUR PLANS,
YOUR SAY



WELCOME

Welcome to the first edition of Let's Talk – a platform to stay connected on Woodside Energy's Australian happenings and the stories behind our activities and operations. Dive in and explore to learn more about what Woodside has planned on land and sea; when, where and how we're engaging on our activities; and how you can provide feedback to us. If you or your organisation have functions, interests, or activities that may be affected by our planned activities, we want to hear from you.

THE RUNDOWN

In December 2023, The Scarborough Energy Project received secondary Commonwealth environmental approvals for key offshore work scopes. The project is now well underway (over 50% complete) with the commencement of relevant offshore construction activities.

Woodside also received environmental approvals in November and December 2023 enabling in-field works for decommissioning activities at the Griffin (65 km northwest of Onslow) and Stybarrow fields (51 km to the northwest of the North West Cape).

As part of the decommissioning of the Enfield field, Woodside received environmental approvals in July 2023 for the removal of the Nganhurra riser turret mooring (RTM) from the permit area off the coast of Exmouth.

The Nganhurra RTM is a metal structure, about 83 metres long, on which Woodside previously moored an oil producing facility.

The RTM allowed the facility to rotate with weather while moored and also brought subsea production lines from the Enfield oil field to a Floating Production Storage and Offloading facility. Enfield ceased production in November 2018 and the RTM was removed as part of decommissioning activities at the field, which also included the permanent plugging and abandonment of 18 former production wells.

The decommissioning concept for the Nganhurra RTM was matured over more than two years of careful planning and detailed engineering, undertaken in conjunction with a range of specialist contractors.



To stay updated, subscribe for future editions click [here](#) or visit www.woodside.com/what-we-do/consultation-activities

The RTM is now in its final stages of deconstruction at the AMC, expected to be completed by April 2024. More than 95% of the Nganhurra RTM will be recycled or re-used, supporting local employment and contracting opportunities.

[Click here to view the safe removal of Nganhurra Riser Turret Mooring](#)



“In late 2023, Woodside safely and successfully completed activities in the Environment Plan, including lifting the RTM in one piece out of the water and placing it on a barge for transportation to the Australian Marine Complex (AMC) at Henderson.”

Join the conversation at woodside.com/sustainability/consultation-activities



LET'S TALK

TALKING POINT

Woodside safely completes marine survey

A marine seismic survey conducted by Woodside Energy in December 2023 applied controls to avoid interaction with whales as part of the environment planning process.

Once the Environment Plan for the activity was accepted by the Regulator, Woodside conducted the survey from 2 December to 31 December 2023.

The survey was undertaken with a range of standard and project-specific controls designed to reduce interactions with marine fauna including a dedicated spotter vessel with trained Marine Fauna Observers operating during daylight hours and the use of a Passive Acoustic Monitoring system to detect the presence of vocalising whales.

A shut down zone was in place for whales detected within 2 km of the acoustic source and for sea turtles spotted within 100 m of the acoustic source.

There were also specific controls in place relating to whale species of potential cultural significance, such as pygmy blue whales and humpback whales.

This included an extended 'limits of visibility' shutdown zone if these whale species or large unidentified whales were detected by observers, within their limits of vision.

Weekly project update reports were published on the Woodside website during the survey to provide information on cetacean or marine turtle observations. These reports confirmed that marine fauna continued to move through the area during the survey. They also confirmed that no pygmy blue whale or sea turtles were sighted during the survey.



COMMUNITY SPOTLIGHT

The Scarborough Energy Project

The Scarborough Energy Project will provide a boost to the WA economy and communities, growing jobs and bringing work through the supply chain, with a focus on the Pilbara region.

A second processing train, Pluto Train 2, is being constructed within the existing Pluto LNG facility located near Karratha in the Pilbara Region of Western Australia and is currently set to process about five million tonnes per annum of Scarborough gas. The project is providing various opportunities for local businesses in Karratha. To date, with collaboration from Woodside's construction partner Bechtel, the Scarborough Energy Project has injected more than \$90 million locally and contracted over 65 Karratha businesses.

Local business spotlight: ATOM

We're spotlighting local, family-owned business: ATOM. The company name stands for Aqua Terra Oil & Mineral. ATOM has recently been contracted to supply industrial consumables, safety supplies and personal protective equipment products for the Pluto Train 2 construction.

ATOM believes locals serve locals best which is why its 22 employees supporting the project are all local to Karratha. Nearly half of the team are female and there is one Indigenous employee.

The contract has supported ATOM to expand its workforce increasing local employment opportunities.

Terry Klowss, Bechtel's Site Manager for Pluto Train 2 said, "ATOM's 100% local workforce helps us ensure our partnerships are benefiting local people - this is something that is very important to us at Bechtel."



“Long-term, it's estimated Pluto Train 2 will sustain around 600 roles, once the project is operational, across Western Australia, including 70 residential positions in Karratha.”

Like Woodside, ATOM is a nationwide company, with roots in Western Australia. ATOM opened its Karratha branch in 1980. In the same decade, Woodside commissioned the North West Shelf Project.

ATOM also shares Woodside's commitment to invest where we operate, building meaningful relationships and supporting our local community.

Phil Donders, National Team Leader ATOM said, "At ATOM, we believe in investing in the success and sustainability of the communities we operate within. This is why ATOM welcomed the opportunity to support the Pluto Train 2 Project through the supply of industrial consumables and PPE."

With access to more than one million products, ATOM is one of Australia's fastest growing industrial and safety supply business.

Join the conversation at [woodside.com/sustainability/consultation-activities](https://www.woodside.com/sustainability/consultation-activities)



COME CHAT WITH US

Woodside consults on our activities. Join us at local North West community events and at our offices so you can talk to us about our operations, decommissioning activities or proposed projects.

If you're interested in what Woodside has planned on land and sea, come and chat to our friendly team. You can find out more and share your feedback about Woodside's work in the North West, our Environment Plans and our current and proposed projects.

Upcoming engagement opportunities

ROEBOURNE
22 March 2024 | 1:00pm – 3:00pm
Woodside Office
39 Roe Street, Roebourne, WA, 6718

KARRATHA
23 March 2024 | 9:00am – 2:00pm
Karratha City Shopping Centre
16 Sharpe Avenue, Karratha, WA, 6714

DAMPIER
24 March 2024 | 9:00am – 12:00pm
Dampier Beachside Markets
Hampton Oval, Dampier, WA, 6713

DAMPIER
3 April 2024 | 10:00am – 2:00pm
North West Shelf Project Visitors Centre
Burrup Road, Dampier, WA, 6713

“
If you're interested in what Woodside has planned on land and sea, come and chat to our friendly team.
”



HAVE YOUR SAY

Woodside consults relevant persons in the course of preparing our Environment Plans. This is to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse impacts of the proposed activity on the environment.

We welcome your input so please contact us if you'd like to discuss your functions, interests or activities which may be affected by our proposed activities.

Environment Plan	Activity Type	Location	Consultation Dates
Pluto Facility Operations	Operations	~190km north-west of Dampier	February – March 2024
North Rankin Complex Operations	Operations	~135 km offshore from Dampier	April – May 2024
Scarborough Trunkline Operations (State)	Operations	~30km north of Dampier	April – May 2024

You can access our consultation information, provide feedback and subscribe for updates by visiting www.woodside.com/what-we-do/consultation-activities or click [here](#).

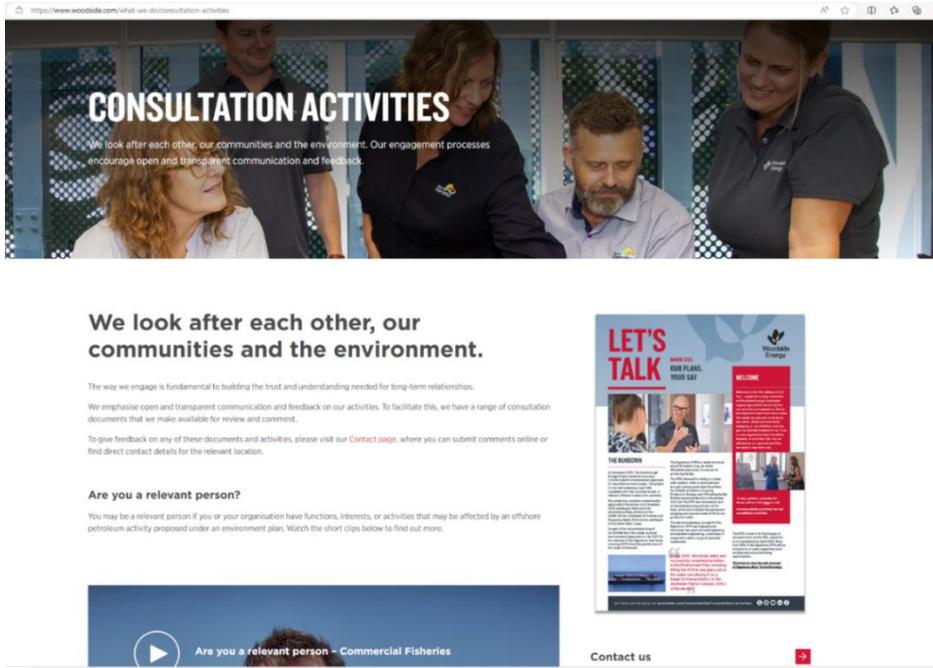
PROGRESS SNAPSHOT

You can view Environment Plans for approved projects and activities by visiting: info.nopsema.gov.au/home/approved_projects_and_activities or click [here](#).

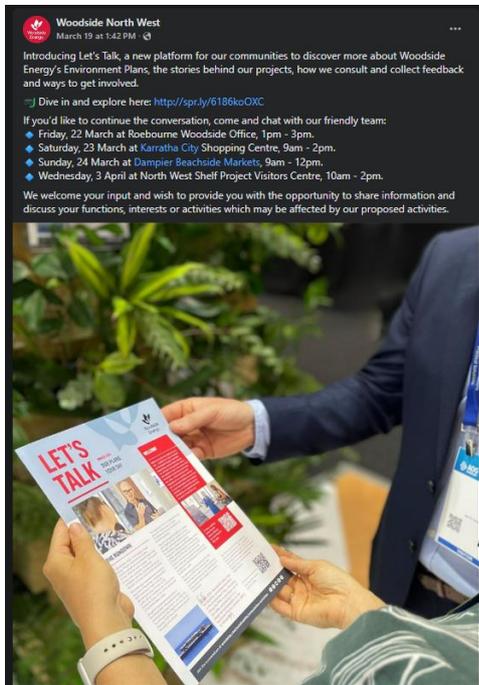
Environment Plan	Activity type	Date Accepted	Status
Stybarrow Decommissioning and Field Management	Decommissioning	8 January 2024	Work intended to commence in 2024
Stybarrow Plug and Abandonment	Decommissioning	21 December 2023	In progress
WA-34-L Pyxis Drilling and Subsea Installation (Revision)	Project	21 December 2023	Work intended to commence in 2024
Griffin State Pre-Decommissioning	Decommissioning	20 December 2023	Completed
Scarborough Seabed Intervention and Trunkline Installation	Project	13 December 2023	In progress
Scarborough WA-61-L and WA-62-L Subsea Infrastructure Installation	Project	8 December 2023	In progress
Scarborough Drilling and Completions	Project	1 December 2023	In progress
Scarborough 4D B1 Marine Seismic Survey	Survey	1 December 2023	Completed
Griffin Gas Export Pipeline Decommissioning	Decommissioning	30 November 2023	In progress
TPA03 Well Intervention	Project	28 November 2023	In scheduling
Griffin Decommissioning and Field Management	Decommissioning	21 November 2023	In progress
Nganhurra Operations Cessation	Decommissioning	27 July 2023	Completed

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Social media campaign – 19 – 30 March 2024



April – 2024

Let's Talk Newsletter Hard Copy Distribution – April 2024 Edition

Date	Location	Event (if applicable)
April 2024	Perth	Woodside AGM
April/May/June	Karratha	Woodside Visitor Centre
May 2024	Perth	WAFIC Award Night
May 2024	Karratha	KDCCI Business Breakfast Briefing
May 2024	Karratha	Community markets
May 2024	Karratha	Employees at the Woodside Karratha Gas Plant
May 2024	Onslow	Community information night
May 2024	Exmouth	Community markets
May/June 2024	Perth	Employees at the Woodside MY Building Woodside Annual General Meeting



LET'S TALK

EDITION 2 | APRIL 2024

OUR PLANS,
YOUR SAY



THE RUNDOWN

On 1 March 2024, Woodside received Commonwealth environmental acceptance for the Griffin Field Decommissioning (End State) Environment Plan, supporting the staged decommissioning program for the Griffin oil and gas field, located off the Western Australian (WA) coast 65 km north-west of Onslow and 94 km north-east of Exmouth.

During late 2023, Woodside received acceptance for other Griffin decommissioning activities, with several activities already safely and successfully completed.

WHAT IS DECOMMISSIONING?

Decommissioning involves managing infrastructure that is no longer required in a timely, safe, and culturally and environmentally responsible manner.

GRIFFIN FIELD - FAST FACTS

- Field discovered 1989
- Production period 1994 – 2009
- Gas produced for the WA domestic gas market - 62 trillion cubic feet
- Barrels of oil produced - 167 million

Griffin gas export pipeline removed safely, offshore from Onslow

Woodside recently completed staged decommissioning activities under the Griffin Gas Export Pipeline (GEP) Decommissioning Environment Plan, which was accepted on 30 November 2023. Woodside removed ~25 km of the pipeline offshore within Commonwealth waters at depths ranging from 52 m to 127 m, approximately 41 km north-west of Onslow.

During production, the 62 km long and 30 cm in diameter Griffin GEP transported gas from the field to the former onshore Griffin gas export facility south of Onslow for use by WA businesses and households.

The decommissioning of the pipeline's WA State waters section and related onshore infrastructure requires separate state approvals. Woodside will engage local stakeholders to understand their views on potential decommissioning options for this pipeline portion.

Woodside is now undertaking a post-removal assessment of the Commonwealth section of the Griffin pipeline to inform future decommissioning activities in the region. Woodside will continue to assess decommissioning options case-by-case, guided by science, consultation, and legislative requirements.

NINGALOO OUTLOOK SYMPOSIUM

To increase the ecological understanding of the Ningaloo Coast World Heritage Area's deep and shallow reefs and shark and turtle populations, Woodside and CSIRO have partnered on the Ningaloo Outlook Marine Research Partnership. For Ningaloo Outlook (Phase 1 and 2) over A\$12million has been invested in scientific research to further develop new knowledge about the Ningaloo Coast World Heritage Area. The initial Phase 1 was in partnership with BHP, now part of the merged Woodside Energy.

The 300 km long Ningaloo Reef is the largest fringing coral reef on the west coast of any continent. With shallow lagoons and deeper waters offshore, the reef is home to a variety of marine life and diverse habitats.

The sixth **Ningaloo Outlook Symposium** recently enabled marine park managers, the scientific community and interested stakeholders to discuss the partnership's 2023 research findings.



[Click here to view footage shown at the 2024 Ningaloo Outlook symposium.](#)

To stay updated, subscribe for future editions at [woodside.com/what-we-do/consultation-activities](https://www.woodside.com/what-we-do/consultation-activities)



COMMUNITY SPOTLIGHT

Support for Murujuga

Woodside is proud to be a signatory of Murujuga Aboriginal Corporation's (MAC) Statement of Intent as part of our unwavering support for World Heritage Listing over the Murujuga Cultural Landscape, and our ongoing support for the protection and management of Murujuga's outstanding heritage values. We are committed to and support the protection of Aboriginal cultural heritage and continue to work closely with Traditional Custodians in the areas we operate.

Woodside was one of 11 signatories to the MAC Statement of Intent at a ceremony held at Hearson Cove on Murujuga Country. Other parties to the Statement of Intent included MAC (as the representative body for five Traditional Custodian groups, being Ngarluma, Yaburara, Yindjibarndi, Mardudhunera and Wong-Goo-tt-oo peoples), the Government (Premier, Environment Minister and Aboriginal Affairs Minister), Commonwealth Government (Environment Minister), Rio Tinto, Pardaman, Yara Pilbara, Horizon Power and the City of Karratha.

The Statement of Intent sets out the guiding principles for MAC, government and industry parties to work together to negotiate a cooperative Strategic Head Agreement in relation to the management, protection, and conservation of the Murujuga Cultural Landscape in support of the World Heritage nomination of this landscape.

Woodside takes its responsibility to protect and manage cultural heritage seriously, including through taking reasonable and practical measures across our operations and growth projects to minimise our emissions.



TALKING POINT

Supporting Science at Scott Reef

Out on the edge of Australia's continental shelf sits the north and south reefs and sandy islet of Scott Reef.

Located about 425 km north-west of Broome, to reach Scott Reef a boat would need to travel from the closest point on the WA coast for 270 km across the Indian Ocean.

Scott Reef and other reefs in the Pilbara and Kimberley were considered "poorly understood" by the Australian Institute of Marine Science (AIMS) three decades ago. However, over the last 30 years, more than 50 expeditions by numerous marine scientists have led to extensive research and understanding of Scott Reef.

In 1993, Woodside supported AIMS' extensive survey of coral and fish communities. This led to the establishment of a long-term monitoring program in 1994, which continues today. The Scott Reef coral reef monitoring program is globally one of the few continuous programs providing insight into the health and condition of resident corals and fish.

Woodside partnered with the WA Museum in 1998, contributing to research on oceanography and the biology and ecology of the resident species. The partnership has enabled long-term research to understand the reef's health and how it changes through time. WA Museum scientists visited Scott Reef in 1984 to carry out extensive surveys to sample fauna. Then, in 2006

returned with Woodside's support and catalogued 1,897 marine life species, including 262 new discoveries.

The WA Museum partnership included the Woodside Collection Project, focused on the marine life of the Dampier Archipelago and Kimberley. Over 55,000 specimens were collected and 700 new species were identified as part of the large Australian biodiversity project.

The wide-ranging Scott Reef research projects have revealed important insights into a complex ecosystem and have delivered a wealth of knowledge to support Woodside's long-term environmental planning and management.

Woodside is consulting on the Browse State Wellhead Decommissioning Environment Plan (EP), involving decommissioning options for three historical wellheads in WA State waters, approximately 430 km north of Broome.

[View the consultation information sheet.](#)

In preparing the EP, Woodside's intent is to minimise environmental and social impacts and is seeking stakeholder input to inform Woodside's development of the EP.

[Click here to watch Journeys of Discovery - Coral Reefs.](#)

Join the conversation at [woodside.com/what-we-do/consultation-activities](https://www.woodside.com/what-we-do/consultation-activities)



COMMUNITY CONVERSATIONS

Upcoming engagement opportunities

DAMPIER
5 May 2024 | 9:00am – 12:00pm
Dampier Beachside Markets, Hampton Oval

EXMOUTH
19 May 2024 | 8:00am – 12:00pm
Exmouth Community Markets, Federation Park

Dates and times subject to change.



Woodside is consulting with local communities at local events so you can easily come and chat to us about our operations, decommissioning activities, or proposed projects.

Recently our team talked with community members at the Karratha Shopping Centre and the Dampier Beachside Markets about Environment Plans for the Scarborough State Trunkline Operations and Pluto Operations. We also meet quarterly

with Community Liaison Groups in Karratha and Exmouth where we communicate updates and consult with community members on a range of relevant topics.

If you're interested in what Woodside has planned on land and sea, come and chat to our friendly team and follow the [Woodside North West Facebook page](#) for updates. You can also read our recent [Karratha Community Update here](#).



HAVE YOUR SAY

Woodside consults relevant persons while preparing our Environment Plans to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse impacts of the proposed activity on the environment.

We welcome your input so please contact us if you'd like to discuss your functions, interests or activities which may be affected by our proposed activities.

Environment Plan	Activity Type	Location	Consultation Dates
Browse State Wellhead Decommissioning	Decommissioning	430 km north of Broome	25 March – 3 May 2024
North Rankin Complex Operations	Operations	135 km offshore of Dampier	22 April – 22 May 2024
WA-550-P Exploration Drilling	Exploration	190 km north-west of Dampier	-May – June 2024
Angel Carbon Capture and Storage Geophysical and Geotechnical Surveys	Survey	125 km north-west of Dampier	-May – June 2024
North West Shelf Phase 1 Plug & Abandonment	Decommissioning	-117 km north-west of Dampier	-May – June 2024
Julimar Operations	Operations	160 km north-west of Dampier	-May – June 2024

You can access our consultation information, provide feedback and subscribe for updates by visiting www.woodside.com/what-we-do/consultation-activities or click [here](#).

PROGRESS SNAPSHOT

Environment Plan	Activity Type	Date Accepted	Status
Griffin Field Decommissioning (End State) (Griffin Field Deviation / Griffin Leave In-situ)	Decommissioning	1 March 2024	In progress
Stybarrow Decommissioning and Field Management	Decommissioning	8 January 2024	In progress
Stybarrow Plug and Abandonment	Decommissioning	21 December 2023	In progress
WA-34-L Pyxis Drilling and Subsea Installation (Revision)	Project	21 December 2023	Drilling to commence around May 2024
Scarborough Seabed Intervention and Trunkline Installation	Project	13 December 2023	In progress
Scarborough WA-61-L and WA-62-L Subsea Infrastructure Installation	Project	8 December 2023	In progress
Scarborough Drilling and Completions	Project	1 December 2023	In progress
Griffin Gas Export Pipeline Decommissioning	Decommissioning	30 November 2023	Completed
TPA03 Well Intervention	Project	28 November 2023	In scheduling
Griffin Decommissioning and Field Management	Decommissioning	21 November 2023	In progress

You can view Commonwealth Environment Plans for approved activities and operations by visiting NOPSEMA's website info.nopsema.gov.au/home/approved_projects_and_activities.

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LET'S TALK

EMBA'S AND OIL SPILL MODELLING

Let's talk about EMBA's – what they are, and just as importantly, what they're not. When Woodside talks to community members about our activities, we're often asked about the areas marked on our consultation material referred to as the "Environment that May Be Affected" (EMBA).

EMBA's are an important part of preparing the environmental and emergency response strategies that underpin the planning for our offshore activities.

They are produced as part of our extensive oil spill modelling and response planning. They represent the largest spatial area where a petroleum activity could potentially have a direct or indirect environmental impact.

Understanding the EMBA

The EMBA represents the largest, merged area of many potential paths that a highly unlikely oil spill could travel based on predictions around weather, currents, and other conditions at the time. An EMBA is not a predicted impact of a single oil spill, which would be much smaller, and the extent and path of the impact would only be known at the time it occurred.

This means the area the EMBA covers includes locations where planned activities and unplanned events could potentially occur.

Oil Spill Modelling

While offshore oil spills are extremely rare, it is important oil and gas companies are still ready to prepare for and respond to them. There are several different approaches to oil spill modelling, and Woodside uses these in combination for information about where an oil spill could move, how quickly, and the possible effect of using methods to manage a potential oil spill.

To calculate this, our oil spill modelling involves running many (sometimes hundreds) computer simulations of the same scenario to predict the behaviour of oil under different conditions.

Each simulation is subject to a range of variables, including weather and sea conditions, tides, and times of year. In the model, the oil responds to these conditions and behaves differently in each individual simulation.

Every individual simulation is overlaid on top of the next, allowing statistical analysis of the possible area the oil spill

could travel in the highly unlikely event that a spill occurs. The smooth boundary drawn around all these computer simulations of the spill creates the EMBA.

The models process the information based on an assumption there is no emergency response, which would of course not be the case in a real emergency.

Oil spill modelling helps us develop our oil spill emergency management plans and assists in preparedness and response planning. Woodside conducts regular emergency response training exercises involving multiple facets of the business so our teams are ready to respond should they ever need to.

The many simulations used to underpin our planning are estimates and predictions only. It is not possible to exactly predict the outcome until the exact weather and other conditions are known if an oil spill event occurs.

Emergency Management Plans

The emergency management plan informed by the oil spill modelling is submitted to both State and Commonwealth regulators for approval along with all other planning documents for our activities.

Woodside, in more than 60 years, has not experienced any significant uncontrolled release of oil or gas to the environment as a result of loss of well control.

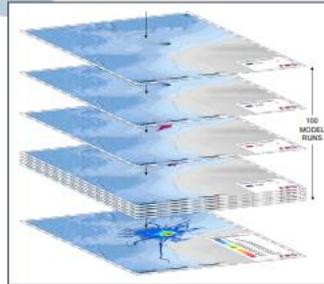


Figure 1: The first stage in EMBA creation is running computer simulations (model runs). Figure 1 shows the model runs for the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan.

Nevertheless, our extensive planning continues, drawing on international good practice, so the impacts and risks associated with our activities are detailed, evaluated and managed to a level that is as low as reasonably practicable.

We are committed to continuous improvement and share our expertise with our peers and take the lessons learned from other operators to incorporate into our management processes.

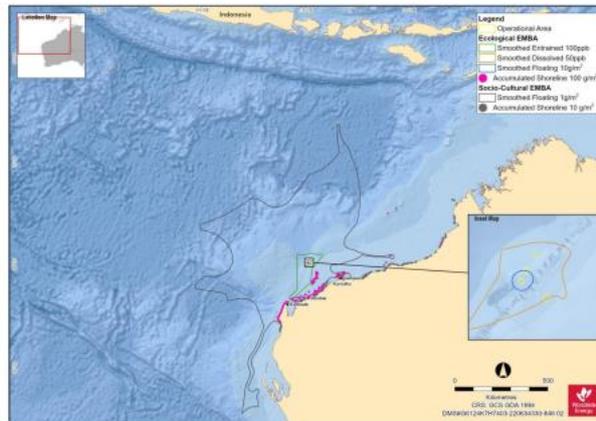


Figure 2: The EMBA is a culmination of all the computer simulations with a smooth boundary. Figure 2 shows the final EMBA for the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan.

Join the conversation at woodside.com/what-we-do/consultation-activities



July – 2024

Let's Talk Newsletter Hard Copy Distribution – July 2024 Edition

Date	Location	Event (if applicable)
18 July 2024	Karratha CLG email distribution	
23 July 2024	Karratha Visitor Centre	
25 July 2024	NWS Visitor Centre	
25 July 2024	City of Karratha office brochure stand	
25 July 2024	Roebourne office	
26 July 2024	Karratha	Lo's Coffee Pop-up community event
1 August 2024	Dampier Community Association office	
3 - 4 August 2024	Karratha	FeNaCling
21 August 2024	Karratha	KDCCI Business Breakfast Briefing
26 August 2024	Karratha	DNA conference

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LET'S TALK

EDITION 3 | JULY 2024

OUR PLANS,
YOUR SAY



THE RUNDOWN

Woodside Energy Chief Executive Officer and Managing Director Meg O'Neill has said gas producers are ready to work with government to deliver new supplies critical to the energy transition as she highlighted the importance of removing barriers to investment.

On 21 May 2024, welcoming the release in May of the Federal Government's Future Gas Strategy, Ms O'Neill said it provided a clear statement about the critical role gas plays in Australia's economy and will continue to play in the future.

A key point the Strategy makes is that new demand of gas will be needed to meet demand during the energy transition.

Addressing an Australian Energy Producers (AEP) Conference, Ms O'Neill, who is also AEP Chair, said:

"I am pleased the Government is talking about solutions. The industry is ready to roll up our sleeves and work with the Commonwealth to achieve a solution to a shortage which is supply."

"We welcome acknowledgment in the Strategy that we'll need the right regulatory settings to do so."

"Indeed, the success of the Strategy will be measured by whether it delivers policy reforms that address the barriers to new gas supply and investment."

She said the recent passage of Federal legislation relating to the Petroleum Resource Rent Tax (PRRT) had provided certainty.

The changes bring forward PRRT payments from LNG projects. However, in order to facilitate the PRRT payment amendments, the government held off passing other amendments designed to clarify ambiguity around consultation requirements for environmental approvals.

WAFIC SEAFOOD AWARDS

Endeavour Foods General Manager Sophie Sharland's empowerment of future leaders in the seafood industry was recognised in early May when she received the Young Achievers Award, sponsored by Woodside Energy, at the 2024 Western Australian Seafood Industry Awards.

This event, hosted biennially by the Western Australian Fishing Industry Council (WAFIC), acknowledges the innovations and achievements within the WA seafood industry.

The Young Achiever Award is one of 14 categories and focuses on individuals who demonstrate positive impacts to the seafood industry.

Sophie is a shining example of the growing number of talented young women working in the commercial seafood industry.



"This helps us make future investment decisions. But it has come at the expense of addressing the ambiguity in the consultation process for offshore approvals," Ms O'Neill said.

"Leaving this issue unresolved makes the timely development of new energy supply more difficult."

"The industry stands ready to work with the Government to progress these necessary reforms as soon as possible," she said.

To stay updated, subscribe for future editions at woodside.com/what-we-do/consultation-activities



COMMUNITY SPOTLIGHT

Karratha Signs

The Scarborough Energy Project will provide a boost to the WA economy and communities, growing jobs and bringing work through the supply chain.

Karratha Signs is one of more than 75 local Karratha businesses who have been working on our Scarborough Energy Project.

Started by Jed and Suzy Griffiths in 1999 in the third bedroom of their home, they have grown to be an award-winning enterprise that operates from premises in Karratha and Port Hedland.

Karratha Signs has designed and manufactured an array of site entry, safety and wayfinding signage for the Pluto Train 2 Project and has been vendors with Woodside since 2022.

Working with Karratha Signs provides Woodside with premium products suited to the Pilbara. The company invests in top-of-the-range equipment to ensure a professional, high-quality result every time.

Using local businesses which understand the areas in which Woodside operates ensures the best possible standards and expertise on the job.

Jed Griffiths said there was a sense of community among the employees on the Pluto Train 2 project.

"We work closely with many different people throughout the company to provide locally made signage that suits their individual requirements. Every member we've spoken to has been open-minded to new signage ideas and eager to assist in the process," Jed said.

"The Pluto Train 2 contract has enabled us to open our doors to more clients – both big and small. We've been able to demonstrate the depth of our professionalism to other high-end customers and ultimately expand our client base."



Click [here](#) to learn more about Karratha Signs and their work on the Scarborough Energy Project.



TALKING POINT

National Energy Technician Training Scheme

A talk at Exmouth High School on the National Energy Technician Training Scheme (NETTS) inspired Taj, an Exmouth local, to apply for an Electrical Instrumentation apprenticeship.

NETTS is a collaboration between Programmed and several energy organisations including Woodside, to develop skilled workers for the future. It's part of Woodside's commitment to local recruitment and providing opportunities to the communities in which we operate.

The first 12 months of the four-year apprenticeship is based in a structured learning environment to provide apprentices with the skills, knowledge and experience required to transition into an onshore or offshore role. Apprentices are taught a variety of life skills designed to prepare them for the transition from school to the workplace.

Taj spent 12 months training at the Australian Centre of Energy and Processing Training and is now offshore at the Woodside-operated Ngujima-Yin, Floating Production Storage and Offloading oil production facility, located 50 km northwest of Exmouth. Taj will work offshore swings and continue his TAFE courses in Perth.

Taj is one of twelve young people currently being hosted by the Woodside NETTS apprenticeship program which has a 98% apprentice retention rate, and in line with Woodside's commitment to inclusion and diversity, First Nations apprentices account for more than 25% of the intake and around 33% are female.

"I've started learning about basic electrical work and it's been interesting. I'm enjoying it. I'm keen to expand my knowledge and ultimately, finish this apprenticeship and hopefully work for Woodside for a decent amount of time and get back up North." Said Taj, NETTS apprentice.

This story demonstrates just one of the ways our operations and projects continue to enable us to make a difference, both in this community and across the state.

Read our [2023 North West Australia Community Development Report](#) to learn more.



Billie the dog watching over Taj enjoying days off

Join the conversation at [woodside.com/what-we-do/consultation-activities](https://www.woodside.com/what-we-do/consultation-activities)



COMMUNITY CONVERSATIONS

Woodside consults with local communities at local events so you can easily come and chat to us about our operations, decommissioning activities, or proposed projects.

Recently our team talked with community members at the Pilbara Summit in Karratha, Dampier Beachside Markets, WA Day Festival in Dampier, Exmouth Community Markets and the Onslow community information night.

We also meet quarterly with Community Liaison Groups in Karratha and Exmouth where we communicate updates and consult with community members on a range of relevant topics.

If you're interested in what Woodside has planned on land and sea, come and chat to our friendly team. Visit us at:

FeNaCing Festival 3rd and 4th of August, Bulgarra Oval, between 10 am and 4 pm.



STAY UP TO DATE ON OUR CONTINUED CONTRIBUTION TO THE COMMUNITY WE CALL HOME.



You can also read our recent Karratha Community Update [here](#).

HAVE YOUR SAY

Woodside consults relevant persons while preparing our Environment Plans to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse impacts of the proposed activity on the environment.

We welcome your input so please contact us if you'd like to discuss your functions, interests or activities which may be affected by our proposed activities.

Environment Plan	Activity Type	Location	Consultation Dates
North Rankin Complex Operations	Operations – 5 yearly review	-135km north-east from Dampier	19 June – 19 July 2024
Angel Carbon Capture and Storage Geophysical and Geotechnical Studies (Commonwealth and State EPs)	Surveys	-9 km north-east of Dampier (State EP) - 35 km (closest survey points) - 140 km (furthest survey point) north of Dampier (Commonwealth EP)	8 July – 9 August 2024
Julimar Operations	Operations – 5 yearly review	-160km north-west of Dampier	15 July – 16 August 2024

You can access our consultation information, provide feedback and subscribe for updates by visiting: www.woodside.com/what-we-do/consultation-activities

PROGRESS SNAPSHOT

Environment Plan	Activity Type	Date Accepted	Status
NWS and Julimar Exploration Wellhead Decommissioning Environment Plan	Decommissioning	3 July 2024	Scheduled for August 2024
Angel Operations Environment Plan (Lambert West Drilling)	Operations / Project	25 June 2024	In scheduling
Julimar Development Phase 3 Drilling and Subsea Installation Environment Plan	Project	10 June 2024	In scheduling
Stybarrow Decommissioning and Field Management / End State	Decommissioning	23 May 2024	In progress
Goodwyn Alpha Geophysical and Geotechnical Surveys Environment Plan	Project	30 May 2024	Scheduled for August 2024
Griffin Field Decommissioning (End State) (Griffin Field Deviation / Griffin Leave In-situ)	Decommissioning	1 March 2024	In progress
Stybarrow Plug and Abandonment	Decommissioning	21 December 2023	In progress
WA-34-L Pyxis Drilling and Subsea Installation (Revision)	Project	21 December 2023	In progress
Scarborough Seabed Intervention and Trunkline Installation	Project	13 December 2023	In progress
Scarborough WA-61-L and WA-62-L Subsea Infrastructure Installation	Project	8 December 2023	In progress
Scarborough Drilling and Completions	Project	1 December 2023	In progress
TPA03 Well Intervention	Project	28 November 2023	In scheduling
Griffin Decommissioning and Field Management	Decommissioning	21 November 2023	In progress

You can view Commonwealth Environment Plans for approved activities and operations by visiting: info.nopsema.gov.au/home/approved_projects_and_activities or click [here](#).

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LET'S TALK

INFRASTRUCTURE GETS SECOND LIFE

Woodside's largest ever decommissioning campaign to date is currently in full swing with a range of activities completed or planned across the Enfield, Echo Yodel, Stybarrow and Griffin fields off the coast of Western Australia and activities planned at the Minerva field in Victoria.

Involving the removal of an estimated 35,000 tonnes of infrastructure including more than 350 km of pipe, flowlines and umbilicals and a range of other equipment, approximately 95% is planned to be recycled or reused.

Woodside has engaged a range of contractors (including international contractors) that bring significant subsea experience, technical know-how, and that use specialist offshore vessels for safe and reliable execution of campaign activities. Specialist vessels include mobile offshore drilling units required for well plug and abandonment activities, light construction vessels for removal of subsea structures and pipe, and heavy lift vessels to remove large structures including riser turret moorings.

Woodside is working with a variety of Australian businesses, many with experience supporting defence, mining and refinery disposal, which are assisting the business to complete oil and gas decommissioning activities. Companies such as McMahon, RPA, C.D. Dodd and Birdon are playing leading roles in onshore disposal scopes, adapting established processes and pathways to support the unique requirements of the oil and gas industry.

Because of the specific needs of the campaign, new onshore facilities are being developed by sub-contractors to support and complement existing facilities.

Some large infrastructure, such as the Nganhurra Riser Turret Mooring removed in late 2023, is typically taken to the Australian Marine Complex at Henderson to be cleaned and deconstructed in preparation for recycling and reuse. Infrastructure such as pipe, flexibles and umbilicals are unloaded from offshore up to three times a week at facilities near Onslow including the Port of Ashburton.



The infrastructure is then taken to a facility established by sub-contractors C.D. Dodd and RPA at the nearby Pilbara Regional Waste Management Facility where it is decontaminated and cleaned before it's transported to another C.D. Dodd facility in Karratha for deconstruction and sorting into its constituent parts in preparation for recycling.

Woodside recently hosted Shire of Ashburton President Audra Smith, Cr Brie Healy, Cr Rosanne Kapor, Cr Linton Rumble, and Deputy CEO Jo Sangster at the decommissioning facility near Onslow. With many local businesses supporting decommissioning activities, the site visit was a great opportunity to inform stakeholders about the campaign's progress and the importance of working with the Shire to its success.

"I am immensely proud of the progress we have witnessed during our recent site visit. Woodside's decommissioning campaign, one of the largest in Australia, reinforces our commitment to responsible resource management and environmental stewardship in the Shire of Ashburton.

The efforts of the lead contractor, TechnipFMC, in removing over 35,000 tonnes of offshore infrastructure, and the work of RPA and C.D. Dodd in recycling these materials, highlight the impressive collaboration and innovation driving this project. This initiative not only supports our goal of sustainable development but also contributes significantly to the local economy. As we move towards completing this campaign by the end of 2025, I am confident that our continued dedication will produce outstanding results for both the industry and the community." - Shire of Ashburton President Audra Smith.



Shire of Ashburton President Audra Smith, Cr Brie Healy, Cr Rosanne Kapor, Cr Linton Rumble, and Deputy CEO Jo Sangster visiting the decommissioning facility near Onslow.

Join the conversation at [woodside.com/what-we-do/consultation-activities](https://www.woodside.com/what-we-do/consultation-activities)

November – 2024

Let's Talk Newsletter Hard Copy Distribution – November 2024 Edition

Date	Location	Event
15 November	Community engagement Karratha/Roebourne	
15 November	Karratha Visitor Centre	
15 November	Dampier Community Association office	
15 November	City of Karratha office	
15 November	Woodside Roebourne office	
15 November	Exmouth Community Drop in	
27 November	KDCCI opportunities	KDCCI Breakfast Briefing
29 November	Karratha CLG	

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 814 of 919

Uncontrolled when printed. Refer to electronic version for most up to date information.



Let's Talk

Our Plans, Your Say

Edition 4 | November 2024



The rundown

North West Shelf Visitors Centre welcomes Wanparta



The Ngarla people at the North West Shelf Visitors Centre.

We acknowledge the unique connection that First Nations communities have to land, waters and the environment and seek to consult them in relation to our operations and proposed projects.

As part of our ongoing consultation with First Nations groups, Woodside Energy recently hosted 13 Traditional Owners from Ngarla country at the North West Shelf Visitors Centre, so they could see our operations first hand.

The Ngarla people are the Traditional Owners of an area of land east of Port Hedland that covers the De Grey and Pardoo pastoral stations in Western Australia's North West.

Woodside Manager First Nations Engagements, Michael Roe said that Wanparta Aboriginal Corporation as the Prescribed Body Corporate for the Ngarla people, had been identified as a

relevant person to consult with on previously submitted and present Environment Plans.

"The Ngarla people were interested in learning more about the world of gas, and as part of the consultation process were invited to Karratha for a visit to the North West Shelf Visitors Centre overlooking the Karratha Gas Plant."

"This provided an occasion to build trust and understanding whilst providing the opportunity to provide feedback on our activities. In this case we were consulting on the five-yearly review of the Pluto Facility Operations Environment Plan," said Michael.

An accepted Environment Plan is required in order for Woodside to carry out activities. Meaningful conversations with First Nations people are documented and make up part of an Environment Plan

Munro's Mack 10k Fishing Competition

Munro's Mack10k 2024 Fishing Competition, held in Onslow from 24-25 August 2024, saw hundreds of anglers and fishing enthusiasts from across Australia enter into the running for a chance to reel in \$10,000.

The event doubles up as a research initiative, spearheaded by Recfishwest's Fishing for Science program and supported by Woodside Energy.

Working with the Department of Primary Industries and Regional Development, the Recfishwest science team collected biological samples from mackerel caught by competitors, providing insight into the health of the local fish population.

Read more about the annual competition, hosted by the Ashburton Angler Fishing Club by visiting: recfishwest.org.au



submitted to regulatory bodies for assessment ahead of continued operation. Wanparta Aboriginal Corporation Chairperson, Mary-Jo Coppin said, "the trip was really informative with good consultation, well organised and we felt very welcome at the facility."

A key element of Woodside's consultation efforts is our willingness to be flexible and adaptable to suit the audience in our overall efforts to avoid or minimise potential impacts from our operations.

To stay updated, subscribe for future editions at woodside.com/what-we-do/consultation-activities



Community spotlight

Wangarri Crane and Equipment Hire

Murujuga Commercial Limited's (MCL) first Pilbara business, Wangarri Crane and Equipment Hire (Wangarri), has been awarded the contract for supply and maintenance of cranes and forklifts for the Pluto Train 2 Project, the onshore component of the Scarborough Energy Project.

Established by MCL as a joint venture with Boddington's Hire, Wangarri provides a range of lifting equipment that includes cranes, forklift trucks, reach stackers and telehandlers for hire to the resource sector and other industrial clients across the Pilbara.

One of five commercial ventures managed by MCL, Wangarri forms a portfolio of businesses and commercial ventures that aim to provide a strong and economic future for its Murujuga members.

Wangarri means "Coming to Life" in Yindjibarndi, which represents MCL's journey as it moves from a start-up phase toward building business streams that align to the strategic goals and objectives of the Murujuga Aboriginal Corporation.

Bechtel, the appointed contractor for the Pluto Train 2 project, delivers engineering, procurement, construction and commissioning, has awarded contracts to local Indigenous businesses, such as Wangarri to deliver a variety of work scopes.

"We are very happy to be working with Wangarri on Pluto Train 2. We deeply value this local contract and appreciate their professionalism and dedication to providing safe and high-quality cranes and forklifts," said Bechtel Pluto Train 2 site manager Terry Klowss.

Jig Albert, MCL Managing Director said the contract with Bechtel on Pluto Train 2 had been an enormous stepping stone for their business.

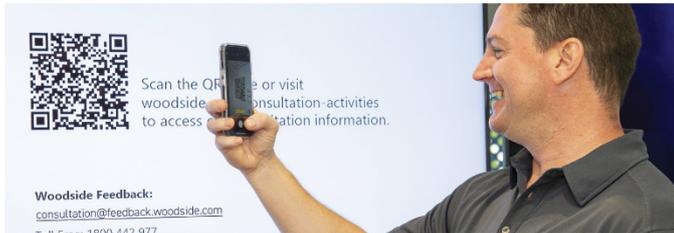


"We have been contracted to provide a range of the smaller cranes for the project. Mostly this consists of Franna pick and carry cranes, however we are also providing a 160 tonne all-terrain crane and a small three tonne Maeda spider crane, as well as the ongoing maintenance of these machines," said Jig Albert.

"It has given our business the confidence to invest in our own equipment which will drive equity for the business and in turn provide a direct return to Murujuga Aboriginal Corporation members."

[Learn more about Wangarri Crane and Equipment Hire and their work on the Scarborough Energy Project](#)

The importance of consultation



"Like safety, consultation continues to be a core focus for NOPSEMA," Sue McCarrey, CEO, NOPSEMA (*Source: The Regulator, 2024, Issue 2*)

Consultation is a key component of Woodside's environmental planning and can involve a two-way process with relevant persons who wish to provide feedback on operations or proposed offshore activities.

Consultation enables Woodside to confirm current measures or identify additional measures, if any, that could be taken to lessen or avoid potential adverse effects of the proposed activity on the environment. It is a key requirement of Australia's offshore environmental management framework and Environment Regulations.

An appropriate consultation approach which meets regulatory requirements enables

Regulators such as the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for Commonwealth activities, or the Department of Energy, Mines, Industry Regulation and Safety for state activities, to assess and accept Environment Plans (EP).

Woodside is committed to open and transparent consultation and does this by providing clear information on proposed activities, assessing and responding to objections or claims about the activity, and providing a reasonable period of time and opportunity for a relevant person to provide feedback.

If required due to the nature and scale of a proposed activity, Woodside undertakes additional consultation activities over a longer period to ensure a reasonable period

of time period and sufficient information has been provided. This allows for an informed assessment of the possible consequences of the activity on stakeholders' (referred to as a 'relevant person' under Commonwealth regulations) functions, interests or activities.

Subscribe to stay up-to-date

On Woodside's website we enable members of the public to subscribe to receive information about EPs as it becomes available.

Subscribing is a great way to stay informed about updates and important information related to Woodside's activities. It also provides the public with timely notifications about new projects, environmental initiatives, community engagements, and consultation information sheets for proposed activities.

Woodside has updated its consultation email address to consultation@feedback.woodside.com

To subscribe to Woodside's consultation activities [click here](#) and enter your details on the page.

Join the conversation at [woodside.com/what-we-do/consultation-activities](https://www.woodside.com/what-we-do/consultation-activities)





Community conversations

Woodside consults local communities at local events. If you see our friendly team out-and-about, please come and chat to us about our operations and projects.

Recently our team engaged with community members at pop-up Environment Plan information sessions in Karratha and Exmouth and participated in the Dampier Beachside Markets. Our teams also recently met with stakeholders in Broome, Onslow and Roebourne.

We also meet quarterly with Community Liaison Groups in Karratha and Exmouth where we communicate updates and consult with community members on a range of relevant activities.

If you're interested in what Woodside has planned on land and sea, come and chat to our friendly team and follow the Woodside North West Facebook page for updates including our Karratha Community Update newsletter.

Stay up to date on our continued contribution to the community we call home.

SEARCH ON FACEBOOK OR [CLICK HERE](#)



Have your say

Woodside consults relevant persons while preparing our Environment Plans to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse impacts of the proposed activity on the environment.

We welcome your input so please contact us if you'd like to discuss your functions, interests or activities which may be affected by our proposed activities.

Environment Plan	Activity Type	Location	Consultation Dates
NWS Phase 1 Well P&A and TPA03 Well Intervention	Decommissioning and Project	125 - 138 km north / north-west of Dampier	27 September to 30 October 2024
Angel Subsea Infrastructure Removal	Decommissioning	125km north of Dampier	30 September to 1 November 2024



You can access our consultation information, provide feedback and subscribe for updates by [clicking here](#)

Progress snapshot

Environment Plan	Activity Type	Date Accepted	Status
Minerva Decommissioning and Field Management	Decommissioning	14 October 2024	In progress
NWS and Julimar Exploration Wellhead Decommissioning	Decommissioning	3 July 2024	In progress
Angel Operations (Lambert West Drilling)	Operations / Project	25 June 2024	In scheduling
Julimar Development Phase 3 Drilling and Subsea Installation	Project	10 June 2024	In scheduling
Stybarrow Decommissioning and Field Management / End State	Decommissioning	23 May 2024	In progress
Goodwyn Alpha Geophysical and Geotechnical Surveys	Project	30 May 2024	In progress
Griffin Field Decommissioning (End State) (Griffin Field Deviation / Griffin Leave In-situ)	Decommissioning	1 March 2024	In progress
Stybarrow Plug and Abandonment	Decommissioning	21 December 2023	In progress
Scarborough Seabed Intervention and Trunkline Installation	Project	13 December 2023	In progress
Scarborough WA-61-L and WA-62-L Subsea Infrastructure Installation	Project	8 December 2023	In progress
Scarborough Drilling and Completions	Project	1 December 2023	In progress
Griffin Decommissioning and Field Management	Decommissioning	21 November 2023	In progress

You can view Commonwealth Environment Plans for approved activities and operations by visiting: info.nopsema.gov.au/home/approved_projects_and_activities

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Milestone celebrations at FeNaCING Festival

The City of Karratha recently hosted the FeNaCING Festival, bringing together community and celebrating the region's key industries – iron (Fe), sodium chloride, commonly known as salt (NaCl), and natural gas (NG).

Woodside Energy, along with its joint venture partners, proudly supported the event, with a pavilion that featured Woodside's 70th anniversary as a company and 40th year of safe and reliable operations in the North West.

Woodside CEO Meg O'Neill made a special appearance at the festival, meeting local community members and helping with a range of giveaways on offer.

Meg praised the event organisers who successfully celebrated the community spirit that makes Karratha a great place to live and work.

"We know that such a significant milestone could only be achieved with the support of our people and the Karratha community," she said. "I was really thrilled to have the opportunity to join our team in the Woodside marquee as they engaged with the community about issues that matter to them and answered questions about our operations and growth projects."

Many attendees who visited the Woodside marquee expressed curiosity about Woodside's Environmental Plans and other topics including Carbon Capture and Storage, the Scarborough Energy Project and the development of Browse.

Woodside's active participation in events like the FeNaCING Festival supports our consultation approach to engage the community on our current business activities, including opportunity to provide feedback on our Environment Plans.



Join the conversation at [woodside.com/what-we-do/consultation-activities](https://www.woodside.com/what-we-do/consultation-activities)



3.2 Newspaper Advertising of the proposed activity

Newspaper	Coverage	Publication dates
The Australian	National	9 August 2023
The West Australian	Regional (WA)	9 August 2023
Pilbara News	Local (WA)	9 August 2023
Midwest Times	Local (WA)	9 August 2023
The Geraldton Guardian	Local (WA)	11 August 2023
North West Telegraph	Local (WA)	9 August 2023
Koori Mail	Indigenous	9 August 2023
National Indigenous Times	Indigenous	29 August 2023

SCARBOROUGH OFFSHORE FACILITY AND TRUNKLINE OPERATIONS ENVIRONMENT PLAN

For more than 35 years, Woodside has been developing LNG projects in Australia. Today, we aim to thrive through the global energy transition with a low cost, lower carbon, profitable, resilient and diversified portfolio.

We are committed to consulting and ensuring feedback from relevant persons is considered and used to inform the development of an Environment Plan for the Scarborough Offshore Facility and Trunkline Operations.

Our activities

Woodside plans to install a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant. Other activities include surveys to monitor the reservoir, as well as inspection, maintenance, monitoring and repair activities.

Located around 374 km off the coast of Dampier in Western Australia, work is planned to start in the second half of 2025. We are seeking input from relevant persons whose functions, interests or activities may be affected by the proposed operations.

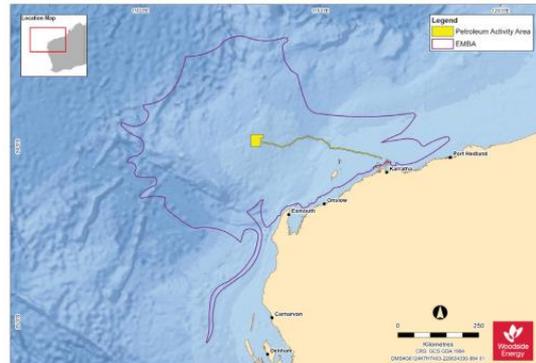
The environment that may be affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this EP, is determined by a highly unlikely release of marine diesel to the environment as a result of damage to the production facility or vessel collision.

The EMBA represents the merged area of many possible paths a hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release. This means in the highly unlikely event a hydrocarbon release does occur, the whole EMBA will not be affected at one time.

We want to hear from you

If you are an individual, organisation or community group and believe your functions, interests or activities may be affected by the proposed activity, we would like to hear from you by Monday, 11 September 2023 to identify as a relevant person.



Want to know more or provide input?

A feedback form and more information can be found at: www.woodside.com/sustainability/consultation-activities. You can also subscribe via our website to receive future information on upcoming activities.

E: Feedback@woodside.com
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The Australian – 9 August 2023

6 THE AUSTRALIAN WEDNESDAY, AUGUST 9, 2023 www.theaustralian.com.au

THE NATION

Bitter Labor row risks party split, PM intervention

EXCLUSIVE

BY TONY HERRICK
AND ANITA GRANTON

Anthony Albanese is set to be dragged into a bitter power struggle that threatens to split the mainstream Labor and divide its ranks over the market his Labor government.

Former Labor leader David Byrne – banished from caucus in 2013 in a wake of a scandal – is seeking party protection for the market.

He has a support base among voters and politicians who are split on the right and some within the left, including much of the cabinet.

Opposition Leader Anthony Albanese – successful in opening Mr Byrne from caucus – remains firmly opposed to his return, with suggestions he would split a fractured government.

With the transition of power in administration, power selection decisions will fall on the prime minister's hands.

Mr Byrne's return is seen as a high-stakes gamble.

Under the transition of power, Mr Byrne will consider a caucus vote to re-join the party.

Mr Byrne's return is seen as a high-stakes gamble.

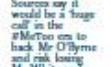
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David Byrne



Anthony Albanese

Mr Byrne was the first politician to be kicked out of the Labor caucus since 1975. He was expelled in 2013 after a scandal involving a former staffer.

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Zim and Nicky Zimmermann at their Malibu Avenue fashion boutique in New York

Zimmermanns surge up nation's rich list

MATRINA BIRDA

Nicky and Zim Zimmermann's net worth has risen to \$1.2 billion, up from \$800 million last year.

The couple's wealth is primarily derived from their investment in the fashion industry.

Mr Zimmermann's return is seen as a high-stakes gamble.

Under the transition of power, Mr Zimmermann will consider a caucus vote to re-join the party.

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SCARBOROUGH OFFSHORE FACILITY AND TRUNKLINE OPERATIONS ENVIRONMENT PLAN

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We are committed to consulting and ensuring feedback from relevant persons is considered and used to inform the development of an Environment Plan for the Scarborough Offshore Facility and Trunkline Operations.

Our activities

Woodside plans to install a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant. Other activities include surveys to monitor the reservoir, as well as inspection, maintenance, monitoring and repair activities.

Located around 214 km off the coast of Dampier in Western Australia, work is planned to start in the second half of 2025. We are seeking input from relevant persons whose functions, interests or activities may be affected by the proposed operations.

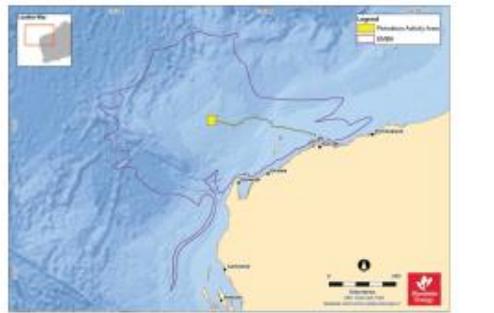
The environment that may be affected (EMBA)

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The EMBA represents the merged area of many possible paths a hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release. This means in the highly unlikely event a hydrocarbon release does occur, the whole EMBA will not be affected at one time.

We want to hear from you

If you are an individual, organisation or community group and believe your functions, interests or activities may be affected by the proposed activity, we would like to hear from you by Monday 11 September 2023 to identify key relevant persons.



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E: Feedback@woodside.com

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The West Australian – 9 August 2023

The West Australian
Wednesday, August 9, 2023

AUSTRALIA v FRANCE SATURDAY 3PM LIVE ON 7|7+ 15



From right: Caitlin Foord with Matildas teammates Mackenzie Arnold and Sam Kerr, with her dog and pictured as a youngster with older sister Jamie.

Kerr knows there's no 'T' in team

JACKSON BARRETT

Her every move has been under the microscope for the past couple of weeks but Sam Kerr knows her teammates have been doing just fine without her.

The superstar, who made her first appearance in this World Cup with a 15-minute cameo against Denmark, was quick to praise the rest of the Matildas.

"The girls smashed it," said the 29-year-old, whose calf injury before the first game had left fans fearing they wouldn't see her in an Australia jersey.

"They've done unbelievable this week and to put in that performance after a big game against Canada, it's amazing."

And Kerr, who will looking to start in the quarterfinal against France on Saturday, said the team had been feeding off the Australian public's enthusiasm.

"I think the girls are just doing what we've always done and the crowd gets us over the line," she said.

"I think we're embracing it, the Australian public has been amazing, on the street, making us coffee — whoever it is — they have all got behind us, we have felt the love. I'm embracing it, we're loving it and hopefully we can keep pushing on."

the World Cup, Foord was Australia's best player, scoring seven times in eight games and forming a potent partnership with Kerr.

"When I'm just not thinking too much and just play the game and play it off instinct is when I'm at my best," she said.

Foord and Kerr go way back, having played together in the US with Sky Blue FC, but also at A-League Women level for Sydney FC and Perth Glory.

Foord's chemistry with Kerr is apparent, and they share a seemingly psychic connection.

With Australia on the verge of a shock exit after two group games at the World Cup, coach Tony Gustavsson decided to shift Foord from the centre back on to her favoured left wing against Canada and was rewarded with a 4-0 win. "My job as a national team coach is not about over-coaching players and trying to keep them in a small frame," Gustavsson said. "She should have a big frame and paint whatever pictures she wants."

Then came the Denmark game and the goal against the run of play — but it was a full stop, rather than an exclamation point on Foord's career up to now — after all, she has been doing this sort of thing for some time.

WARILLA GROVE 1997

QUARTERFINALS DRAW **SPORT P54**

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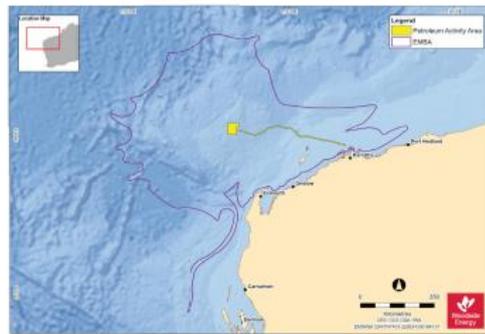
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The Pilbara News – 9 August 2023

Pilbara NEWS
Wednesday, August 9, 2023

pilbaranews.com.au

NEWS 7

Truck fatality involved cattle

PHIL HICKEY

Police have released new information surrounding a shocking truck crash in the Pilbara on Thursday. The crash happened about 10pm

on Thursday on the North West Coastal Highway, approximately 26km south of the Pannawonica Road intersection in Fortescue.

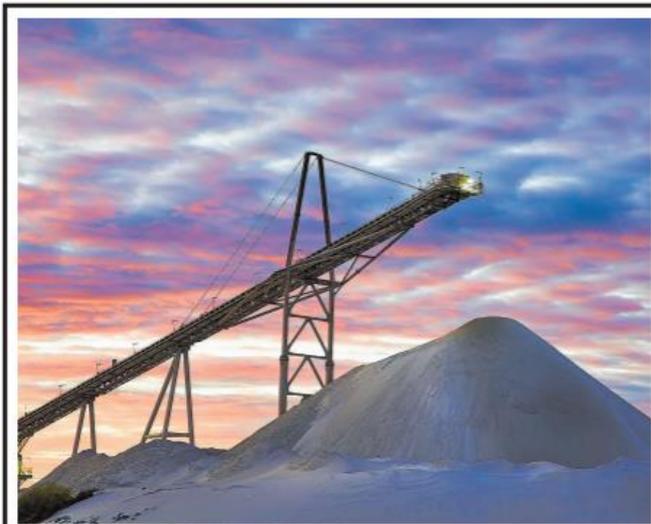
Police say the truck, which was towing a trailer containing a concrete pizza oven, was being driven by a 23-year-old man.

The Isuzu truck hit two cows that were crossing the highway before the vehicle veered off the road and rolled several times.

The 23-year-old man suffered critical injuries and died at the scene. Major crash officers have been sent to the remote area to carry out an examination of the scene and

are appealing for any witnesses to come forward.

Dash-cam or mobile phone vision relating to the crash can be uploaded directly to investigators via tinyurl.com/4vta9azt.



Pilbara Minerals' Pilgangoora plant. Picture: Pilbara Minerals

Pilbara Minerals puts plan for expansion on the table

DANIELLE LE MESSURIER

Pilbara Minerals could expand production capacity at Pilgangoora beyond one million tonnes a year after revealing a substantial 36 per cent increase in mineral resources at the lithium project, in WA's Pilbara region.

Shares in Pilbara were up 4 per cent, trading at \$5.19, about an hour before chief executive Dale Henderson was due to take the stage on the first day of Kalgoorlie's Diggers & Dealers Mining Forum.

The mineral resource has increased by 109 million tonnes to 413.8Mt, Pilbara said. It represents a 36 per cent increase in total resource tonnage compared to June 30 last year, now containing 4.75Mt of lithium oxide grading at 1.15 per cent.

Pilbara said the update would underpin an ore reserve update slated to be released in the September quarter.

The company said it "may provide an opportunity to further expand production capacity beyond P1000" — its project to expand lithium-rich spodumene output to 1Mt a year.

"This significant resource upgrade reinforces our... Pilgangoora operation as one of the largest hard rock lithium deposits globally," Mr Henderson said.

"The upgraded mineral resource is consistent with our strategy to grow our operating base and therefore maximise value by achieving the full potential from our world class operation."

"We have added 109Mt of additional mineral resource at a direct exploration cost of only 13 cents per tonne of additional resource — an outstanding result."

The announcement comes less than a week after Pilbara revealed it had given the go-ahead to a \$105m demonstration plant at Pilgangoora with Calix to produce a higher value lithium phosphate product.

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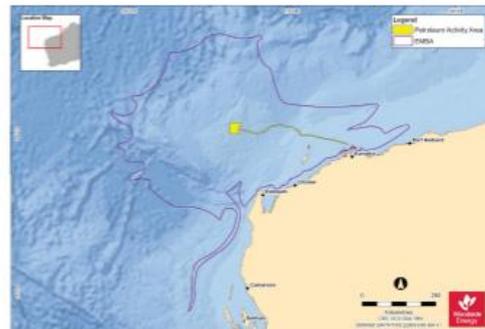
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The MidWest Times – 9 August 2023

Times
Wednesday, August 9, 2023

midwesttimes.com.au

NEWS 9

West End fire accused in custody

JESSICA MORONEY

A Geraldton man accused of deliberately setting fire to the Geraldton Housing Office — which left a damage bill of about \$400,000 to the 138-year-old West End building — remains behind bars after his first court appearance.

Anthony John Kruger, 51, of Beachlands, faced Geraldton Magistrates Court on Friday morning, less than 24 hours after he is alleged to have caused shock and panic in the city.

Police say Mr Kruger walked into the Department of Communities building on Marine Terrace on Thursday just before 2pm with a jerry can of fuel, which he splashed on the front counter and set alight.

Office staff quickly evacuated and there were no other people in the building at the time.

A new high-tech helicopter, coincidentally in Geraldton for community and school engagement events, tracked Mr Kruger's vehicle in Moonyoonooka, leading officers on the ground to his location, where he was arrested about 4.15pm on Thursday.

Fire crews extinguished the blaze within half an hour, containing it to a few rooms on the ground floor.

Mr Kruger made a brief appearance in court after spending the night in custody. He was not required to enter any pleas and no bail application was made.

He is charged with criminal damage by fire and intent to harm, and unlawfully doing an act as a result of which the life, health and safety of a person was or was likely to be endangered.

His case was adjourned until September 7.

A Department of Fire and Emergency Services spokesperson on Friday said the estimated damage caused to the building was about \$400,000.

A Department of Communities spokesperson on Friday said the department would seek advice on operational plans while the Geraldton office was closed.

The day before, they said the incident had left staff in "shock and distress" and they were being provided with immediate support to "prioritise their wellbeing".

Smoke billows from the building on Marine Terrace. INSET: Anthony John Kruger. Pictures: Romi Kerley, Facebook

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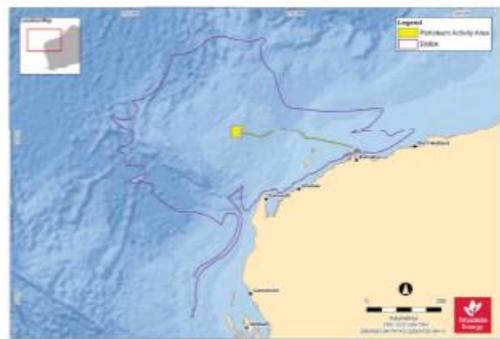
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The Geraldton Guardian – 11 August 2023

20 LIFESTYLE

geraldtonguardian.com.au

Guardian
Friday, August 11, 2023

Quiet Life's worth lauding

FLAVOUR REPORT
DEREK GOFORTH

For the time being, we've had enough of takeaways, snacks and baked goods, so this time we decided to head out for a filling lunch.

Quiet Life's pork belly miso ramen came highly recommended by friends and colleagues. After all, who could say no to twice-cooked pork belly, 12-hour pork broth, mild-spiced miso, soft soy-boiled egg, sweet corn, spring onion, ramen noodles, and seasonal veg? Not us on this occasion, that's for sure.

Along with the ramen, we also opted for a slow-cooked pork bagel with slaw, pickles, and tangy-sweet barbecue sauce. And, of course, we couldn't go to Quiet Life Specialty Coffee without grabbing a couple of capps. At just under \$50 for everything, we felt happy with the value, given the service and standard.

Quiet Life would not be out of place on Fremantle's cappuccino strip or one of Melbourne's trendy corners in the city centre. Despite its hip and groovy (sorry, but I am nearly 50) atmosphere, it attracts everyone from families and youngsters to older folk out for a lunchtime walk.

Even on this relatively quiet Sunday afternoon, the place was still busy with many different people from the community. We were pleased that parking was not an issue, and there were plenty of places to sit, inside and out.

This was my first experience with ramen, so I didn't really have a frame



Pork belly miso ramen and pork bagel from Quiet Life in Geraldton. Pictures: Derek Goforth

of reference. But I must say it certainly packed a flavour punch. The broth itself had a deep, complex flavour, with just enough heat to awaken the taste buds. The noodles and the veg were fresh and tasty. But the star of the dish had to be the pork – tender and flavoursome, it melted with every forkful, offering a sublime blend of sweetness and spice. Admittedly, the price might have

seemed steep, but the quality of the ingredients made it a feast worth savouring.

To be honest, the bagel was even better, packed to the brim with flavour and so many textures that played off each other. The pork, again, was amazing, but the highlight had to be the bagel itself – crispy, fresh, and moist – everything you'd want in a good quality bagel.

We have had Quiet Life's coffees before and have never been disappointed – and we were not let down here. Smooth, mellow, and just enough foam.

Would I recommend Quiet Life? Without a doubt. They have carved out an interesting niche for themselves and pretty much guarantee a tasty experience, no matter what you order.



Quiet Life on Marine Terrace.

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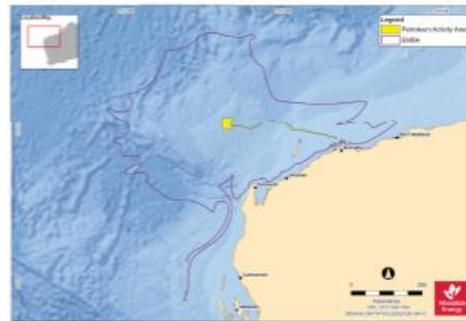
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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 824 of 919

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North West Telegraph – 9 August 2023

NORTH WEST Telegraph
Wednesday, August 9, 2023

northwesttelegraph.com.au

NEWS 9

Nabil Bazzi. Picture: WA Courts



Convicted drug tsar has a 'win'

PHIL HICKEY

Convicted WA drug kingpin Nabil Bazzi has had a minor court victory after an attempt to pervert the course of justice charge brought against him was recently dropped.

Bazzi was jailed last year for more than two decades for being the head of a major Perth drug network that was smashed by the organised crime squad following a 10-month investigation.

The 44-year-old former Port Hedland pizza parlour owner turned Soils Ain't Soils franchisee was jailed for 21 years after being found guilty of three serious drugs offences following a three-week District Court trial.

Following his trial, The West Australian newspaper exclusively revealed how Bazzi was also facing an outstanding charge of attempting to pervert the course of justice.

As reported by The West at the time, Bazzi was charged with the offence about six weeks before his drugs trial began. Police were set to allege he personally delivered bags containing almost \$100,000 in cash to the family of a man who ultimately turned State witness against Bazzi during the



A seized Mercedes-Benz owned by Nabil Bazzi.

District Court trial. It was going to be alleged the money was an attempt by Bazzi — who was on bail at the time — to convince the witness to give evidence that would be "beneficial" to Bazzi at trial.

But Bazzi — who had pleaded not guilty to the charge — will no longer have to go to trial over the matter. Court records show the charge was discontinued several months ago.

It's understood it was dropped by State prosecutors on public interest grounds.

Sensational details about Bazzi's drug empire emerged when one of his couriers turned State witness and agreed to testify against his former boss.

The trial was told how Bazzi was first arrested by police during a traffic stop on Mounts Bay Road in Crawley in September 2019. The court heard

how a search of his car uncovered a Coles bag containing \$114,950 as well as two Ciphp phones.

Bazzi later told police the cash was from his Soils Ain't Soils business and that the phones weren't his, claiming he was going to sell them for \$250 each.

It wasn't until a few months later, following the arrest of two of Bazzi's couriers in relation to the seizure of almost 7kg of meth in East Cannington, that the organised crime squad slapped Bazzi with more serious drugs charges.

That also prompted police to seize millions of dollars in assets belonging to Bazzi, including a 2017 AMG Mercedes-Benz and two luxury properties.

Bazzi is in the process of appealing his lengthy jail sentence and his conviction.

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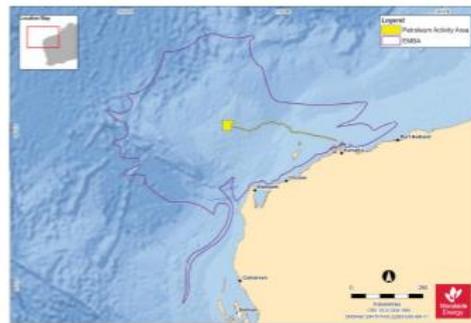
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Koori Mail – 9 August 2023

news

On the road to the Cape

Queensland Governor makes a trip to visit remote communities

By CHRISTINE HOWES



It would be fair to say the majority of visitors to Cape York – especially the more high profile ones – fly in and fly out. But Queensland Governor, the Honourable Dr Jeannette Young AC PSM, recently travelled to several communities for a wide range of reasons, by car.

Weipa, Aurukun, Napranum, Mapoon and Lockhart River were all on her itinerary.

"It was just gorgeous," she told the Koori Mail.

"It's an absolutely perfect part of Queensland, it's amazing, the scenery going across to Lockhart River and then coming over that Iron Range, it's just spectacular, and the beaches."

She said the drive was well-worth it.

"You miss so much if you don't drive," she said.

"It does take longer, but I had the time, thank goodness, and so I could see so much."

"I think it's amazing how people live in Lockhart River and then drive across to Weipa to do



HACC workers Bessie Hobson, Eleanor Short and Noella Clarke with the Governor in Lockhart River.

their shopping.

"It's not the best of roads, but it's pretty well maintained and you can see the council's doing a lot of work there – it was a really good trip to do."

Lockhart River Mayor Wayne Butcher said Dr Young officially opened the community's new secondary school premises.

"Whilst at the school, she visited a few classes and read books to the students," he said.

"She then had lunch with the community at the social club where we spoke about the importance of investing in educating our community about sensible drinking and building an environment to cater into the future."

"She also visited the new subdivision site and she expressed her interest in home ownership."

Dr Young said she met regularly with the premier and ministers of the state, and was able to pass on what she had found.

"I like to always try and catch



Queensland Governor Dr Jeannette Young and Lockhart River Mayor Wayne Butcher.

up with the ministers who are champions of the community. For instance, I spoke to Minister Grace about Napranum, she's their champion," she said.

She said she particularly enjoyed visiting the schools, art centres and health clinics, and meeting the Elders and Land and Sea Rangers.

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National Indigenous Times – 29 August 2023

nt.com.au SPORT N T 23

Walk the talk for AFL star

DAVID PRESTIPINO

This year's 20th Long Walk will bear extra significance for Indigenous AFL trailblazer Michael Long as he strives to unite the nation behind the Voice to Parliament.

The Essendon great will again walk the 660km journey from Melbourne to Canberra, as he first did 20 years ago when setting off to speak with then-prime minister John Howard after the Aboriginal and Torres Strait Islander Commission (ATSIC) was abolished.

This year's event aligns the Voice referendum campaign and is expected to take the Australian football hall-of-famer 30 to 40 days.

The 63-year-old is re-creating the first journey, stopping in regional communities along the way to discuss how the upcoming referendum could band the country together

before reaching Parliament House for meetings with Prime Minister Anthony Albanese and Opposition Leader Peter Dutton.

In its 20 years The Long Walk has transformed into an annual charity event, where people join Long in the trek from Melbourne's Birrarung Marr to the MCG before the annual Essendon-Richmond Dream-time game during AFL Indigenous Round.

Long said football had played a crucial role in improving the lives of Indigenous people in Australia, and the two-time premiership player believed the Voice can help change lives and bring Australians together for good.

"What I have learnt from footy, I have seen things transformed. I've seen sport change lives," he said.

"One of the greatest advocates in (former Collingwood



Anthony Albanese will meet with former AFL star Michael Long after the Long Walk. Picture: AAP

player) Damian Monkhorst, he has become a great advocate for change."

During a 1995 match between Collingwood and Essendon, Monkhorst used racist language during a tussle with Long.

Long spoke candidly about the referendum and the opportunities it posed, inviting all

Australians to join him along the journey to Canberra. The first leg began at Melbourne Town Hall on Sunday finishing later at the Bombers' Windy Hill home ground in Kessendon.

"I want all Australians to come walk with me," Long said.

"I want all the sporting codes — Australian rules, soccer, netball, basketball, rugby, swim-

ming, tennis — to come walk with me. I want corporate Australia to come walk with me.

"I want community groups to come walk with me, and I want Aboriginal organisations to come walk with me."

More information on The Long Walk and its legs and destinations is available at thelongwalk.com.au.

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Our activities

Woodside plans to install a Floating Production Unit (FPU) and complete subsequent hook-up and commissioning activities, before start-up and operations for the Scarborough project. Gas from the FPU will be transferred through the gas export trunkline to the Pluto LNG Plant. Other activities include surveys to monitor the reservoir, as well as inspection, maintenance, monitoring and repair activities.

Located around 514 km off the coast of Dampier in Western Australia, work is planned to start in the second half of 2025. We are seeking input from relevant persons whose functions, interests or activities may be affected by the proposed operations.

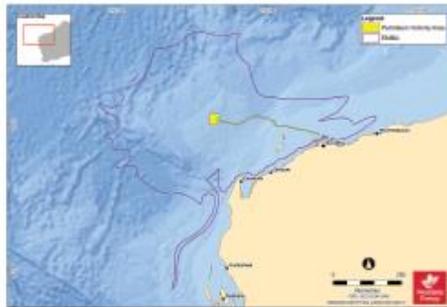
The environment that may be affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this EP, is determined by a highly unlikely release of marine diesel to the environment as a result of loss of damage to the production facility or vessel collision.

The EMBA represents the merged area of many possible paths a hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release. This means in the highly unlikely event a hydrocarbon release does occur, the whole EMBA will not be affected at one time.

We want to hear from you

If you are an individual, organisation or community group and believe your functions, interests or activities may be affected by the proposed activity, we would like to hear from you by Monday, 11 September 2023 to identify as a relevant person.



Want to know more or provide input?

A feedback form and more information can be found at: www.woodside.com/sustainability/consultation-activities.

You can also subscribe via our website to receive future information on upcoming activities.

E: Feedback@woodside.com

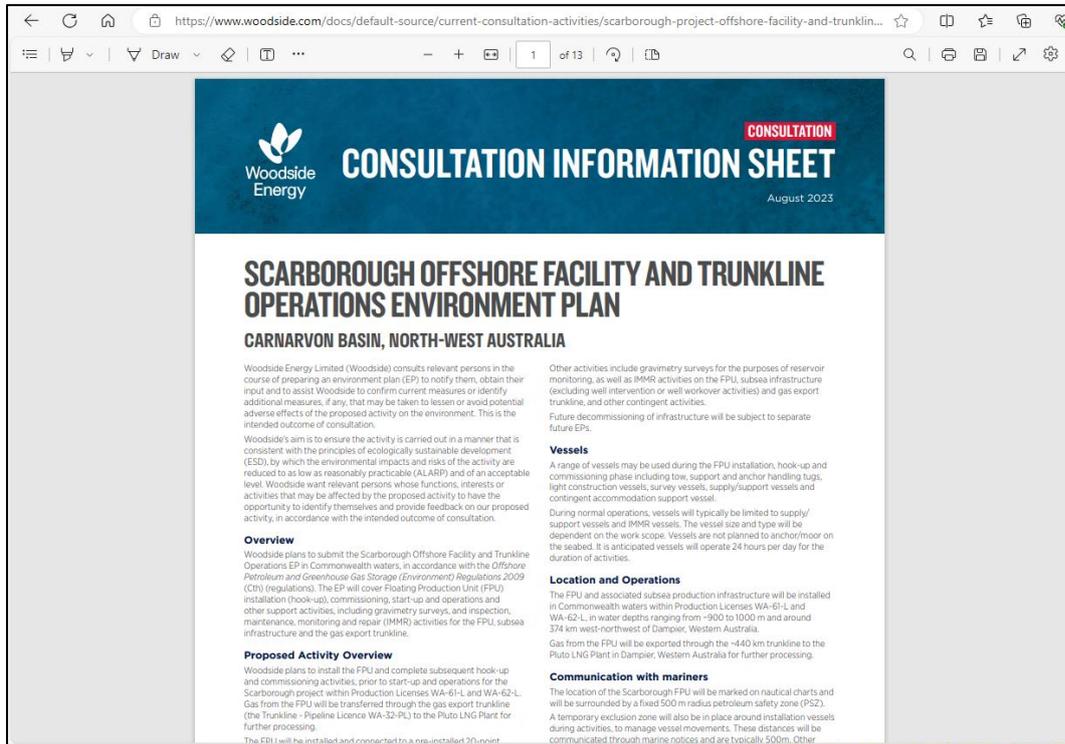
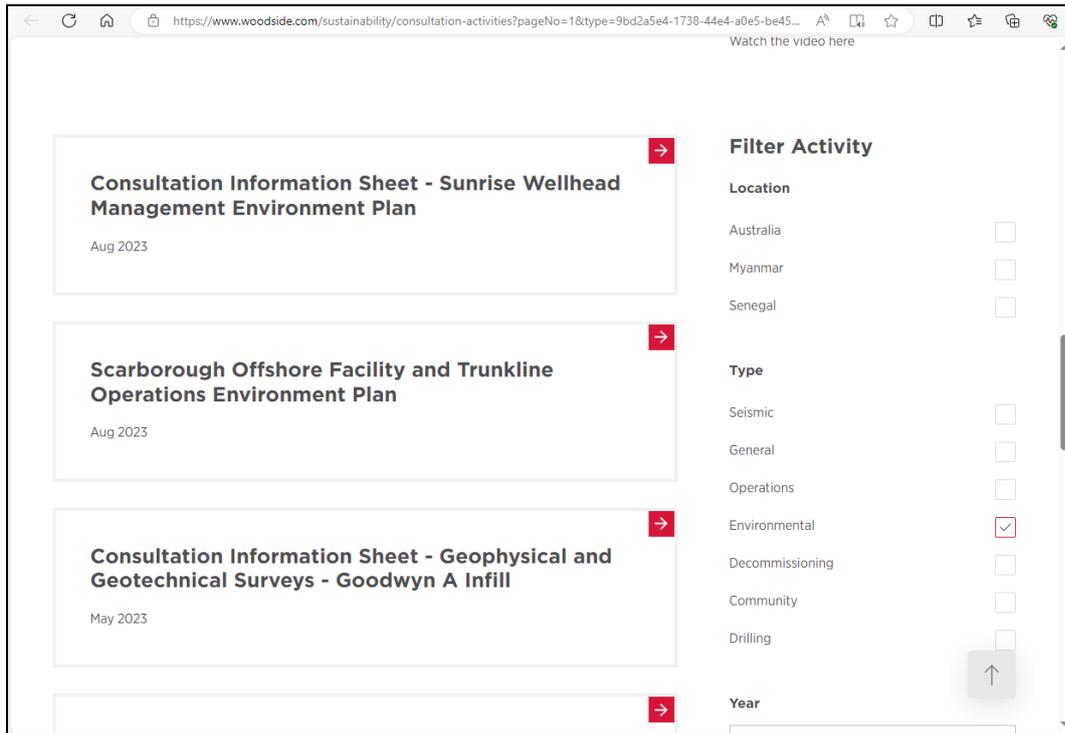
Toll free: 1800 442 977

woodside.com



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Website Publication



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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 828 of 919

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3.3 Social Media EP Targeted Campaign

Platform	Geotargeted Reach	Post Dates	Impact
Facebook	Regional: Users 18+ located within 80kms of Carnarvon, Denham, Exmouth, Onslow, Port Hedland, and Karratha	22 August 2023 – 11 September 2023	Reach: 240,329 Frequency: 3.02 Impressions: 726,563 Clicks: 1941 CTR%: 0.27%
Instagram	Regional: Users 18+ located within 80kms of Carnarvon, Denham, Exmouth, Onslow, Port Hedland, and Karratha	22 August 2023 – 11 September 2023	Reach: 114,372 Frequency: 2.53 Impressions: 288,810 Clicks: 257 CTR%: 0.09%
Facebook and Instagram (reference to Scarborough Energy Project advertising campaign)	Metro and Regional: Users 18+ located within 80kms of Perth Metro, Kimberley, Pilbara and Gascoyne regions	15 – 24 November 2023	Reach: 1,713,790 Frequency: 3.37 Impressions: 5,769,203 Link clicks: 6,969 CTR%: 0.12%

August – September 2023



Would you like to know what Woodside has planned on land and sea?

We'd like to talk with you.

To find out about our Scarborough Offshore Facility and Trunkline Operations Environment Plan and to share your views with Woodside on your relevant functions, interests or activities visit:
[woodside.com/consultation-activities](https://www.woodside.com/consultation-activities)

Alternatively, you can contact us at
Feedback@woodside.com or on 1800 442 977.

 Woodside Energy

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November 2023



3.4 Social Media Generic EP Campaign

Facebook Campaign

A Facebook information campaign was targeted along the coastline from Geraldton to Derby to ensure it reached all communities adjacent to the EMBA. Geotargeting locations are distributed along the coast, with 80 km radiuses around towns, cities and shires. Geotargeting points were also included for spaces between towns, cities and shires to ensure no areas were missed – you'll see below there are latitude and longitude references for those locations.

As at 11 January 2024

Ad reach: 131,507 users

Impressions: 1,352,808 views

Clicks through to Consultation Information page: 5,990 link clicks

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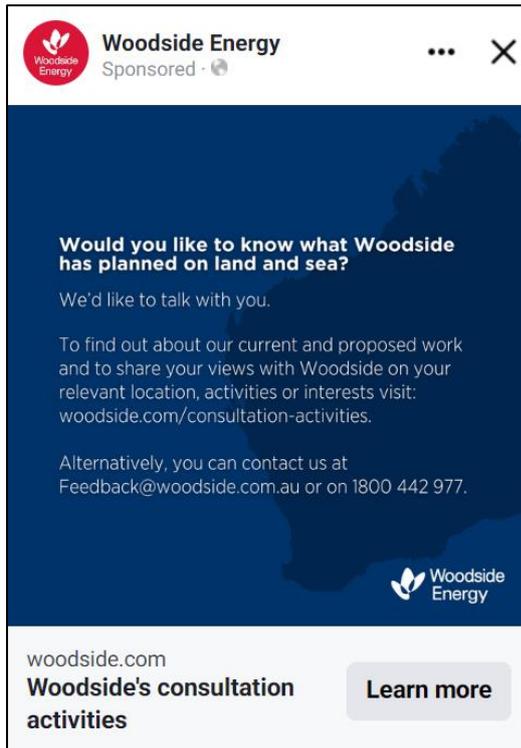
Revision: 3

Page 830 of 919

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Geotargeting location:

- Broome (+80 km)
- Carnarvon (+80 km)
- Denham (+80 km)
- Exmouth (+80 km)
- Geraldton (+80 km)
- Onslow (+80 km)
- Port Hedland (+80 km)
- Karratha (+80 km)
- Latitude -17 Longitude 122.65 Dampier Peninsula (+80 km)
- Latitude -22.75 Longitude 114.10 Exmouth Gulf (+80 km)
- Latitude -18.96 Longitude 121.94 Gingerah (+80 km)
- Latitude -27.85 Longitude 114.25 Kalbarri National Park (+80 km)
- Latitude -21.32 Longitude 116.03 Mardie (+80 km)
- Pardoo (+80 km)
- Latitude -20.94 Longitude 117.83 Sherlock (+80 km)
- Latitude -26.96 Longitude 113.95 Tamala (+80 km)
- Latitude -19.88 Longitude 121.15 Telfer (+80 km)
- Latitude -17.52 Longitude 123.56 Willare (+80 km)
- Latitude -22.43 Longitude 114.93 Yannarie (+80 km)



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Would you like to know what Woodside has planned on land and sea?

We'd like to talk with you.

To find out about our current and proposed work and to share your views with Woodside on your relevant location, activities or interests visit: [woodside.com/consultation-activities](https://www.woodside.com/consultation-activities).

Alternatively, you can contact us at Feedback@woodside.com.au or on 1800 442 977.

 Woodside Energy

[woodside.com](https://www.woodside.com)
Woodside's consultation activities [Learn more](#)



Woodside Energy
Sponsored

Would you like to know what Woodside has planned on land and sea?

We'd like to talk with you.

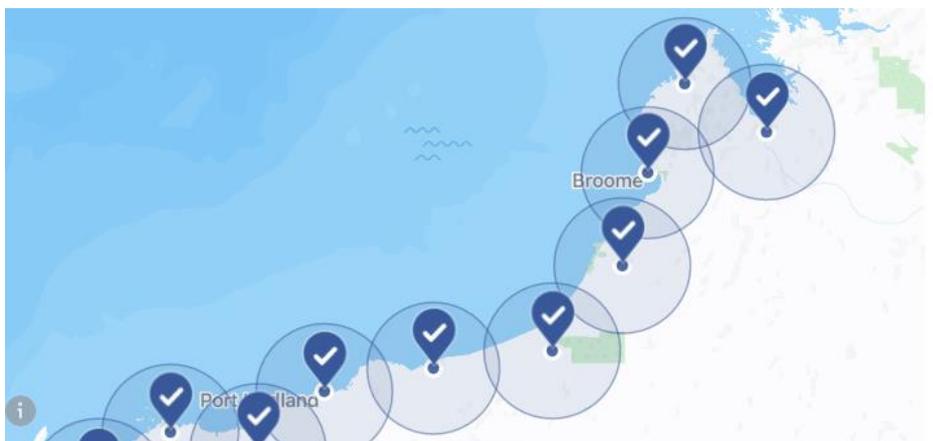
To find out about our current and proposed work and to share your views with Woodside on your relevant location, activities or interests visit: [woodside.com/consultation-activities](https://www.woodside.com/consultation-activities).

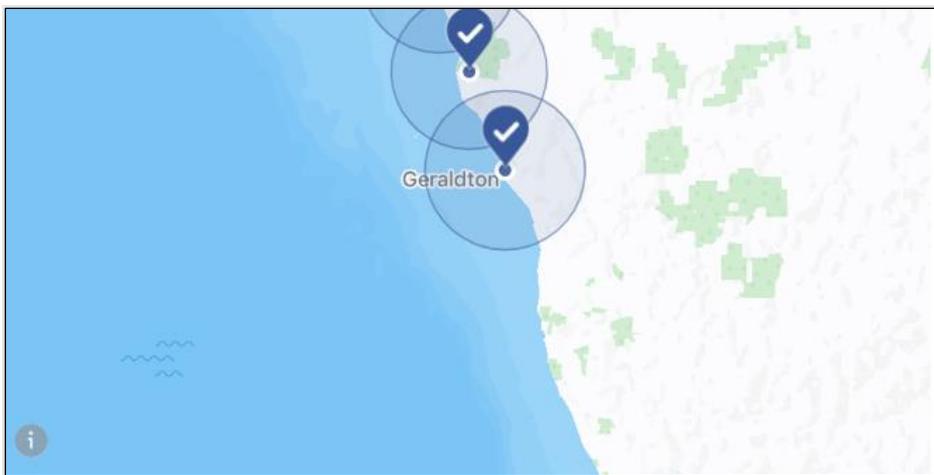
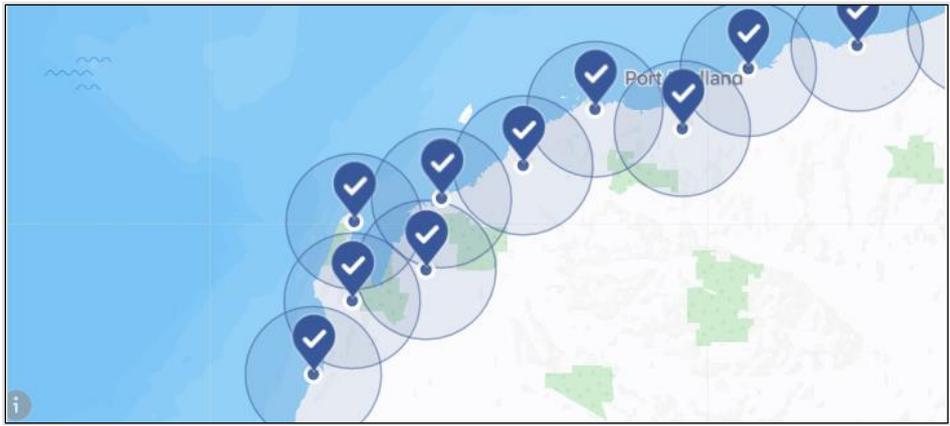
Alternatively, you can contact us at Feedback@woodside.com.au or on 1800 442 977.

 Woodside Energy

[Learn more](#)

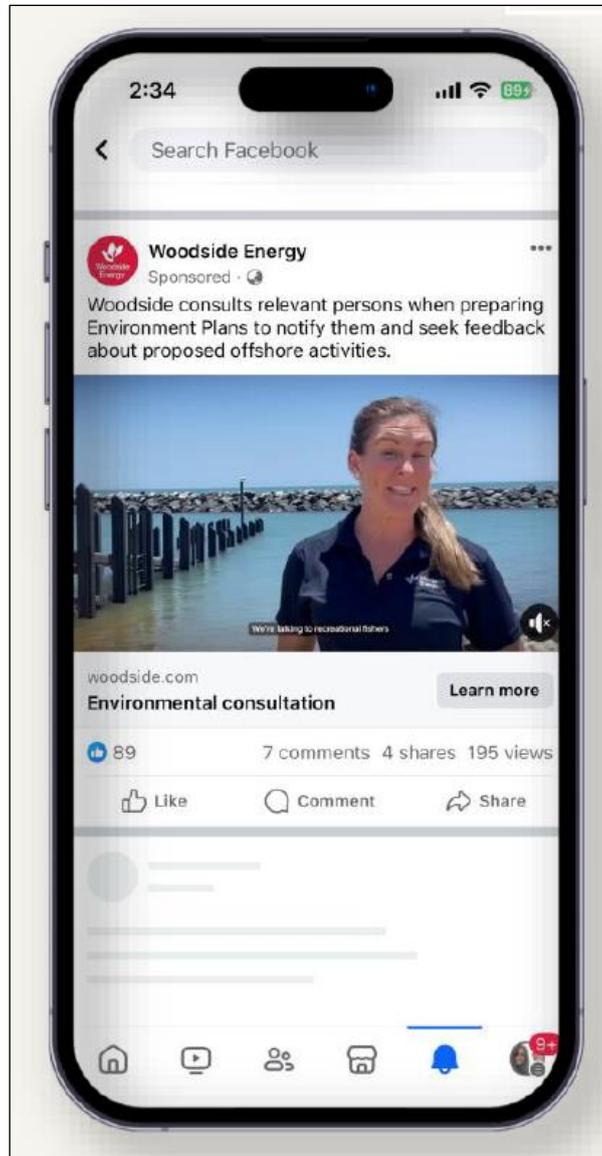
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3.5 Are you a Relevant Person Social Media Campaign

Are you a Relevant Person Facebook and Instagram - October 2023 onwards



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Are you a relevant person?

You may be a relevant person if you or your organisation have functions, interests, or activities that may be affected by an offshore petroleum activity proposed under an environment plan. Watch the short clips below to find out more.



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3.6 Scarborough Energy Project – Integrated Information Campaign

SCARBOROUGH ENERGY PROJECT

Production is targeted to start-up in 2026. The Scarborough Energy Project will provide thousands of jobs and supply reliable energy to Australia and the world.

- LARGE ENOUGH TO POWER MORE THAN 8.5 MILLION HOMES AROUND THE WORLD FOR MORE THAN 30 YEARS
- SCARBOROUGH ENERGY PROJECT IS ALREADY UNDER CONSTRUCTION
- WILL BOOST AUSTRALIA'S ECONOMY BY BILLIONS OF DOLLARS
- WILL PAY OVER \$10 BILLION IN TAXES SUPPORTING THE ESSENTIAL SERVICES AUSTRALIANS RELY ON, INCLUDING HOSPITALS AND SCHOOLS
- MORE GAS FOR WA HELPS KEEP DOWNWARD PRESSURE ON THE COST OF LIVING
- START OF PRODUCTION TARGETED FOR 2025
- WILL DELIVER GAS AT A TIME WHEN WA IS PREDICTED TO FACE SUPPLY SHORTAGES
- BACKS UP RENEWABLES AS WA'S COAL FIRED POWER STATIONS ARE SHUT DOWN
- IT'S A NATURAL GAS FIELD LOCATED 375 KM OFFSHORE FROM KARRATHA
- DELIVERS MORE GAS TO THE WA MARKET
- GAS WILL BE PROCESSED AT WOODSIDE'S EXISTING SITE NEAR KARRATHA
- WILL PROVIDE THE GAS NEEDED TO PRODUCE FERTILISER THAT OUR FARMERS USE TO GROW FOOD
- THE SCARBOROUGH GAS FIELD CONTAINS LESS THAN 0.1% CARBON DIOXIDE
- SECURES SAFE AND RELIABLE ENERGY FOR WEST AUSTRALIAN FAMILIES AND BUSINESSES
- WILL PAY TAX EQUAL TO THE COST OF BUILDING A NEW FIONA STANLEY HOSPITAL EVERY THREE YEARS
- DELIVERING OPPORTUNITIES FOR FIRST NATIONS JOBS AND BUSINESSES IN WA
- MORE OPPORTUNITIES FOR APPRENTICES AND TRAINEES
- PRIMARY ENVIRONMENTAL APPROVALS GRANTED THROUGH AUSTRALIA'S STRINGENT REGULATORY SYSTEM
- AWARDED MORE THAN \$3.6 BILLION IN CONTRACTS TO LOCAL WA BUSINESSES
- SUPPORTS THE ENERGY TRANSITION AND SHIFT TO RENEWABLES
- CONTRIBUTION OF \$30 MILLION TO THE CONSTRUCTION TRAINING FUND, SUPPORTING THOUSANDS OF APPRENTICES
- CREATING MORE THAN 3,200 CONSTRUCTION JOBS AND ALMOST 600 JOBS WHEN OPERATING
- TO FIND OUT MORE VISIT WWW.WOODSIDE.COM

*BASED ON AVERAGE ANNUAL AUSTRALIAN HOUSEHOLD ENERGY USE. **AUSTRALIAN ENERGY STATISTICS ENERGY SPENDING 2020 REPORT. MARCH 2020

WOODSIDE Energy

WHAT IS THE SCARBOROUGH ENERGY PROJECT AND WHY IS IT GOOD FOR WA?

Production is targeted to start-up in 2026. The Scarborough Energy Project will provide thousands of jobs and supply reliable energy to Australia and the world.

- AWARDED MORE THAN \$3.6 BILLION IN CONTRACTS TO LOCAL WA BUSINESSES
- ENGAGING MORE THAN 60 KARRATHA BUSINESSES TOGETHER WITH OUR PARTNERS AND CONTRACTORS
- WILL CREATE AROUND 70 KARRATHA RESIDENTIAL JOBS DURING OPERATIONS

TO FIND OUT MORE VISIT WWW.WOODSIDE.COM

WOODSIDE Energy

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3.7 Community Engagement

Community engagement conducted by Woodside is captured in the following tables.

3.7.1 Onslow Passion of the Pilbara Festival

Location	Onslow – Passion of the Pilbara festival
Date	18 August 2023
Description of the consultation	Members of Woodside’s Corporate Affairs team engaged with the community to discuss proposed EP Plan activities. The stand included Consultation Information Sheets for a number of EPs including the Scarborough Offshore Facility and Trunkline (Operations) EP.
Advertising and invitations	Ahead of the event, Woodside advertised the session in a story on the Woodside North West Facebook page on 17 August 2023 to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities.
Estimated number of individuals consulted	Woodside estimates approximately 100 people visited the Woodside stand.
Summary of Feedback, Objection or Claim	
<p>Community discussions centred on:</p> <ul style="list-style-type: none"> • Update of Woodside activities and employment opportunities • General Scarborough project update and operations. A Scarborough operations map and Floating Production Unit images were available (see below). There was general community interest and support for the project. Discussions included: <ul style="list-style-type: none"> – Support for the project and dissatisfaction about protester activity against the project – Number of jobs during construction – Location of activities (noting activity was not off the coast of Onslow). 	

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- General interest on the Browse project included:
 - Awareness that Carbon Capture Storage concept is feasible and has been included in the development concept.
- In relation to the Scarborough Project, one individual asked what Woodside was doing to protect the environment.
- Community members were encouraged to provide their views on Woodside's activities through the Woodside feedback form on the Woodside website, or to subscribe to Woodside updates.

Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response

Whilst feedback was received, there were no objections or claims.

The community information sessions were part of Woodside's broader consultation approach to enable self-identification and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).

Passion of the Pilbara Facebook post – 17 August 2023



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Woodside North West Facebook Page –17 August 2023



Passion of the Pilbara Facebook Post –17 August 2023



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Woodside North West



Woodside Facebook Post

Feeds

Facebook Feeds

Woodside North West added a new photo. Sponsored

PROVIDE YOUR FEEDBACK AT PASSION OF THE PILBARA

Are you interested in what Woodside has planned on land and sea?

Join our friendly team at Passion of the Pilbara in Onslow this Saturday and find out more about our Environment Plans and projects, including Scarborough and Browse.

We look forward to sharing information about our current and proposed activities and providing the opportunity to discuss your relevant functions, activities or interests and receive your input.

Like Comment Share

Stories and Reels

Facebook Stories

Audience definition

Your audience is defined.

Specific Broad

Estimated audience size: 21,400 - 25,200

Estimates may vary significantly over time based on your targeting selections and available data.

Estimated daily results

Reach

15K-21K

The accuracy of estimates is based on factors such as past campaign data, the budget you entered, market data, targeting criteria and ad placements. Numbers are provided to give you an idea of performance for your budget, but are only estimates and don't guarantee results.

Woodside Marquee



Woodside Information Sheets



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Revision: 3

Page 842 of 919

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3.7.2 Karratha FeNaCING Festival

Location	Karratha – FeNaCING Festival
Date	5 and 6 August 2023
Description of the consultation	<p>Woodside had a stand at the annual FeNaCING Festival held in Karratha. Members of Woodside’s Corporate Affairs and Operations teams actively engaged with the community to discuss proposed EP activities.</p> <p>The stand included Consultation Information Sheets for a number of EPs including the Scarborough Offshore Facility and Trunkline (Operations) EP.</p>
Advertising and invitations	<p>Ahead of the event, Woodside advertised the session via the means below to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • Advertisement in the Pilbara News on 2 August 2023 • A social media story on the Woodside Nort West Facebook page on 2 August 2023 • Directly inviting local Traditional Custodian groups.
Estimated number of individuals consulted	Woodside estimates that over 2,000 people visited the Woodside stand based on the number of completed consultation forms and questionnaires.
Summary of Feedback, Objection or Claim	
<p>Community discussions centred on:</p> <ul style="list-style-type: none"> • Update of Woodside activities and employment and contracting opportunities • All community members were encouraged to provide their views on Woodside’s activities through the Woodside feedback form on the Woodside website, or to subscribe to Woodside updates. An iPad was available for stakeholders to do this on the spot. 	
Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>Whilst feedback was received, there were no objections or claims.</p> <p>The community information sessions were part of Woodside’s broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).</p>	

Story on the Woodside North West Facebook Page – 2 August 2023



Environment Plan Banner



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Page 844 of 919

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Pilbara News advertisement – 2 August 2023



PROVIDE YOUR FEEDBACK AT FeNaCING FESTIVAL

Are you interested in what Woodside has planned on land and sea?

Join our friendly team at FeNaCING Festival and find out more about our Environment Plans and projects, including Scarborough and Browse.

We look forward to sharing information about our current and proposed activities and providing the opportunity to discuss your relevant functions, activities or interests and receive your input.

Follow us @woodsidenorthwest
www.woodside.com



6 NEWS **Pilbara NEWS**
Wednesday, August 2, 2023

Melski's murals brought to life

DANIEL SPENCE

Tambrey Primary School has successfully brought renowned artist Mel McVee, popularly known as Melski, and her sister Tash to create three vibrant murals around the school premises.

With funding support from corporate entities like Woodside, FMG, and Pilbara Real Estate, as well as community contributions from Jetwave Marine, Santos, Yara, and QUBE Energy, the school raised more than \$20,000 to bring this art project to life.

Home to nearly 700 students, with a third of them having Indigenous backgrounds, school Deputy Principal Toni Whitbread and visual arts specialist Felicity Collins said the mission of the project was to celebrate diversity and create a sense of belonging by reflecting students' culture through artwork.

The school's mission was to celebrate diversity and create a profound sense of belonging by reflecting the students' culture through artwork.

What particularly attracted the school to Mel's artwork was its unique paint-by-numbers style, which allowed students to actively participate in the mural creation process.

Eager to engage the entire school community, the school declared a special "paint week," during which more than 650 students enthusiastically joined hands to contribute to the murals.

Throughout the week, students not only participated in the creation of the murals but also enjoyed immersive art sessions in the park, indulging in painting, drawing, collaging, and chalk drawings under the enchanting winter weather.

The entire experience served to nurture the students' creativity and appreciation for art, leaving a lasting impact on their artistic aspirations.

Ms Collins said she was thrilled to see the whole school coming together for a week of collaborative art.

"We were delighted to see students immersed in a week of collaborative art," she said.

"Students not only contributed to the creation of the mural but also with their involvement in the immersive art in the park session — which included painting, drawing, collaging and chalk drawings — while all outside soaking up the winter weather."



The artist was brought to the school to create murals.



Beyond supplying affordable, reliable, ever-cleaner energy — we believe we have an important role to play in helping local communities build a vibrant and prosperous future.

We do this by investing in programs which contribute to areas of health and wellbeing, education, environment and building thriving communities.

We're calling for applications for the Chevron Community Spirit Fund, offering donations of up to \$15,000 to not-for-profit organisations operating in the following Northwest locations:

- Carnarvon
- Coral Bay
- Dampier
- Denham
- Exmouth
- Karratha
- Onslow
- Port Hedland
- Roebourne
- Shark Bay

Applications are open now until 13 August 2023. To apply, head to australia.chevron.com




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3.7.3 National Economic Development Conference

Activity	National Economic Development Conference (NEDC)
Location	Karratha – Red Earth Arts Precinct
Date	23 and 24 August 2023
Description of the consultation	<p>Woodside hosted a stand at the NEDC. The event brought together economic development professionals from local, state and federal government, the private sector and key community stakeholders with an interest in Australia’s prosperity and economic growth.</p> <p>The stand was staffed by members from Woodside’s Corporate Affairs team.</p> <p>Woodside displayed a QR code on the stand which linked to the consultation activities page of the Woodside website.</p> <p>Woodside also made available Consultation Information Sheets on the Scarborough Offshore Facility and Trunkline (Operations) EP.</p>
Advertising and invitations	No advertising was undertaken.
Estimated number of individuals consulted	Approximately 400 people attended the event over 2 days.
Summary of Feedback, Objection or Claim	
<p>Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions, and provide their feedback.</p> <p>Discussion with attendees centred on:</p> <ul style="list-style-type: none"> • Location of the Scarborough Project • Volume of production from the Scarborough Project and where it will be processed. 	
Woodside’s Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>Whilst feedback was received, there were no objections or claims.</p> <p>The stand at NEDC was part of Woodside’s broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).</p>	



PROVIDE YOUR FEEDBACK AT NEDC 2023

Are you interested in what Woodside has planned on land and sea?

We look forward to sharing information about our current and proposed activities and providing the opportunity to discuss your relevant functions, activities or interests and receive your input.

Speak to one our friendly team members or scan the QR code to find out more about our Environment Plans and projects, including Scarborough and Browse.



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3.7.4 Karratha, Port Hedland and Roebourne Roadshow

Location	Karratha, Port Hedland, and Roebourne
Date	18 – 20 September 2023
Description of the consultation	<p>Woodside hosted community consultation sessions in Karratha, Port Hedland and Roebourne to enable community members to understand Woodside’s proposed activities and how it may affect them, ask questions, and provide their feedback.</p> <p>Woodside Project, Corporate Affairs, First Nations and Environment representatives were available to answer questions.</p> <p>A number of EP Consultation Information Sheets were available to attendees including the Scarborough Offshore Facility and Trunkline (Operations) EP Consultation Information Sheet.</p>
Advertising and invitations	<p>Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • Advertisement in the Pilbara News on 13 September 2023 • A geotargeted social media campaign in Karratha (Reach 22,095), Port Hedland (reach 26,487), and Roebourne (reach 22,134) (+80 kms) from 6 to 16 September 2023 • An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website), a Scarborough Project banner, and Browse Project banners were displayed at the stand together with current EP Consultation Information Sheets.
Estimated number of individuals / organisations consulted	<p>18 September 2023 – Karratha, estimated number of people consulted: 20</p> <p>19 September 2023 – Port Hedland, estimated number of people consulted: 20</p> <p>20 September 2023 – Roebourne, estimated number of people consulted: 0</p>
Summary of Feedback, Objection or Claim	
<p>Consultation on all Scarborough EPs including the Scarborough Offshore Facility and Trunkline (Operations) EP occurred. Consultation Information Sheets on all activities were available, and Woodside’s seismic 101 video was shown on an iPad to those interested in that activity. A Scarborough Project map was shown and discussed.</p> <p>Community discussions specific to the Scarborough Project centred on:</p> <ul style="list-style-type: none"> • Planned Scarborough seismic activities – this formed the basis of the majority of discussions • Opportunities for employment and business • General Scarborough project update and operations. A Scarborough operations map and Floating Production Unit images were available. There was general community interest in the project. Discussions included: <ul style="list-style-type: none"> – General location (offshore and onshore) – Progress and development of Pluto Train 2, and role of Pluto Train 1 – Project commencement – Final customers of the gas, described LNG and also the domestic gas supply to Western Australia – One individual in Karratha queried the impacts of seismic to the environment. Woodside’s discuss impacts and mitigations – Two individuals subscribed to the Woodside website to receive consultation information – Kariyarra Aboriginal Corporation discussed business opportunities – Nyamal Aboriginal Corporation discussed training and job opportunities – Opportunities for engagement with Prescribed Body Corporates (PBCs). • All community members were encouraged to provide their views on Woodside’s activities through the Woodside feedback form on the Woodside website, or to subscribe to Woodside updates. An iPad was available for stakeholders to do this on the spot. 	
Woodside’s Assessment of Merits of Feedback, Objection or Claim and its Response	

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Social Media – 6 to 16 September 2023

Are you interested in what Woodside has planned on land and sea?

Stop by and say hello to our friendly team in Karratha.

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed projects.

Monday, 18 September 2023

Between 8.00am - 12.00pm
Karratha Shopping Centre
Sharpe Avenue
Karratha

Between 3.00pm - 6.00pm
Red Earth Arts Precinct
27 Welcome Road
Karratha



Are you interested in what Woodside has planned on land and sea?

Stop by and say hello to our friendly team in Port Hedland.

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed projects.

Tuesday, 19 September 2023

Between 10.00am - 5.00pm
South Hedland Square
9-31 Throssell Road
South Hedland



Are you interested in what Woodside has planned on land and sea?

Stop by and say hello to our friendly team in Roebourne.

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed projects.

Wednesday, 20 September 2023

Between 10.00am - 4.00pm
Woodside Office, Roebourne
39 Roe Street
Roebourne



Karratha Shopping Centre



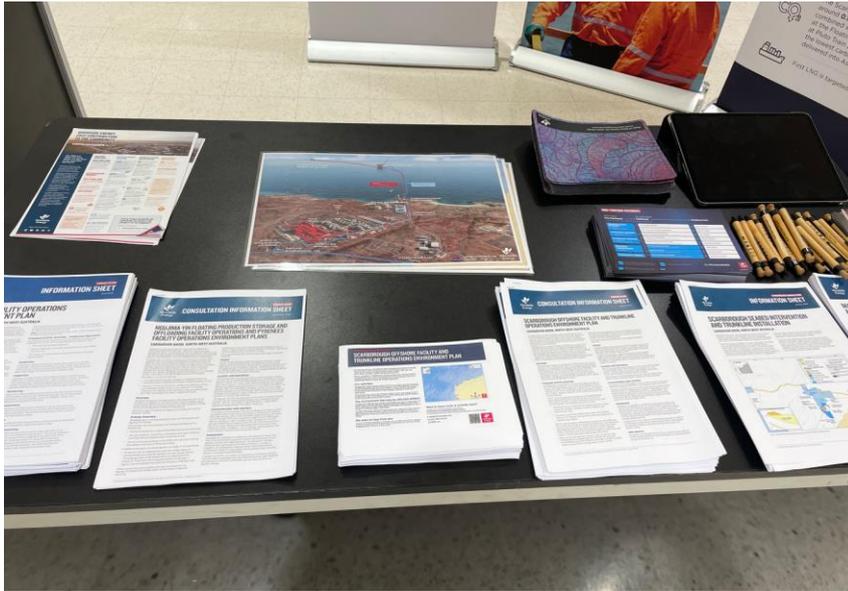
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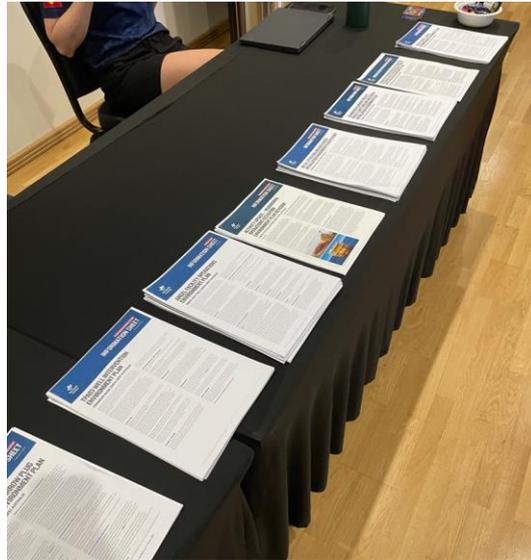
Revision: 3

Page 852 of 919

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Red Earth Arts Precinct, Karratha – 18 September 2023





South Hedland Square, Port Hedland – 19 September 2023



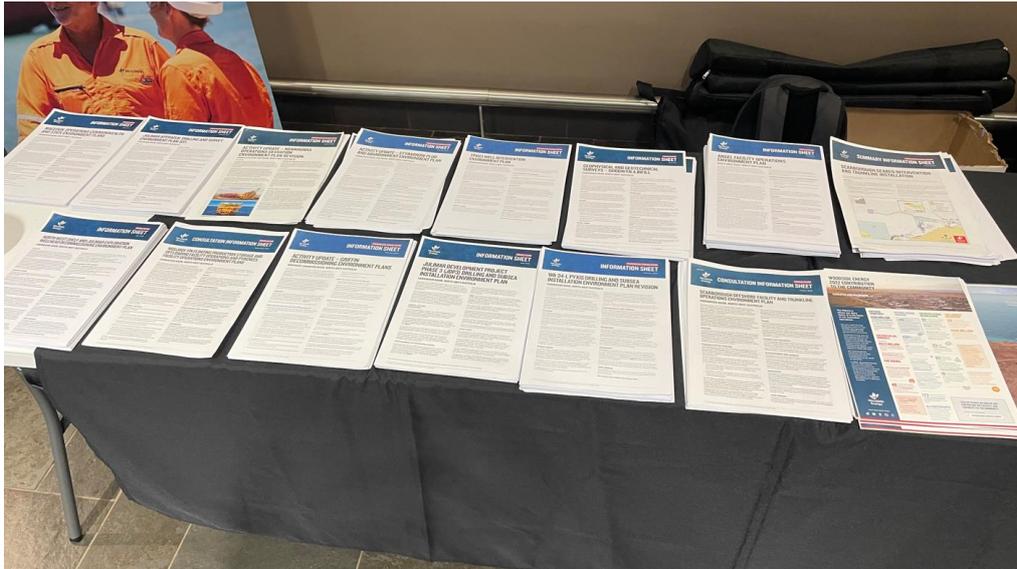
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3.7.5 Pilbara Summit 2023

Activity	Pilbara Summit 2023
Location	Karratha
Date	10 – 11 October 20203
Description of the consultation	<p>Woodside hosted a stand at Pilbara Summit 2023, a sold-out conference established to raise the profile of issues and opportunities in the Pilbara region. The event provides the opportunity for the Pilbara region’s industry, investors, businesses, community, and government representatives to connect.</p> <p>The stand was staffed by members from Woodside’s Corporate Affairs, Supply Chain and New Energy teams.</p> <p>Woodside displayed a QR code on the stand, linked to the consultation activities page of the Woodside website.</p> <p>Woodside also made available printed Consultation Information Sheets on the Scarborough Offshore Facility and Trunkline (Operations) EP.</p>
Advertising and invitations	<p>No advertising was undertaken.</p> <p>The Vice President for Pluto and Scarborough delivered a speech during the conference, which highlighted the important role the Pilbara region will continue to play in the energy transition. Attendees were invited to find out more about Woodside’s projects, developments or EPs by speaking to team members on the Woodside conference stand or to visit Woodside’s town office based in The Quarter.</p>
Estimated number of individuals / organisations consulted	Over 600 people attended the event over 2 days.

Summary of Feedback, Objection or Claim

Approximately 25 conversations occurred around new energy opportunities and plans, local content, social investment, Chevron’s involvement in NWSP, Onslow operations and the Scarborough Project and approvals in general.

No feedback was received regarding Woodside’s EPs.

Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response

This session forms part of Woodside’s broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).

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3.7.6 Carnarvon and Denham Roadshow

Location	Carnarvon and Denham - Community Consultation Roadshow
Date	16 and 17 October 2023
Description of the consultation	<p>Woodside hosted community consultation sessions in Carnarvon and Denham to enable community members to understand Woodside’s proposed activities and how it may affect them, ask questions, and provide their feedback.</p> <p>Woodside Project, Corporate Affairs and Environment representatives were available to answer questions.</p> <p>A number of EP Consultation Information Sheets were available to attendees including the Scarborough Offshore Facility and Trunkline (Operations) EP Consultation Information Sheet.</p>
Advertising and invitations	<p>Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • Advertisement in the Pilbara News on 4 and 11 October 2023 • Geotargeted social media campaign advertising in Carnarvon and Denham and surrounding areas (+80 kms) from 9 to 16 October 2023 • Inviting local Traditional Custodian groups • An EP consultation banner with a QR code (linked to the Consultation Activities page on the Woodside website), and a Scarborough Project banner were displayed along with current EP Consultation Information Sheets.
Estimated number of individuals / organisations consulted	<p>Carnarvon – 3</p> <p>Denham – 2 (Shire of Shark Bay)</p>
Summary of Feedback, Objection or Claim	
<p>Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions, and provide their feedback.</p> <ul style="list-style-type: none"> • General interest in Woodside activities in the Pilbara • Discussion with the Shire of Shark Bay: <ul style="list-style-type: none"> ▪ Explained purpose of consultation for EPs ▪ Noted consultation based on an EMBA and no activities planned in Shark Bay ▪ Provided an overview of Woodside activities ▪ The Shire of Shark Bay advised it will provide a list of other relevant persons to consult, recognising the need to consult the community more broadly 	
Woodside’s Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>Whilst feedback was received, there were no objections or claims.</p> <p>The community information sessions were part of Woodside’s broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).</p>	

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Pilbara News Advertisement

Pilbara NEWS
Wednesday, October 4, 2023

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NEWS 13



SUPPORTING OUR LOCAL COMMUNITIES

The MinRes Community Fund supports our commitment to making meaningful contributions to the communities in which we operate.

Grants of up to **\$10,000** are available to eligible local organisations to support programs and events that help create strong, vibrant and healthy communities.

Applications are open to groups operating in the **Pilbara and Goldfields-Esperance** regions or within the **Shires of Yilgarn, Irwin and Mingenew**.

Applications accepted between **1 to 31 October 2023**.

TO APPLY
visit mineralresources.com.au/our-sustainability/community or email communities@mr.com.au





FIND OUT MORE ABOUT OUR PROPOSED ACTIVITIES

ARE YOU INTERESTED IN WHAT WOODSIDE HAS PLANNED ON LAND AND SEA?

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

Speak to our friendly team members at one of our sessions in October:

<p>Monday, 16 October 2023 Between 10.00am - 2.00pm Gwoonwardu Mia 146 Robinson Street Carnarvon</p>	<p>Tuesday, 17 October 2023 Between 9.00am - 1.00pm Denham Town Hall Hughes Street Denham</p>
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You can access our consultation information, provide feedback and subscribe for updates by scanning the QR code.




MinRes in \$24m deal with local company

DANIEL SPENCE

Local Pilbara Indigenous-owned business Djelamanna Pty Ltd has been awarded a \$24 million contract by Mineral Resources as part of the company's flagship Onslow Iron project.

It is the largest contract MinRes has ever signed with an Indigenous-owned business, as well as the first contract awarded to Djelamanna Pty Ltd, which is a Hobe River Kurrama business. The Hobe River Kurrama people are the traditional owners of the land on which the Ken's Bore mine site is located.

The four-year contract is for exploration earthworks at Ken's Bore mine site, east of Onslow, including constructing access tracks, building drill pads, road maintenance and general earthworks.

Djelamanna Pty Ltd will employ about 10 people as part of the contract including a project manager, mechanics, operators and administration staff.

Djelamanna Pty Ltd owner Bevan Wally, who grew up on country, said: "The support provided by MinRes has given us the confidence and capacity to help establish and grow our business. MinRes have shown us action and given us commitments. It's unusual for them to invest and give us a go."

MinRes managing director Chris Ellison said that the company was proud to partner with businesses such as Djelamanna that had such a strong connection to country.

"Providing practical guidance and support, such as guaranteeing finance for equipment and plant, helps to build local capability and ensure Indigenous-owned businesses share in our success," he said.

At the contract signing ceremony in Perth, Mr Wally presented traditional gifts to Mr Ellison, including boomerangs, a shield and a long stick.

MinRes managing director Chris Ellison and Djelamanna business owner Bevan Wally. Picture: Russell James

Schools to get a staff cash boost

DANIEL SPENCE

Pilbara schools will benefit from a multi-million-dollar cash injection from the State Government to recruit and retain staff.

Education Minister Tony Buti said the success of last year's temporary Regional Attraction and Incentive Package meant an additional 18 schools would benefit from \$15.49 million worth of incentive packages.

Schools in the Pilbara who will receive a boost include Broome Senior High School, Carnarvon Community College, Karratha Senior High School, Hedland Senior High School, Tom Price Senior High School and Newman Senior High School.

The incentive helps rural schools to attract and recruit teachers and retain staff and school administrators at schools by providing additional financial incentives.

Staff members will receive between \$6000 and \$17,000 for working in rural and remote public schools for the 2024 school year.

The incentives will be paid in two instalments: the first at the start of the 2024 school year, the balance paid at the end of the 2024 school year.

Dr Buti said schools in regional and remote areas faced additional challenges when recruiting and retaining teachers.

"This significant investment will bring greater continuity for regional and remote students, their families, and the whole community," he said. The temporary Regional Attraction and Retention Incentive was initially allocated to 48 regional and remote schools.

Government of Western Australia
Department of Health

Fluoridation for the Newman drinking water system

Community water fluoridation helps protect teeth against decay and is a safe and effective way of improving oral health. More than 92 per cent of the Western Australian population, including the Perth metropolitan area and most large regional communities in the Pilbara and other parts of Western Australia, has benefited from fluoridation of drinking water for more than 40 years.

Fluoridation equipment has been installed at the water treatment plant servicing Newman and is now operational. As with similar plants located throughout Western Australia, the Department of Health will monitor the performance of the water treatment plant to ensure compliance with the Australian Drinking Water Guidelines and the Fluoridation of Public Water Supplies Act 1995.

For more information please contact the Department of Health by email to whinfb@health.wa.gov.au or call 08 9222 2000 or visit health.wa.gov.au and search fluoridation.

Dr Andrew Robertson
Chief Health Officer

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Pilbara NEWS
Wednesday, October 11, 2023

pilbaranews.com.au

NEWS 5

Animal flight policy criticised

CAIN ANDREWS

A prominent pet adoption agency has slammed Qantas' animal flight policy claiming it will lead to the unnecessary deaths of hundreds of animals.

Over the past year, animal adoption agency Saving Animals From Euthanasia's regional branches in Broome, Newman, Hedland and Karratha collectively rescued 1826 animals with 62.8 per cent or 936 of them requiring air transport to get to their new homes.

But with Qantas now enforcing a "no-fly" policy for animals when temperatures are forecast to reach more than 35C SAFE founder Sue Hedley said rescue animals that required air transport might have to be destroyed.

"It is crucial to recognise that this policy alteration could have dire consequences for these animals. If they are unable to reach their destination and find new homes, they may tragically face euthanasia as an alternative," she said.

Ms Hedley said SAFE had engaged with Qantas to try to find alternative solutions such as waiters or only allowing animals on early morning flights on days over 35C but was knocked back by the company.

"In over 20 years of operation, SAFE has never had a death during transportation from regional areas to Perth, no matter the temperature," she said.

"Unfortunately, we have been advised that the policy will remain



Sue Hedley & Salem. Pic: Helen Odeh



Simone's dogs faced being bumped off a Qantas flight because of the airline's heat policy.

"We firmly believe that the risks associated with this policy extend far beyond those related to flying on a day when temperatures may reach 35C later in the day."

A Karratha woman, who only wishes to be identified as Simone, was told her two dogs would not be allowed to catch a Qantas flight on October 5 because of the policy.

According to Simone, at the last minute she was told her dogs could not catch the flight despite being told the night before her dog would be able to fly.

"It's ridiculous we're here with our dogs everything's packed, and we're going away as well."

"With the way things are in Karratha with the shortage of space available there's no one to look after our pets," she said.

"It's not just inconvenient, it's unethical as they're not even adhering to their own policy."

"I get it's about animal safety but what is ridiculous is that the policy clearly states 35C and above and it (was) only 23C."

Qantas eventually made an exception for Simone and her dogs on the day, however, she claims she was told by those at the airport to not tell Ms Hedley about the incident.

Last year, temperatures in Karratha exceeded 35C on 108 days, with a consecutive period of 43 days over 35C between February 12 and March 26.

Responding to questions about the policy, a Qantas spokesperson said the policy was led by the International Pet and Animal Association and the International Air Transport Association. "Qantas takes the safety and welfare of pets and animals who travel with us extremely seriously," the spokesperson said.

"This is why we don't transport pets when temperatures exceed 35C or fall below 5C, due to the stress and anxiety this could cause."



FIND OUT MORE ABOUT OUR PROPOSED ACTIVITIES

ARE YOU INTERESTED IN WHAT WOODSIDE HAS PLANNED ON LAND AND SEA?

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Speak to our friendly team members at one of our three sessions in October.

<p>Monday, 16 October 2023 Between 10.00am - 2.00pm Gwoonwardu Mia 146 Robinson Street Carnarvon</p>	<p>Tuesday, 17 October 2023 Between 9.00am - 1.00pm Denham Town Hall Hughes Street Denham</p>
<p>Monday, 23 October 2023 Between 10.00am - 5.00pm Exmouth Chamber of Commerce and Industry 22 Maidstone Crescent Exmouth</p>	

You can access our consultation information, provide feedback and subscribe for updates by scanning the QR code.

Northwest Multicultural Show 2023



SATURDAY
14 OCTOBER 2023
1:00PM-5:00PM
RED EARTH ARTS PRECINT

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Social media – 9-16 October 2023

Are you interested in what Woodside has planned on land and sea?

Stop by and say hello to our friendly team in Carnarvon.

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

Monday, 16 October 2023

Between 10.00am - 2.00pm

Gwoonwardu Mia

146 Robinson Street

Carnarvon



Are you interested in what Woodside has planned on land and sea?

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Between 10.00am - 2.00pm

Gwoonwardu Mia

146 Robinson Street

Carnarvon



Are you interested in what Woodside has planned on land and sea?

Stop by and say hello to our friendly team in Denham.

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

Tuesday, 17 October 2023

Between 9.00am - 1.00pm

Denham Town Hall

Hughes Street

Denham



Are you interested in what Woodside has planned on land and sea?

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Tuesday, 17 October 2023

Between 9.00am - 1.00pm

Denham Town Hall

Hughes Street

Denham



Pilbara News Advertisement – 4 and 11 October 2023

Pilbara NEWS
Wednesday, October 4, 2023

NEWS 13



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Djoleanna Pty Ltd will employ about 10 people as



MinRes managing director Chris Ellison and Djoleanna business owner Bevan Wally. Picture: Russell James

part of the contract including a project manager, mechanics, operators and administration staff.

Djoleanna Pty Ltd owner Bevan Wally, who grew up on country, said: "The support provided by MinRes has given us the confidence and capacity to help establish and grow our business. MinRes have shown us action and given us commitments. It's normal for them to invest and give us a go."

MinRes managing director Chris Ellison said that the company was proud to partner with businesses such as Djoleanna that had such a strong connection to country.

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Colleges, Karratha Senior High School, Hedland Senior High School, Tim Price Senior High School and Newman Senior High School.

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"This significant investment will bring greater continuity for regional and remote students, their families, and the whole community," he said. The temporary Regional Attraction and Retention Incentive was initially allocated to 48 regional and remote schools.

Government of Western Australia
Department of Health

Fluoridation for the Newman drinking water system

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Fluoridation equipment has been installed at the water treatment plant serving Newman and is now operational. As with similar plants located throughout Western Australia, the Department of Health will monitor the performance of the water treatment plant to ensure compliance with the Australian Drinking Water Guidelines and the Fluoridation of Public Water Supply Act 1998.

For more information please contact the Department of Health by email to whinb@health.wa.gov.au or call 08 9222 2000 or visit health.wa.gov.au and search 'fluoridation'.

Dr Andrew Robertson
Chief Health Officer

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<p>Monday, 16 October 2023 Between 10:00am - 2:00pm Gwoonwardu Mia 148 Robinson Street Carnarvon</p>	<p>Tuesday, 17 October 2023 Between 9:00am - 1:00pm Denham Town Hall Hughes Street Denham</p>
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Pilbara NEWS
Wednesday, October 11, 2023

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NEWS 5

Animal flight policy criticised

CAIN ANDREWS

A prominent pet adoption agency has slammed Qantas' animal flight policy claiming it will lead to the unnecessary deaths of hundreds of animals.

Over the past year, animal adoption agency Saving Animals From Euthanasia's regional branches in Broome, Newman, Hedland and Karratha collectively rescued 1026 animals with 82.8 per cent or 838 of them requiring air transport to get to their new homes.

But with Qantas now enforcing a "no-fly" policy for animals when temperatures are forecast to reach more than 35C SAFE founder Sue Hedley said rescue animals that required air transport might have to be destroyed.

"It is crucial to recognise that this policy alteration could have dire consequences for these animals. If they are unable to reach their destination and find new homes, they may tragically face euthanasia as an alternative," she said.

Ms Hedley said SAFE had engaged with Qantas to try to find alternative solutions such as waters or only allowing animals on early morning flights on days over 35C but was knocked back by the company.

"In over 20 years of operation, SAFE has never had a death during transportation from regional areas to Perth, no matter the temperature," she said.

"Unfortunately, we have been advised that the policy will remain



Sue Hedley & Salem, Pic: Helen Dale and that no exceptions will be made.

"We firmly believe that the risks associated with this policy extend far beyond those related to flying on a day when temperatures may reach 35C later in the day."

A Karratha woman, who only wishes to be identified as Simone, was told her two dogs would not be allowed to catch a Qantas flight on October 5 because of the policy.

According to Simone, at the last minute she was told her dogs could not catch the flight despite being told the night before her dog would be able to fly.

"It's ridiculous we're here with our dogs everything's packed, and we're going away as well.

"With the way things are in Karratha with the shortage of space available there's no one to look after our pets," she said.

"It's not just inconvenient, it's unethical as they're not even adhering to their own policy.



Simone's dogs faced being bumped off a Qantas flight because of the airline's heat policy.

"I get it's about animal safety but what is ridiculous is that the policy clearly states 35C and above and it (was) only 29C."

Qantas eventually made an exception for Simone and her dogs on the day, however, she claims she was told by those at the airport to not tell Ms Hedley about the incident.

Last year, temperatures in Karratha exceeded 35C on 108 days, with a consecutive period of 42 days over 35C between February 12 and March 26.

Responding to questions about the policy, a Qantas spokesperson said the policy was led by the International Pet and Animal Association and the International Air Transport Association. "Qantas takes the safety and welfare of pets and animals who travel with us extremely seriously," the spokesperson said.

"This is why we don't transport pets when temperatures exceed 35C or fall below 5C, due to the stress and anxiety this could cause."



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<p>Monday, 23 October 2023 Between 10.00am - 5.00pm Exmouth Chamber of Commerce and Industry 22 Maidstone Crescent Exmouth</p>	

You can access our consultation information, provide feedback and subscribe for updates by scanning the QR code.





SATURDAY
14 OCTOBER 2023
1:00PM-5:00PM
RED EARTH ARTS PRECINCT

Social media – 2 - 9 October 2023

Are you interested in what Woodside has planned on land and sea?

Stop by and say hello to our friendly team in Exmouth.

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

Monday, 23 October 2023
Between 10.00am - 5.00pm
Exmouth Chamber of Commerce and Industry
22 Maidstone Crescent
Exmouth



Are you interested in what Woodside has planned on land and sea?

Stop by and say hello to our friendly team in Exmouth.

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

Monday, 23 October 2023
Between 10.00am - 5.00pm
Exmouth Chamber of Commerce and Industry
22 Maidstone Crescent
Exmouth



Are you interested in what Woodside has planned on land and sea?

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Monday, 23 October 2023
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Exmouth Chamber of Commerce and Industry
22 Maidstone Crescent
Exmouth



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<p>Monday, 23 October 2023 Between 10.00am - 5.00pm Exmouth Chamber of Commerce and Industry 22 Maidstone Crescent Exmouth</p>	



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Banners and consultation sheets





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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 867 of 919

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3.7.8 Dampier Beachside Twilight Markets

Location	Dampier
Activity	Dampier Beachside Twilight Markets
Date	4 November 2023
Description of the consultation	<p>Woodside hosted a stand at the Dampier Night Markets, a community event bringing together local businesses selling local products, a variety of food vendors and community groups. The stand was staffed by members of Woodside's Corporate Affairs, First Nations, and Environment teams.</p> <p>Woodside displayed a QR code on the stand, linked to the consultation activities page of the Woodside website.</p>

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	<p>Printed Consultation Information Sheets on the Scarborough Offshore Facility and Trunkline (Operations) EP were on hand.</p> <p>An iPad with a consultation/feedback subscription prompt was made available</p>
Advertising and invitations	<p>Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • Advertisement in the Pilbara News on 1 November 2023 • Social media posts were published inviting the public to attend on the Woodside North West Facebook page and the Dampier Community Associations Beachside Markets Facebook page • An EP consultation banner with a QR code (linked to the Consultation Activities page on the Woodside website), and a Scarborough Project banner were displayed at Woodside’s stand along with current EP Consultation Information Sheets.
Estimated number of individuals / organisations consulted	<p>Over 1000 community members (Dampier Community Association) attended the event.</p> <p>Woodside spoke to many community members, recording 14 meaningful conversations.</p>
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> • General queries around employment and local content opportunities. • General interest in Pluto Train 2 progress and Scarborough project and trunkline location. • Query around fauna activity mitigations. Woodside representatives discussed whale migration research and vessel whale spotters. • Interest in Woodside social investment activities. • The EP approval process was discussed, NOPSEMA’s role, what an EMBA is and why Woodside wants to talk to the community. 	
Woodside’s Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>While feedback was received, there were no objections or claims.</p> <p>The community information sessions were part of Woodside’s broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).</p>	

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Banners and consultation sheets – 4 November 2023



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Revision: 3

Page 870 of 919

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Pilbara News Advertisement – 1 November 2023

Pilbara NEWS
Wednesday, November 1, 2023

NEWS 9

Hard work earns Zane Walkington scholarship

DANIEL SPENCE

St Luke's College Year 12 student Zane Goes has been awarded the City of Karratha 2023 Walkington Award for his academic achievements and outstanding citizenship.

This is the 41th time the award, valued at \$5000, has been given to a Year 12 student within the City of Karratha to continue full-time or part-time tertiary studies.

Zane is a sports captain and member of St Luke's student executive council.

As part of his role he has run new initiatives such as the Father's Day breakfast, men's mental health day, International Women's Day and the school busy bee.

Zane will use the \$5000 award from the City of Karratha to support his studies in physiotherapy.

Former city of Karratha Mayor Peter Long congratulated this year's recipient and all applicants for their outstanding achievements.

"The Walkington Award has a proud history of supporting local students who embody the three pillars of academic excellence, extra-



Zane Goes receives his award from the outgoing mayor of Karratha Peter Long.

curricular activities and community service," he said. "We are beyond proud of the leadership, commitment and accountability our young people demonstrate and the significant contribution they make to our community." He said Zane was a hard working student who

had achieved stand-out results including Academic Excellence Awards in Years 11 and 12.

"I would like to wish Zane all the best on his studies as he pursues his dream to be a physiotherapist and hope to one day see him practice in Karratha."

MHS Annual General Meeting
ACN: 139453348

ADVERT

All Members are welcome to attend with lunch provided. It is to be held:

Date: Monday, 27 November 2023
Time: 10:00am
Location: 20 Sholl Street, Roebourne

Members will be sent a copy of the agenda...

FACTORY DIRECT SEAFOOD

FISH · SCAMPI · PRAWNS · SCALLOPS · OYSTERS · BAIT · ICE

Westmore Seafoods

0458971587 • f @factorydirectseafood
greg@westmoreseafoods.com

Bill Miller Drive, Johns Creek Boat Harbour Point Samson WA

EV charging stations open

DANIEL SPENCE

Electric vehicle fast chargers have been installed in Karratha, Exmouth and Kununurra as part of the WA EV Network extending into the Pilbara.

The stations are the first of six planned to be installed by mid-2024.

The WA EV Network is being delivered by Horizon Power and Synergy as part of the State Government's \$41.5 million investment to boost EV infrastructure and includes 58 charging stations in 46 locations connecting Perth to regional WA. When complete, the \$21m network will stretch more than 7000km which will help to make clean transportation more accessible in WA.

The charging sites have a 150kW fast charger that allows drivers to charge their vehicles in 20 minutes.

The charging station in Exmouth has an additional DC fast charger allowing four EVs to be charged at the same time.

The WA EV Network will stretch north to Kununurra, along the south-west coast to Esperance and



Horizon Power's Cameron Parrotte with member for Pilbara Kevin Michel. Picture: Marg Bertling

east to Kalbarrie and Exmouth which is due to be completed next year.

As part of the project, Horizon Power is installing EV fast chargers at 27 of these locations across regional and remote WA.

Executive GM, engineering & project delivery at Horizon Power, Cameron Parrotte in his speech at the opening of the charging station said it was hoped the project was the start of something bigger.

"It's not until you can get about 200km and be able to charge with confidence that we know we can bring these stations to this part of the country. It's great to see Red Dog renewables

hiring the cars for their employees to use," he said.

"This is site No.5 going live and around October next year we will have 27 new locations complete."

There have been more than 3200 charging sessions along the WA EV Network since the first charging site went live in Geraldton in April 2023.

Energy Minister Bill Johnston said WA's transition to a cleaner, greener electric vehicle future was well under way.

"We are delighted Karratha, Exmouth and Kununurra have joined the WA EV Network, with many more fast chargers opening soon," he said.

FIND OUT MORE ABOUT OUR PROPOSED ACTIVITIES

ARE YOU INTERESTED IN WHAT WOODSIDE HAS PLANNED ON LAND AND SEA?

Stop by and say hello to our friendly team in Dampier to find out more and share your feedback about Woodside's work in the North West, our Environment Plans and our current and proposed projects, including Scarborough and Browae.

We'd like to consult relevant persons in the course of preparing our Environment Plans to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse effects of the proposed activity on the environment. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

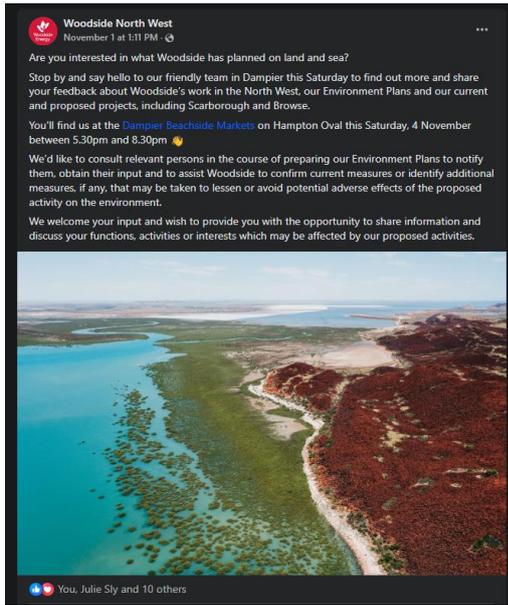
Dampier Beachside Markets
Saturday, 4 November 2023
Between 5.30 pm to 8.30 pm
Hampton Oval, Dampier, WA

You can also access our consultation information and provide feedback by scanning the QR code.

Woodside Energy

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Social media – 1 November 2023



3.7.9 Roebourne, Karratha and Dampier Roadshow

Location	Roebourne, Karratha and Dampier Roadshow
Activity	Community information sessions
Location	22 March 2024 - Woodside Roebourne office 23 March 2024 - Karratha Shopping Centre 24 March 2024 - Dampier Beachside Markets
Date	22- 24 March 2024
Description of the consultation	Woodside hosted community consultation sessions in Roebourne, Karratha and Dampier to enable community members to understand Woodside’s proposed activities and how they may be affected by them, ask questions, and provide their feedback. Woodside Corporate Affairs, First Nations and Environment representatives were available to answer questions. A number of EP Consultation Information Sheets were available to attendees including the Scarborough Offshore Facility and Trunkline (Operations) EP Consultation Information Sheet. An iPad with a consultation/feedback subscription prompt was made available with approximately 12 people subscribing.
Advertising and invitations	Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: <ul style="list-style-type: none"> • Advertisement in the Pilbara News on 13 March and 20 March • A geotargeted social media campaign advertising in Karratha (Reach 22,095), Port Hedland (reach 26,487), and Roebourne (reach 22,134) (+80 kms) from 19 – 30 March 2024 • Social - organic • An EP consultation banner with a QR code (linked to the Consultation Activities page on the Woodside website), a Scarborough Project banner and current EP Consultation Information Sheets were on display.

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	<ul style="list-style-type: none"> • Hard copy posters were also put up at high traffic areas including Lo's Café in Karratha and the Ieramugadu Store Maya in Roebourne.
Estimated number of individuals / organisations consulted	Woodside spoke to many community members, recording 32 meaningful conversations. Over 500 community members (Dampier Community Association) attended the event.
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> • General queries about employment and local content opportunities. • General interest in Pluto Train 2 progress and Scarborough project and trunkline location. • Comments on Red Dog Village accommodation. Woodside staff discussed that the average local economy spend was \$120 per person, per week. • Positive commentary to see Woodside active in the community and good sentiment toward the company as a respected local employer. • Interest in taking further information such as the Karratha Community Update (newsletter) and the EP newsletter (Let's Talk). Approximately 25 copies of each were distributed over the 3 days. • Woodside social investment activities and community funding opportunities. • EP awareness building with multiple conversations on "What is an Environment Plan?" and "What is an EMBA?". • Query around impacts to whales due to noise from drilling and seismic surveys. Woodside staff discussed whale migration research, vessel whale spotters and the controls that Woodside puts in place during drilling and seismic activities. Community member took Consultation Information Sheets and were referred to the consultation page on the Woodside website for further information and opportunity to provide feedback. • Query on the location of the Scarborough Energy Project and proximity to the Montebello Islands. Woodside staff discussed that the FPU would be located 201 km from the Montebello Marine Park using the potential risks and controls as per the Scarborough Trunkline Operations (State Waters) EP Consultation Information Sheet. • General comment on climate change and the impacts from fossil fuels. Woodside staff advised that Woodside are looking into new energy options including solar power and carbon capture. • Comment from a Woodside employee partner about Karratha Gas Plant hosting a family day for employees. 	
Woodside's Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>Whilst feedback was received, there were no objections or claims.</p> <p>The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).</p>	

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Pilbara News Advertisement – 13 and 20 March 2022

Chance to argue case in political processes

KATYA MINNS

Young people in the Pilbara are being called to become the next generation of youth leaders in an opportunity to represent their electorate and participate in democratic processes.

In its 20th year, the 2024 Y WA Youth Parliament program has opened applications for people aged 15-24 who wish to gain experience in government and policy development.

Participants will have the opportunity to draft, debate and advocate for mock youth-focused legislation on topics they're passionate about and present to Members of Parliament.

In 2023, Port Hedland local Erin Hayes joined Karratha's Emer O'Brien to represent the Pilbara electorate, travelling to Perth to present their Bill focusing on sex-



Emer O'Brien and Erin Hayes during the 2023 Y WA Youth Parliament.

based discrimination. "I was in the women's committee and we wrote a Bill on education and health reform talking about menstrual justice, such as providing free period products at a higher standard than what we currently have, and menstrual leave," Ms Hayes said.

"It's an apolitical program so you don't have to express what side of politics you're on, you're

more focused on the issues that you're passionate about.

"It's kind of like a really respectful way to have debates."

After first hearing about the program through a teacher's forum at the school where she taught politics, Ms Hayes applied for the 2023 Y WA Youth Parliament and encourages other young people to do the same.

"It was amazing, I got to meet

people that were like-minded and got to talk about things we're really passionate about," she said.

"It's given me more experience as I still want to work in politics in some aspects. I think it would be really great if more local people from the Pilbara could participate." More information on how to apply can be found on the Y's Youth Parliament website.

Applications close on March 24.



The duo at WA's Parliament House.



FIND OUT MORE ABOUT OUR ENVIRONMENT PLANS

ARE YOU INTERESTED IN WHAT WOODSIDE HAS PLANNED ON LAND AND SEA?

We are consulting relevant persons in the course of preparing our Environment Plans to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse effects of the proposed activity on the environment.

We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

Friday 22 March 2024
Between 1.00pm - 3.00pm
Woodside Roebourne Office
39 Roe Street
Roebourne

Saturday 23 March 2024
Between 9.00am - 2.00pm
Karratha City Shopping Centre
16 Shapse Avenue
Karratha

Sunday 24 March 2024
Between 9.00am - 12noon
Dampier Beachside Markets
Hampton Oval
Dampier

You can also access our consultation information and provide feedback by scanning the QR code.



ABORIGINAL RANGER PROGRAM

GRANT APPLICATIONS OPEN

11 MARCH TO 22 APRIL 2024

Round 8 of the Aboriginal Ranger Program is now open with up to \$16.5 million available for Aboriginal organisations.

Eligible Aboriginal organisations can apply for projects under one or more of the categories - climate action, youth and/or cultural tourism.

This new round of funding is part of a \$103 million commitment by the State Government, investing in Aboriginal rangers through the program.



Details about eligibility, the application process and assessment criteria are available at dbsa.wa.gov.au/aboriginalrangerprogram

DBSA/18/2024

Monitoring upped at KHC



The Karratha Health Campus is among the hospitals trialling new security measures.

New 24/7 security support at campus

ROSS MURRAY

The Karratha Health Campus has been selected as one of the pilot sites for the WA Government's \$400,000 investment in a state-of-the-art security hub for regional hospitals.

The new security hub, operating out of a State-wide CCTV operations room co-located within the WA Country Health Service Command Centre in Perth, will provide 24/7 real-time monitoring and support for some of the most isolated hospitals in regional WA, including Karratha.

It aims to enhance safety, deter anti-social behaviour, and provide greater support for frontline healthcare staff.

"Any kind of aggressive behaviour towards healthcare staff is completely unacceptable, and the State Government remains committed to doing all we

can to keep staff safe at work," WA Health Minister Amber-Jade Sanderson said.

WACHS chief executive Jeff Moffet acknowledged the concerning rise in violence and aggressive incidents against healthcare workers in regional areas, with an average of two assaults a day occurring.

"It's important we continue to do all we can to keep staff and patients safe," he said.

WACHS noted that the pilot sites, such as Karratha, were chosen based on their overall risk profile for incidents at the site, local crime rates, proximity to immediate police response and isolation.

"This specialised technology will be operated around the clock by security specialists and will provide another layer of security for our frontline healthcare workers," Ms Sanderson said.

Mr Moffet said the new advanced security monitoring will complement existing measures such as on-the-ground CCTV, security personnel, duress alarms and access control systems.

Other pilot sites include Hedland, Kununurra, Meekatharra, Collie, Bridgetown and Halls Creek with further sites to be added throughout 2024.

The inclusion of Hedland Health Campus comes in the wake of a high-profile incident in July 2022, when an Aboriginal woman, who was a known suicide risk and had been receiving mental health treatment, took her own life inside the hospital after being left alone in a room, despite staff being aware of her high risk.

Rural Link AH mental health: 1800 552 002 (toll free) or 1800 720 101 (TTY) Lifeline: 13 11 14



WACHS chief executive Jeff Moffet.



Health Minister Amber Jade Sanderson.



FIND OUT MORE ABOUT OUR ENVIRONMENT PLANS

ARE YOU INTERESTED IN WHAT WOODSIDE HAS PLANNED ON LAND AND SEA?

We are consulting relevant persons in the course of preparing our Environment Plans to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse effects of the proposed activity on the environment.

We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

Friday 22 March 2024
Between 1.00pm - 3.00pm
Woodside Roebourne Office
39 Roe Street
Roebourne

Saturday 23 March 2024
Between 9.00am - 2.00pm
Karratha City Shopping Centre
16 Sharpe Avenue
Karratha

Sunday 24 March 2024
Between 9.00am - 12noon
Dampier Beachside Markets
Hampton Oval
Dampier

You can also access our consultation information and provide feedback by scanning the QR code.

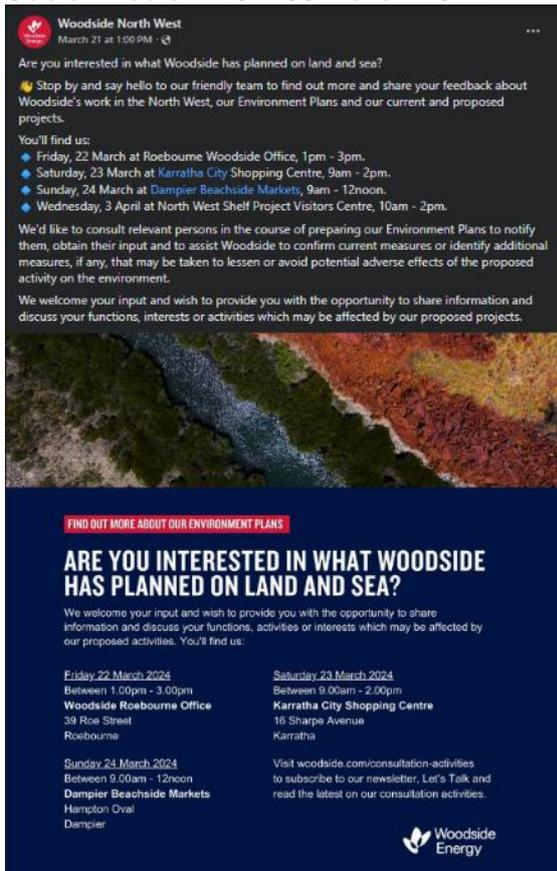


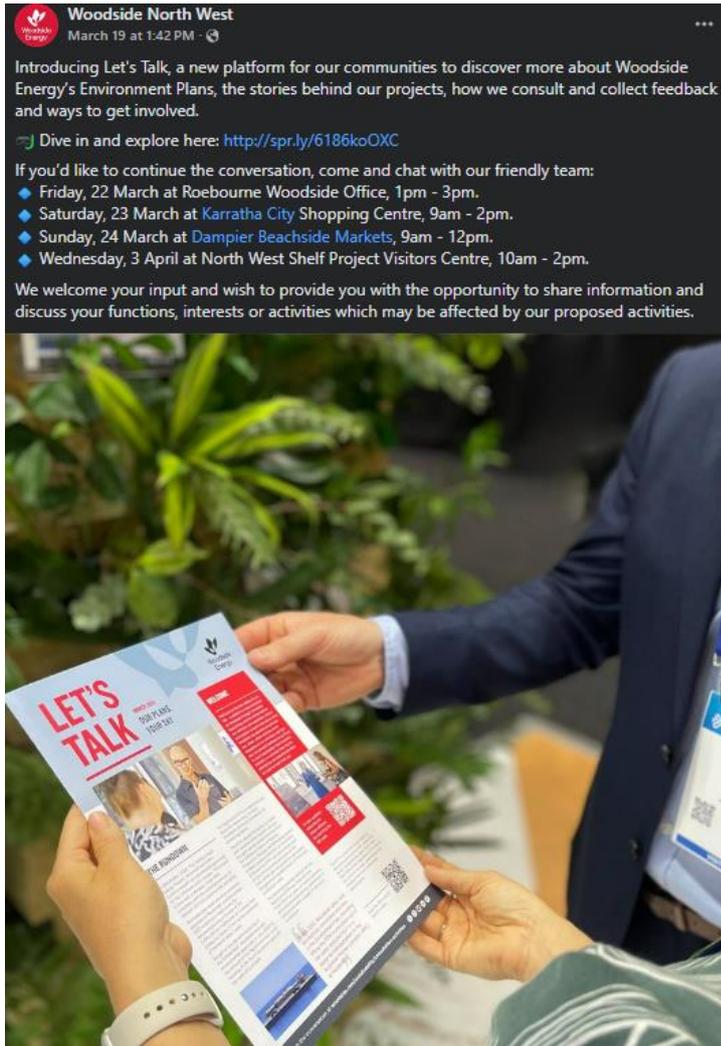
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Local advertising

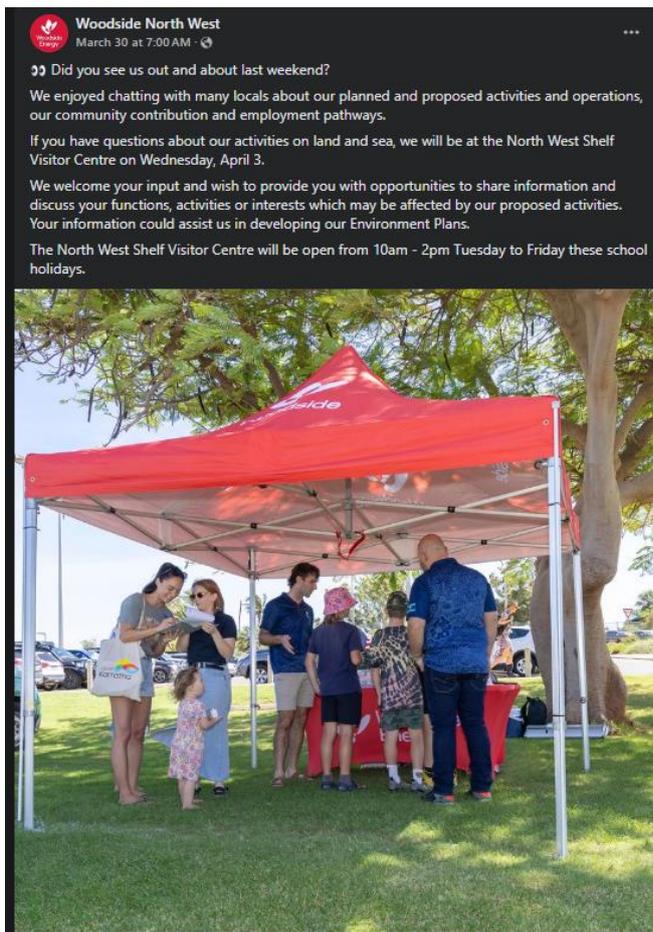
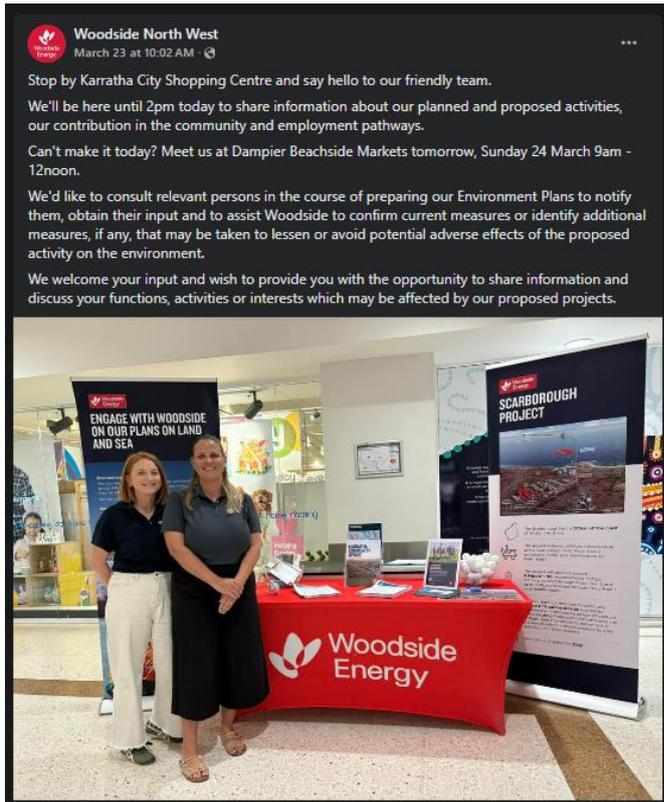


Social media – 19 – 30 March 2024



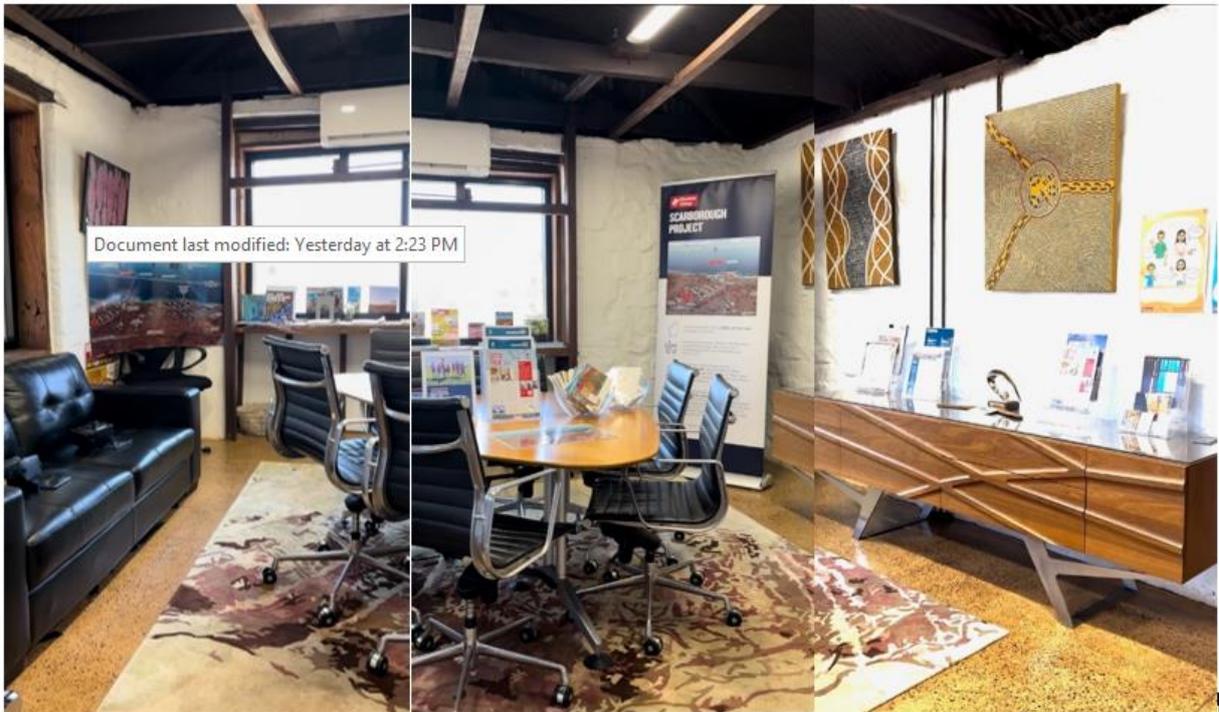


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Roebourne

Woodside Energy Roebourne Office



Outside: ¶



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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 879 of 919

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Ieramugadu Store Maya



Karratha local promotion – March 2024

Karratha City Shopping Centre



**Dampier local promotion – March 2024
Dampier Seaside Markets**



3.7.10 North West Shelf Visitor Centre Pop Up

Location	North West Shelf Visitor Centre
Activity	Community information sessions
Location	North West Shelf Visitor Centre
Date	3 April 2024

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3.7.11 Community Markets – Exmouth

Location	Exmouth
Activity	Community markets – Woodside stand
Date	Sunday, 19 May 2024 (8am to 12pm)
Description of the consultation	<p>Woodside hosted a stand at the Exmouth Community Markets, held at Federation Park. The stand was staffed by Woodside Environment and Corporate Affairs representatives. Woodside displayed a QR code on the stand, linked to the consultation activities page of the Woodside website.</p> <p>Copies of the 'Let's Talk' newsletter were also on hand.</p> <p>In addition, information on the Scarborough Energy Project, Browse to NWS Project, Browse Carbon Capture and Storage (CCS) concept, Woodside's Climate Transition Action Plan, leaflets providing QR codes to Woodside's Annual Report and Sustainability, as well as Woodside's Reconciliation Action Plan were available.</p> <p>EP Consultation Information Sheets were also available to attendees including the Scarborough Offshore Facility and Trunkline (Operations) EP Consultation Information Sheet.</p>
Advertising and invitations	<p>Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • A geotargeted social media campaign advertising in Exmouth and surrounding areas (+80 kms) from 4 May to 18 May • Direct invitations to local Community Liaison Group • An EP consultation banner with a QR code (linked to the Consultation Activities page on the Woodside website) was displayed at Woodside's stand along with the EP Consultation Information Sheets other information sheets mentioned above.
Estimated number of individuals / organisations consulted	<p>Over 300 people attended the markets.</p> <p>Woodside had meaningful conversations with approximately 30 people. These people identified as being Exmouth community members, visitors to Exmouth (residents of the East Coast of Australia, residents of Perth, residents of Karratha), and a few transient backpackers from various overseas locations.</p>
Summary of Feedback, Objection or Claim	
	<ul style="list-style-type: none"> • Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions, and provide their feedback.

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- General interest in Woodside activities.
- No specific queries on the EPs.
- Stakeholders identifying themselves as Woodside shareholders interested in project updates, particularly on Scarborough, Browse to NWS Project, as well as the company's climate strategy and climate transition plans.
- Queries from Exmouth residents around employment and local content opportunities.
- General queries on the progress of the Scarborough Energy Project and Browse to North West Project, with two stakeholders seeking more information on Browse CCS.
- Queries on Western Australia's domestic gas reservation policy and the existing domestic gas commitments for Woodside's activities.
- Concern from one Exmouth resident with business links to Eastern Australia over the costs of flights between Exmouth and the East Coast.
- General queries on the location of Woodside assets in relation to Exmouth and Woodside's footprint in Exmouth.
- Local residents interested in understanding current social investment programs and opportunities.
- Interest to understand how Woodside undertakes community consultation.
- A transient worker and an Exmouth local expressed a preference for the sunscreen giveaway to be made with reef-safe ingredients. (This feedback was forwarded to the appropriate Woodside focal point.)
- One stakeholder expressed opposition to oil and gas and voiced a desire for companies like Woodside to invest in geo-thermal energy instead.

Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response

Whilst feedback was received, there were no specific objections or claims to a particular Woodside project or activity.

Objections to the resources industry were expressed by two stakeholders.

The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation.

North Community Markets – Exmouth – 19 May 2024



Woodside Energy
Sponsored · 🌐

⋮ ✕

Are you interested in what Woodside has planned at land and sea?

Stop by to chat with our friendly team in Exmouth.

We'd like to consult relevant persons in the course of preparing Environment Plans to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse effects of the proposed activity on the environment.

We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed projects.

Exmouth Community Markets
Sunday 19 May 2024
Between 8 am - 12 noon
Federation Park



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Revision: 3

Page 885 of 919

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3.7.12 WA Day Celebrations

Location	Dampier
Activity	WA Day Festival
Date	15 June 2024
Description of the consultation	<p>Woodside hosted a stand at the WA Day Festival organised by Celebrate WA. The event featured a drone show, food stalls, live music, sideshow stalls and interactive exhibits.</p> <p>The stand was staffed by members from Woodside’s Corporate Affairs, First Nations and Environment teams.</p> <p>Woodside displayed a QR code on the stand, linked to the consultation activities page of the Woodside website.</p> <p>Woodside made available printed Consultation Information Sheets on the Scarborough Offshore Facility and Trunkline (Operations) EP.</p>
Advertising and invitations	<p>Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • Advertisement in the KDCCI e-newsletter distributed 5 June 2024 • Social media posts published inviting the public to attend on the Woodside North West Facebook page • Celebrate WA advertised the event via TV commercials, radio advertisements and in print. • An EP consultation banner with a QR code (linked to the Consultation Activities page on the Woodside website), and a Scarborough Project banner were displayed at Woodside’s stand along with current EP Consultation Information Sheets.
Estimated number of individuals / organisations consulted	<p>Over 2000 community members (Celebrate WA) attended the event.</p> <p>Woodside spoke to many community members, recording 15 meaningful conversations.</p>
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> • General queries around employment and volunteer opportunities. • General positive commentary from community members working at Woodside or on Woodside projects. 	

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- General interest in Scarborough and Browse progress and the future of gas in the energy transition.
- General query around tax contributions.
- EP approval process discussed and why Woodside wants to talk to community. No concerns raised.

Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response

Whilst feedback was received, there were no objections or claims.

The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).

Woodside Energy

If you're interested in finding out more about what **Woodside** is doing on land, sea and in the community, stop by and say hi at the [WA Day Festival](#).

The **free** festival features a drone show display, live music, food stalls, and family fun. As one of the Regional Presenting Partners, Woodside's friendly team will be there to chat about our work in the North West, our current and proposed projects and our Environment Plans.

Can't make it?

Stay up to date with Let's Talk - Our Plans, Your Say or provide your feedback here at the button below.

[Feedback Here](#)

Woodside North West
June 13 at 2:18 PM · 🌐

Woodside Energy are pleased to be supporting WA DAY Festival: Karratha/Dampier this weekend 🎉

Come together and celebrate WA with free family fun and live entertainment - including a drone show spectacular.

Western Australia is a big part of Woodside's 70 year story, with 40 years of safe and reliable operations in Karratha... See more

WA Day Festival
June 11 at 12:00PM · 🌐

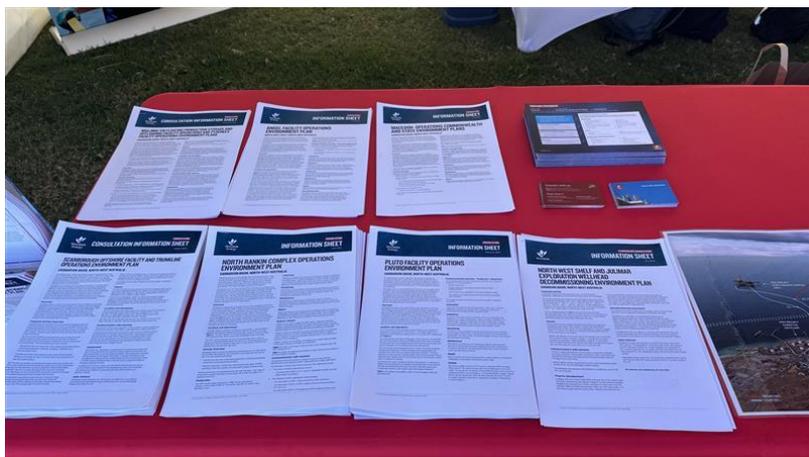
This Saturday, June 15 we're celebrating in Karratha! This lively festival brings together people of all ages, backgrounds, and cultures who have contributed to... See more

You, Shan Su, Cass Meehan and 7 others · 1 comment

Like Comment Share

Woodside North West
Can't make it? Stay up to date with Let's Talk - Our Plans, Your Say and Woodside Energy's Environment Plan news here: <http://pr.ly/6188j8j8y>

WOODSIDE.COM
Consultation Activities - Woodside Energy





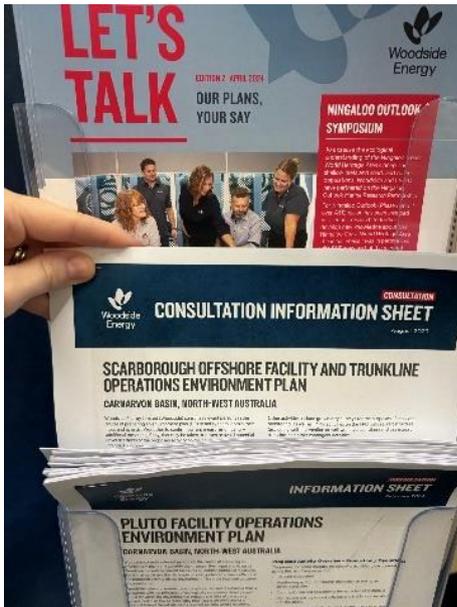
3.7.13 Pilbara Summit

Location	Karratha
Activity	Pilbara Summit 2024
Date	25 - 26 June 2024
Description of the consultation	<p>Woodside hosted a stand at Pilbara Summit 2024 , a sold-out conference established to raise the profile of issues and opportunities in the Pilbara region. The event provides the opportunity for the Pilbara region’s industry, investors, businesses, community, and government representatives to connect. The stand was staffed by members from Woodside’s Corporate Affairs, Government Affairs, First Nations, Supply Chain and New Energy teams.</p> <p>Woodside displayed a QR code on the stand, linked to the Let’s Talk newsletter on the Woodside consultation page of the website. A pull-up banner was on display focusing on engagement on Woodside’s plans at land and sea with a QR code to the consultation page on the Woodside website. Woodside made available printed Consultation Information Sheets on the Scarborough Offshore Facility and Trunkline (Operations) EP.</p>
Advertising and invitations	<p>No advertising was undertaken.</p> <p>The Vice President for North West Shelf delivered a speech during the conference, which highlighted the important role that Woodside will continue to play in the energy transition. In</p>

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	<p>addition, a representative from Woodside's CCS team was part of a panel discussion on Decarbonisation – moving to net zero – discussing the role of CCS, opportunities for growth, new business and the best approach to renewable and lower carbon industries. Attendees were invited to find out more about Woodside's projects, developments or EPs from team members on the Woodside conference stand or to visit Woodside's town office based in The Quarter.</p>
Estimated number of individuals / organisations consulted	<p>Over 600 people attended in person event over 2 days.</p>
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> • Approximately 10 conversations occurred around new energy opportunities and plans, local content, social investment, EMBA's (relating to EPs) and approvals in general. • No feedback was received regarding Woodside's EPs. 	
Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>This session forms part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2 of the EP).</p>	

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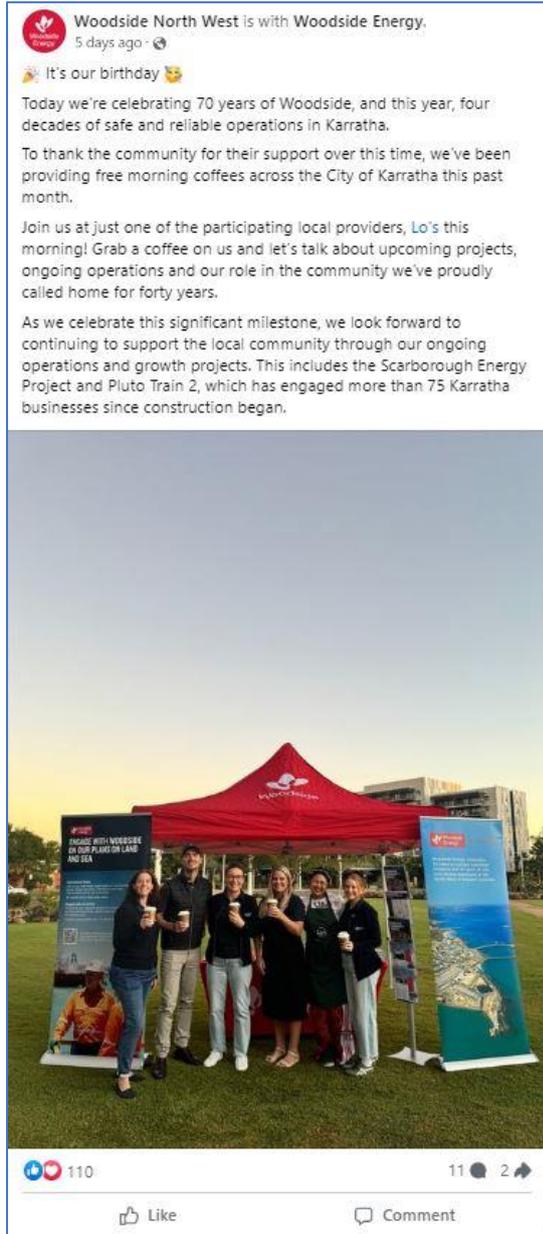
3.7.14 Community pop-up at Lo’s café

Location	Karratha
Activity	Community pop-up at Lo’s Cafe
Date	26 July 2024
Description of the consultation	<p>Woodside hosted a stand in the community to coincide with Woodside’s 70th birthday and 40 years of safe operations in Karratha. Members of Woodside’s Corporate Affairs team actively engaged with the community to discuss proposed EP activities and general community engagement discussion.</p> <p>Woodside displayed a QR code on the stand, linked to the Let’s Talk newsletter on the Woodside consultation page of the website. A pull-up banner was on display focusing on engagement on Woodside’s plans at land and sea with a QR code to the consultation page on the Woodside website. Woodside made available printed Consultation Information Sheets on the Scarborough Offshore Facility and Trunkline (Operations) EP.</p>
Advertising and invitations	<p>Woodside advertised this engagement on social media only.</p> <ul style="list-style-type: none"> A social media post appeared on the Woodside North West Facebook page on 26 July 2024. <p>An EP consultation banner with a QR code (linked to the Consultation Activities page on the Woodside website) was displayed at Woodside’s stand along with current EP Consultation Information Sheets.</p>
Estimated number of individuals / organisations consulted	<p>Over 60 community members attended the event.</p> <p>Woodside spoke to many community members, recording 10 meaningful conversations.</p>
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> Approximately 10 conversations occurred around employment opportunities and pathways, social investment, the EP process and approvals in general. No feedback was received regarding Woodside’s EPs. 	
Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>This session forms part of Woodside’s broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2 of the EP).</p>	

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Social media post on Woodside North West Facebook



3.7.15 FeNaCling Festival

Location	Karratha
Activity	FeNaCING Festival
Date	3 - 4 August 2024
Description of the consultation	Woodside hosted a stand at the FeNaCING Festival 2024. Members of Woodside's Corporate Affairs, Environment and Operations teams actively engaged with the community to discuss proposed EP activities. Woodside displayed a QR code on the stand, linked to the Let's Talk newsletter on the Woodside consultation page of the website. A pull-up banner was on display focusing on engagement on Woodside's plans at land and sea with a QR code to the consultation page on the Woodside website. Printed Consultation Information Sheets on the Scarborough Offshore Facility and Trunkline (Operations) EP were also available.

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Advertising and invitations	<p>Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • A social media post appeared on the City of Karratha and FeNaCING Festival Facebook page on 18 July 2024 • A social media post appeared on the Woodside North West Facebook page • A FeNaCING Festival lift-out was published in the Pilbara News on 31 July 2024. <p>An EP consultation banner with a QR code (linked to the Consultation Activities page on the Woodside website) was on display outside the Woodside Marquee, and EP Consultation Information Sheets were displayed, and provided in the Woodside marquee.</p>
Estimated number of individuals / organisations consulted	<p>Over 10 000 community members (City of Karratha) attended the event. Woodside spoke to many community members, recording 30 meaningful conversations.</p>
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> • Approximately 10 conversations occurred around new energy opportunities and plans. • Other conversations included: <ul style="list-style-type: none"> - Local content - Social investment - General understanding of an EMBA - Approvals status for Browse and Scarborough - The future of the Karratha Gas Plant assets future - How oil and gas is produced - Tax and royalties. • No feedback was received regarding specific EPs. 	
Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>Woodside’s participation at FeNaCING forms part of Woodside’s broader consultation approach to enable self-identification and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2 of the EP).</p>	

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18 July 2024

City of Karratha managed FeNaCING Festival FaceBook page



31 July 2024

Pilbara News – Woodside Sponsored - FeNaCING Festival lift out



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WOODSIDE VOLUNTEERS MAKE VALUED CONTRIBUTIONS

Woodside takes pride in giving back to the communities in which they operate. One of the ways they do this is through their corporate volunteering program.

Since the launch of the program with Volunteering WA in 2010, Woodsiders have been lending a helping hand with all kinds of community projects.

Last year 340 Woodsiders spent 1500 hours volunteering with local community organisations as part of their Corporate Volunteering program. Most recently, volunteers have participated in a range of activities from cooking meals for The Salvation Army to building a sandpit at Gumala Early Learning Centre and assembling furniture for the redevelopment of Roebourne District High School.

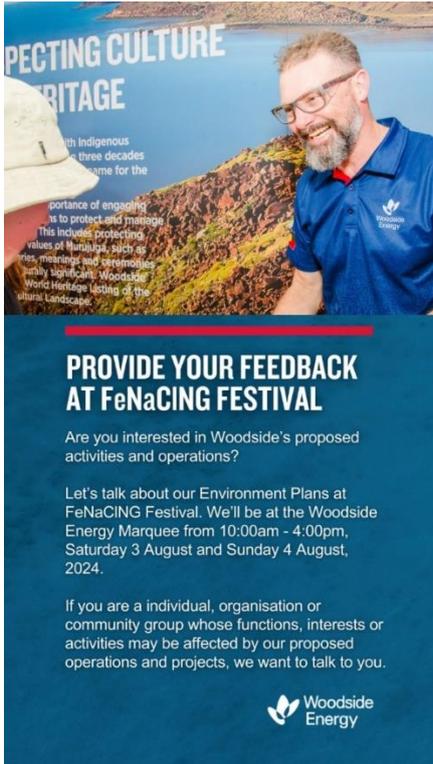
Their program partner, Volunteering WA, plays a crucial role in the success of Woodside's volunteering efforts by connecting them with local organisations in need of assistance and facilitating the opportunities to participate.

Volunteering WA's Regional Community Engagement Coordinator, Kelly Nunn said the partnership has delivered some important outcomes for the local community.

"Corporate volunteering offers fantastic opportunities for community organisations to complete ongoing maintenance or projects with the help of Woodside's employees, allowing them to focus on what they do best - providing programs and events for our community," she said.



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**PECTING CULTURE
RITAGE**

With Indigenous
three decades
ame for the

portance of engaging
to protect and manage
This includes protecting
values of World Heritage, such as
fire management and ceremonies
tally significant Woodside
World Heritage listing of the
ultural Landscape.

**PROVIDE YOUR FEEDBACK
AT FeNaCING FESTIVAL**

Are you interested in Woodside's proposed activities and operations?

Let's talk about our Environment Plans at FeNaCING Festival. We'll be at the Woodside Energy Marquee from 10:00am - 4:00pm, Saturday 3 August and Sunday 4 August, 2024.

If you are a individual, organisation or community group whose functions, interests or activities may be affected by our proposed operations and projects, we want to talk to you.

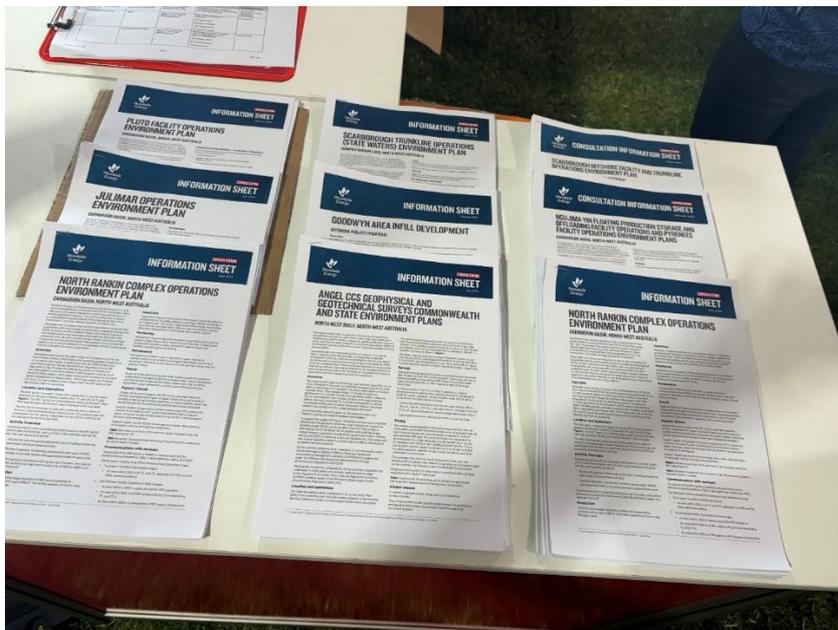
 Woodside Energy

2 August 2024, 2pm

Social Media – Woodside North West Facebook account – via Stories



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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 898 of 919

Uncontrolled when printed. Refer to electronic version for most up to date information.



3.7.16 Developing Northern Australian Conference

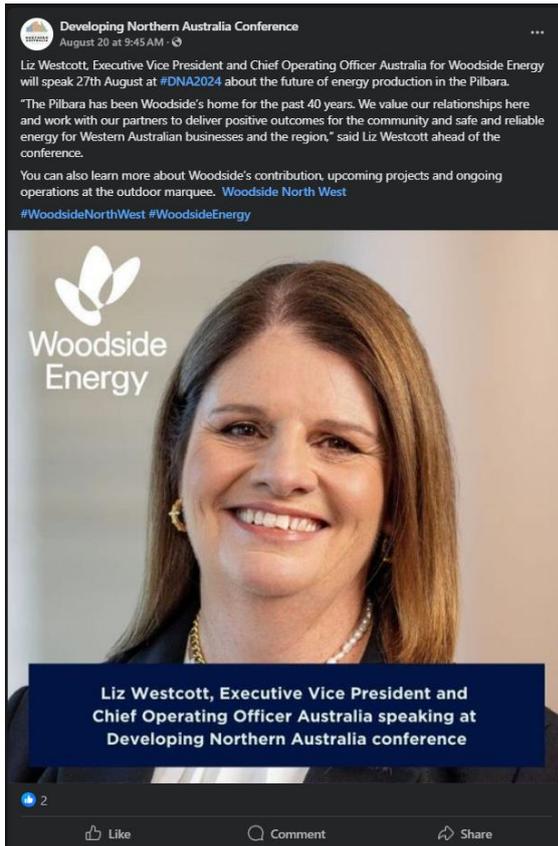
Location	Karratha
Activity	Developing Northern Australia (DNA) Conference
Date	26 - 28 August 2024
Description of the consultation	<p>Woodside hosted an exhibition stand at the DNA Conference. Members of Woodside’s Corporate Affairs team actively engaged with 400+ individuals, policy makers and decision makers attending the conference to discuss a variety of issues including EP activities.</p> <p>Woodside displayed a QR code, linked to the Let’s Talk newsletter on the Woodside consultation page of the website. An iPad was available encouraging attendees to view and subscribe to the consultation page on the Woodside website. Consultation Information Sheets including on the Scarborough Offshore Facility and Trunkline (Operations) EP were available.</p>
Advertising and invitations	<p>Woodside advertised this event to enable individuals to self-identify, become aware of the community consultation, and to enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> A social media post appeared on the Developing Northern Australia Facebook page on 20 August 2024

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	<ul style="list-style-type: none"> EP Consultation Information Sheets and copies of the Let's Talk newsletter (with QR codes linking to the consultation activities page on Woodside's website) were displayed and provided.
Estimated number of individuals / organisations consulted	<p>Over 400 delegates attended the conference.</p> <p>Woodside spoke to many conference attendees, recording 20 meaningful conversations.</p>
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> Approximately 10 conversations occurred around new energy opportunities and plans. Other conversations included: <ul style="list-style-type: none"> Local content Social investment General understanding of an EMBA How oil and gas is produced and the organisations future in energy transition Price of gas for international project forecasting AI and simulation technology Carbon sequestration. No feedback was received regarding specific Environment Plans. 	
Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>Woodside's participation at the DNA conference forms part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2 of the EP).</p>	

Social media advertising on Developing Northern Australia Facebook page 20 August 2024.

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Woodside stall at Development Northern Australia conference. EP material on display.



3.7.17 Dampier Beachside Markets

Location	Dampier
Activity	Dampier Beachside Markets - Oktoberfest
Date	12 October 2024
Description of the consultation	<p>Woodside hosted a stand at the Dampier Beachside Markets, a community event bringing together local businesses selling local products, a variety of food vendors and community groups. The stand was staffed by members from Woodside’s Corporate Affairs team.</p> <p>Woodside displayed a QR code on the stand, linked to the consultation activities page of the Woodside website.</p> <p>An iPad with a consultation/feedback subscription prompt was made available.</p> <p>Woodside also had on hand printed Consultation Information Sheets on the Scarborough Offshore Facility and Trunkline (Operations) EP.</p>
Advertising and invitations	<p>Woodside advertised the event to enable individuals to self-identify, become aware of the community consultation, and to enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • Advertisement in the Pilbara News on 9 October 2024 • A geotargeted social media posts were published inviting the public to attend on the Woodside North West Facebook page • A social media post from event host, Dampier Community Association, was published on October 11, 2024 inviting the public to attend • Advertisement was displayed on community noticeboard at Lo’s Café, Karratha, and Roebourne Library • An EP consultation banner with a QR code (linked to the Consultation Activities page on the Woodside website) was displayed at Woodside’s stand along with current EP factsheets.
Estimated number of individuals / organisations consulted	<p>Over 1000 community members attended the event.</p> <p>Woodside spoke to many community members, recording 6 meaningful conversations.</p>
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> • General positive commentary from community members working at Woodside or on Woodside projects. • General interest in Scarborough progress and the future of gas in the energy transition. • General interest in CSS process. • Interest in community grant program. • EP approval process discussed and why we want to talk to community. No concerns raised. • General queries around employment and graduate opportunities. • Interest in divestment of ex-Woodside homes. 	
Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>Whilst feedback was received, there were no objections or claims.</p> <p>The community information sessions were part of Woodside’s broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).</p>	

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Dampier Beachside Markets
October 11 at 10:00 AM

Coming to Dampier Beachside
12 OCTOBER | 5:30pm - 8:30pm
Hampton Oval, Dampier

★ Woodside Energy
#dampierbeachsidemarkets #dampiercommunityassociation #hamptonoval #woodsideshow #CommunityEngagement #dampierlovewhereyoulive #dampier #markets #dca #cityofkarratha #karrathaiscalling



SATURDAY OCT 12
5:30PM - 8:30PM

Would you like to know what Woodside has planned on land and sea?



Let's talk about our Environment Plans.

If you are an individual, organisation or community group whose functions, interests or activities may be affected by our proposed projects and operations, we want to hear from you.

Share your feedback or find out more by visiting our friendly team.

Dampier Beachside Markets
Saturday, 12 October 2024
Between 5:30 pm - 8:30 pm
Hampton Oval, Dampier WA 6713



Author's incredible tale hopes to inspire



MADELINE HAYES covers up the true story of a woman who has overcome adversity to become one of the country's leading practitioners. With a host of impressive achievements, such as recently establishing her charity, Westerman aims to inspire Indigenous medical students, which means Indigenous people from high-risk communities to become practitioners. Dr Westerman visited Karratha for the launch of her memoir *Always*. How our Indigenous women from the remote Pilbara transformed psychology. "I have spent my life challenging systems and that means the

one also the all view of mental health that serves very few of those in mental health distress, and that's frightening because those in distress are usually from our most marginalized communities." Dr Westerman said. "These systems have been built by non-Aboriginal people to serve the needs of non-Aboriginal people."

"From child protection to justice to mental health, it is systems that is contributing to the inability to understand and respond to our families."

Dr Westerman said she hoped readers would be inspired by not only the story, but to also understand that with passion, energy and a sense of responsibility to our most vulnerable communities, great change is not only possible, it is inevitable.

"This has all been done without a cent of Federal Government funding," she said. "I want non-Aboriginal people to understand that as Aboriginal people we are capable of getting this done and my story shows that, for Aboriginal people I want them to see something that they can be optimistic about."

Dr Tracy Westerman travelled to Karratha for the launch of her book. Photo: Dr Tracy Westerman

"I am so frustrated with the pace of change. If you have been told that things can get better, this story shows that your change can occur without looking to governments to take care."

"I also hope that those who understand the research have a deep understanding of the mental health distress around the disadvantage we are seeing in Aboriginal communities and that it's vital that when Aboriginal people are in the driver's seat, they've got the opportunity to close the gaps."



2024 DAMPIER PHOTOGRAPHY AWARDS

THANK YOU

The Dampier Community Association would like to thank our sponsors for their generous support of the 2024 Dampier Photography Awards

MAJOR SPONSORS




EVENT SPONSOR



WOODSIDE COMMUNITY GRANTS

Applications open Tuesday, 1 October 2024

The Woodside Community Grants program is part of our commitment to help build local capacity and develop opportunities for community wellbeing.

If your club or organisation has a great idea or needs extra support, Woodside wants to hear from you. Grants of up to \$10k are available to support community projects in the City of Karratha and the Shire of Leonora.

If you're interested in helping us meet our goals, please email our call centre regarding our Environment Plan, and as a participant at Dampier Beachside Markets, the Lottery, 11 October from 10am - 10pm.

Applications close Thursday, 21 October 2024.

For more information please email: for@woodside.com.au or www.woodside.com.au





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3.7.18 Dampier Beachside Markets

Location	Dampier
Activity	Dampier Beachside Markets – Guy Fawkes
Date	2 November 2024
Description of the consultation	<p>Woodside hosted a stand at the Dampier Beachside Markets a community event bringing together local businesses selling local products, a variety of food vendors and community groups.</p> <p>The stand was staffed by members from Woodside’s Corporate Affairs and First Nations teams.</p> <p>Woodside displayed a QR code on the stand, linked to the consultation activities page of the Woodside website.</p> <p>Woodside made available printed consultation information sheets on the Scarborough Offshore Facility and Trunkline Operations EP.</p>
Advertising and invitations	<p>Woodside advertised event to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • Advertisement in the Pilbara News on 30 October 2024 (see below) • Social media posts were published inviting public to attend on Woodside North West Facebook page (see below) • Social media post from event host, Dampier Community Association was published on 11 October 2024 inviting public to attend. • Advertisement was displayed on community noticeboard at Lo’s Café, Karratha, and Roebourne Library. • An EP consultation display with QR code (linked to the Consultation Activities page on the Woodside website) displayed at Woodside’s stand along with current EP factsheets (see below)
Estimated number of individuals / organisations consulted	<p>Over 1200 community members (Dampier Community Association) attended the event. Woodside spoke to many community members, recording 10 meaningful conversations.</p>

Summary of Feedback, Objection or Claim

- General queries around employment opportunities.
- General interest in the Scarborough progress and Browse and the future of gas in the energy transition.
- EP approval process discussed and why we want to talk to community. No concerns raised.
- General interest in the Carbon Capture and Storage process.
- Discussions around the areas housing market and related industry opportunities.

Woodside’s Assessment of Merits of Feedback, Objection or Claim and its Response

Whilst feedback was received, there were no objections or claims raised about EPs. Woodside’s participation at the market’s is part of Woodside’s broader consultation approach to enable self-identification and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).

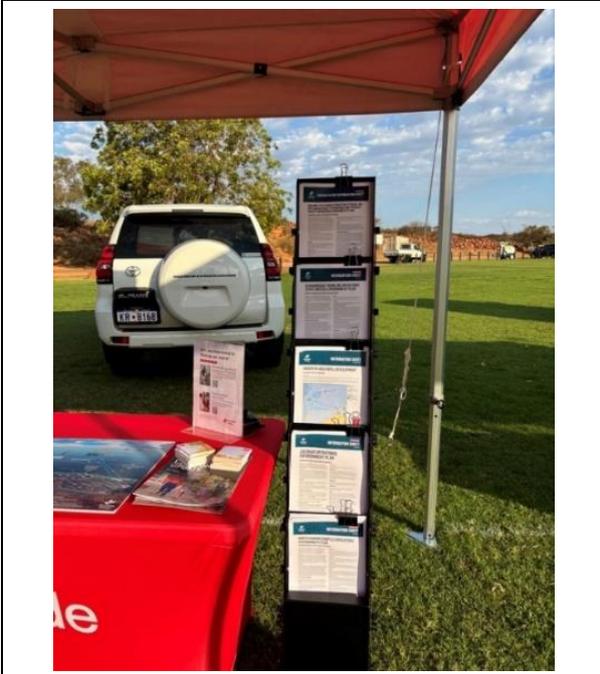
Evidence of Advertising and Invitations for Event

Newspaper Advertisement(s)	Social Media Campaign
Pilbara News 30 October 2024	Woodside North West Facebook, 25 October 2024

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Photo of Information Sheets



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3.7.19 Exmouth Community Information Session – 14 November 2024

Location	Exmouth
Activity	Community Drop-In: Woodside Marquee
Date	14 November 2024
Description of the consultation	<p>Woodside hosted a stand at Ross Street Mall in Exmouth. The stand was staffed by Woodside Environment and Corporate Affairs representatives. Woodside displayed a QR code on the stand, linked to the consultation activities page of the Woodside website.</p> <p>Information on the Scarborough Energy Project, Browse to NWS Project, Woodside’s Climate Transition Action Plan, leaflets providing QR codes to Woodside’s Annual Report and Sustainability, ‘Let’s Talk’ (a publication on the company’s Australian activities) were available. EP Consultation Information Sheets available to attendees included the Scarborough Offshore Facility and Trunkline (Operations) EP.</p>
Advertising and invitations	<p>Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:</p> <ul style="list-style-type: none"> • Geotargeted social media campaign advertising in Exmouth and surrounding areas (+80 kms) from 9 – 14 November 2024. • Post on Woodside social media channel. • Promotion at the Exmouth Community Liaison Group meeting. • An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website) was displayed at Woodside’s stand along with the EP factsheets and Project information sheets.
Estimated number of individuals / organisations consulted	Woodside had meaningful conversations with approximately 12 groups. These people identified as being Exmouth community members or visitors to Exmouth (residents of the East Coast of Australia or Western Australia).
Summary of Feedback, Objection or Claim	
<ul style="list-style-type: none"> • Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions, and provide their feedback. • There was general interest in Woodside activities. Key issues discussed: <ul style="list-style-type: none"> ○ Query on whether Woodside is building new marine infrastructure being built in the nearshore environment. A query was received on whether the design of Scarborough infrastructure allows for juvenile fauna to continue to traverse the nearshore environment. <ul style="list-style-type: none"> ▪ Woodside responded that the Scarborough trunkline was installed by horizontal directional drilling to minimise impacts to the beach and nesting turtles. The Scarborough trunkline is not a solid structure that would block movement of nearshore juvenile fauna. ○ General queries on Woodside’s footprint in Exmouth. ○ Queries about employment and local content opportunities. ○ Interest in understanding current social investment programs and opportunities. ○ One stakeholder expressed support for more industry activity in Exmouth. ○ Stakeholders identifying themselves as Woodside shareholders interested in project updates, particularly on Scarborough. ○ Query on domestic gas commitments for Woodside’s activities. 	
Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	
<p>Whilst feedback was received, there were no specific objections or claims to a particular Woodside project or activity. The community information sessions were part of Woodside’s broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation.</p>	

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Evidence of Promotion and Event	
Paid social media – Instagram and Facebook	Social media Woodside North West Facebook – 14 November 2024
<div style="border: 1px solid black; padding: 10px;"> <p>Would you like to know what Woodside has planned on land and sea?</p>  <p>Let's talk about our Environment Plans.</p> <p>If you are an individual, organisation or community group whose functions, interests or activities may be affected by our proposed projects and operations, we want to hear from you.</p> <p>Share your feedback or find out more by visiting our friendly team.</p> <p>Ross Street Mall Thursday, 14 November 2024 Between 8:00 am - 11:30 am Exmouth WA 6707</p>  </div>	

Social Media Campaign Results

Platform	Geotargeted Reach	Post Dates	Impact
Facebook	Regional: Users 18+ located within 40kms of Exmouth	9 – 14 November 2024	Reach: 20,826 Frequency: 1.15 Impressions: 23,895 All clicks: 76 Link clicks: 5 CTR%: 0.02%
Instagram	Regional: Users 18+ located within 40kms of Exmouth	9 – 14 November 2024	Reach: 19,650 Frequency: 1.10 Impressions: 21,636 All clicks: 9 Link clicks: 1 CTR%: 0.00%

3.8 Ngaarda Radio Advertising

Media	Coverage	Publication dates
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Ngaarda Radio	Pilbara	26 August – 30 November 2024
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Script 1 - 30 seconds

Want to know more about Woodside Energy?

Our Roebourne office, located on Roe Street is open Wednesday to Friday and we welcome you to come and chat to our friendly team. Let's talk about local employment and training opportunities, social contribution, the environment, existing operations and future projects. Look for the open sign out the front!

You can also follow us on Facebook @ Woodside North West or phone our community information line 1800 634 988.

Station sponsor

Script 2 – 30 seconds

Wayiba, Wanthiwa!

Woodside Energy consults with around 50 Traditional Owner Groups who have deep connections to Western Australia's coastline.

If you or your family has functions, interests or activities that may be affected by our projects, we want to hear from you.

Let's talk about what we have planned on land and sea at our Roebourne office or email us at consultation@feedback.woodside.com

Station sponsor

4 HISTORICAL – SCARBOROUGH OFFSHORE PROJECT PROPOSAL CONSULTATION REPORT

Appendix M – Scarborough OPP Formal Consultation Report

Scarborough – Offshore Project Proposal

Name	Organisation	Email address	Key comment(s) on proposal (summarised where lengthy comment has been made) - including any objections or claims	Woodside assessment of merit of comment(s) and response to comment(s)	Changes made to the OPP in response to comment(s)
1	Murujuga Aboriginal Corporation (MAC)		<p><i>"The Murujuga Aboriginal Corporation (MAC) as the approved body corporate for the Burrup and Maitland Industrial Estates Agreement (BMIEA), respectfully requests a two-week extension to allow us time to prepare and finalise a submission on the Scarborough Offshore Project Proposal.</i></p> <p><i>MAC is typically reliant on pro bono support to review documents such as this proposal, so we are not able to always respond as quickly as we would like. I should add that we are broadly supportive of the proposed Burrup Hub project and do not seek to unnecessarily delay the process.</i></p> <p><i>If our request for an extension until the 13th of September 2019 can be granted, it would be most appreciated by MAC's members who are the cultural custodians of the land and waters which could potentially be impacted by this proposal."</i></p>	<p>On the afternoon that the OPP public comment period closed on 30 August 2019, the Murujuga Aboriginal Corporation (MAC) lodged a request for a two-week extension to comment on the OPP. In response to this request, Woodside's Indigenous Affairs Manager met with MAC's CEO on 2 September 2019. Woodside explained the proposed Scarborough development area and asked whether there was a specific issue MAC had wished to raise. While MAC advised of its intention to make comment on the Dredging and Spoil Disposal Management Plan required by the Western Australian Environmental Protection Authority as part of its assessment of the proposed development, MAC responded that it did not have any particular concerns about the OPP. MAC further advised, the intention for requesting an extension was to reserve its right to comment, if necessary. Consequently, MAC was advised it would be unlikely Woodside would support an extension and MAC confirmed it would accept a decision not to extend the comment period. No further action was recorded.</p> <p>Woodside notes MAC's purpose is to administer the Burrup and Maitland Industrial Estate Agreement (BMIEA) on behalf of Traditional Owner "contracting parties". We further note that the organisation is the representative for joint management of the Murujuga National Park. MAC receives annual funding from Woodside under the BMIEA Agreement to carry out its specific cultural obligations and responsibilities including input on regulatory approvals. Annual payments in direct benefits are made under the BMIEA (annual lease payment) in addition to Conservation Agreement funds for MAC Rangers other direct financial support provided for related programs and activities.</p> <p>Woodside will continue to work with MAC and Traditional Owner representatives as the proposed Scarborough development is progressed.</p>	<p>Record of this engagement has been added to Table 10.5 ('Phase 2 stakeholder consultation activities').</p>
2	Environmental Defenders Office (on behalf of CCWA)		<p>Comments have been compiled by the EDO on behalf of CCWA. The key issues are summarised below according to the EDO submission section.</p>	<p>Subsections of the submission are addressed below.</p>	<p>Subsections of the submission are addressed below.</p>
2.1	Environmental Defenders Office (on behalf of CCWA)		<p>Background Contains statements about the proposal from the OPP.</p>	<p>The statements about the project reflect information in the OPP and do not require a response.</p>	<p>The statements about the project reflect information in the OPP and do not require amendment of the document.</p>
2.2	Environmental Defenders Office (on behalf of CCWA)		<p>Impact of GHG Emissions (summary section) (EDO submission sections 6-14) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the OPP fails to manage the impacts/risks of the Proposal's GHGe to a level that is acceptable in accordance with the established science of climate change, the EPBC Act or Australia's international obligations under the Paris Agreement the OPP and the above controls are insufficient to manage the impacts and risks of the Proposal's GHGe to an acceptable level or as low as reasonably practicable (ALARP) changes to the OPP are required to sufficiently manage impacts and risks of Greenhouse Gas emissions (GHGe); and 	<p>The themes raised in this summary section of the submission are covered in more detail in subsections of the submission. Responses to each subsection are provided below.</p>	<p>The themes raised in this summary section of the submission are covered in more detail in subsections of the submission. Changes to the OPP relevant to each subsection are described below.</p>

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Revision: 3

Page 911 of 919

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Scarborough – Offshore Project Proposal

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			<ul style="list-style-type: none"> discussion of risk to Murujuga rock art and controls are included and changes to the OPP are required to sufficiently manage risk. 		
2.3	Environmental Defenders Office (on behalf of CCWA)		<p>Insufficient Management and Regulation of Impacts of GHGE to Acceptable Level (EDO submission sections 15-23) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> national GHG regulation, Woodside's Climate Change Policy and WA EPA Public Environment Review (PER) documentation do not adequately regulate or manage GHG to acceptable levels. The Pluto PER documentation is outdated and does not consider processing of Scarborough Gas at Pluto Train 2, and it is therefore inappropriate to rely on this to evaluate and manage scope 2 and 3 emissions. a fresh Commonwealth assessment of risks and impacts associated with processing Scarborough gas through Pluto to be undertaken; and the OPP be amended to include details of additional GHG emitted from processing through the Pluto LNG and introduction of specific control measures that achieve net zero emissions. 	<p>The Paris Agreement represents global consensus on controls to limit anthropogenic climate change to an acceptable level. The Australian Government has ratified the Paris Agreement and implemented policy mechanisms as described in Section 3.4.1 (which has been added to provide further detail).</p> <p>Compliance with Australian legislation, as described in Sections 3.4.1 and 6.5 ensures that GHGe from the Project will be acceptable by keeping GHGe at or below the emissions baselines set by the Clean Energy Regulator or dealing with any excess emissions accordingly.</p> <p>As described in the OPP, raw product from the Scarborough Project will be processed at the onshore Pluto LNG facility. Existing environmental approvals for the Pluto LNG facility already include processing emissions for a second train and scope 3 emissions associated with sold product. Figure 7.6 has been added to section 7.1.3 of the OPP to better illustrate how related onshore processing emissions are considered in the existing approved Pluto PER.</p> <p>Pluto is required to have in place management plans including a Greenhouse Gas Abatement Program developed to address the requirements of Ministerial Statement 757, which ensures ongoing regulatory oversight. The Pluto approvals process is out of scope for the OPP.</p>	<p>Section 3.4.1 ('Greenhouse Gas Legislation') has been added, which describes Australian GHG legislation.</p> <p>A statement in the second paragraph of section 6.2.3 ('Risk Assessment – Environmental Legislation and other requirements') has been added about Australia's ratification of the Paris Agreement as a relevant international standard.</p> <p>Paragraph six has been added to Section 6.5 ('Environmental Performance Outcomes and Acceptable Levels') to link Australia's implementation of the Paris Agreement via legislation to the acceptability of the project.</p> <p>The part of section 7.1.3 (Planned Aspects – Routine Greenhouse Gas Emissions) describing related onshore processing emissions has been expanded, including incorporation of updated assumptions relating to scope 3 emissions.</p> <p>Discussion of risks and impacts associated with climate change, including change in habitats, fauna behaviour, injury/mortality to fauna, and social changes has been added in section 7.1.3.8</p>
2.4	Environmental Defenders Office (on behalf of CCWA)		<p>Total Lifecycle GHGe Should be Considered and Managed (EDO submission sections 24-30) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the Pluto PER process did not assess and approve Scope 3 emissions and proposes amendment of the OPP to include details and management of total lifecycle GHG, including risk and impact to the environment and rock art using the best available climate science. 	<p>As described in the OPP, raw product from the Scarborough project will be processed at the onshore Pluto LNG facility. Existing environmental approvals for the Pluto LNG facility already include processing emissions for a second train and scope 3 emissions associated with sold product. Figure 7.6 has been added to section 7.1.3 of the OPP to better illustrate how related onshore processing emissions are considered in the existing approved Pluto PER.</p>	<p>The part of section 7.1.3 (Routine Greenhouse Gas Emissions) describing indirect GHG emissions has been updated to include a reference to where in the Pluto PER lifecycle emissions are included and recalculation of scope 3 emissions attributed to Scarborough with updated assumptions.</p> <p>The new sections 7.1.3.3 (Lifecycle and Intensity) and 7.1.3.4 (Natural Gas in the Context of Global Emissions) have been added to more comprehensively explain how</p>

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Controlled Ref No: SA0006AF00000022

Revision: 3

Page 912 of 919

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Scarborough – Offshore Project Proposal

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					Scarborough fits into a decarbonising global economy. Discussion of risks and impacts associated with climate change, including change in habitats, fauna behaviour, injury/mortality to fauna, and social changes has been added in section 7.1.3.8
2.5	Environmental Defenders Office (on behalf of CCWA)		<p>Cumulative Impacts Should be Considered and Managed (EDO submission sections 31-44) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the OPP does not adequately consider the impacts of the broader Burrup Hub, including cumulative impacts. given the decision to assess the Burrup Hub projects individually, the cumulative emissions from the proposal should be considered in context of the other projects and global GHG. There are multiple cases which identify that small incremental increases to emissions as contribute to a broader global impact. 	<p>Burrup Hub is Woodside's vision to develop an integrated regional LNG production centre on the Burrup Peninsula. The Burrup Hub is not a proposal for a single activity for impact assessment; it describes Woodside's vision of several separate but related activities that, subject to respective joint venture approvals and relevant regulatory approvals, may be undertaken. The current allocation of approvals between jurisdictions has been established with all relevant regulatory bodies.</p> <p>As described in the OPP, the contribution of the Scarborough floating petroleum unit (FPU) to Australian and global GHGe is very low. Attempting to model the impact on global climate change is not feasible, and similarly it is not practical to describe associated risk to global receptors.</p>	<p>Woodside has determined that the approvals approach in place for the individual Burrup Hub activities are adequate and no changes were made to the document.</p>
2.6	Environmental Defenders Office (on behalf of CCWA)		<p>Net Zero Emissions Outcome Should be Applied as Environmental Performance Outcome (EDO submission sections 45-54) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the environmental performance outcomes described in the OPP are insufficient to achieve acceptability for GHG emissions, and that a "net zero" performance outcome should be adopted, stating that this should be the fundamental test for environmental acceptability. by reference to the DOE Report for the Prelude FLNG Facility (2010), the project should result in no net increase in Australia's GHG emissions, and the IPCC Special Report on Global Warming statement has established that global GHG must achieve net zero by 2050 to avoid global warming above 1.5°C is relevant. a carbon budget approach is appropriate and proposes that internationally agreed science has established that the amount of emissions allowable to maintain a safe climate has already been exceeded and therefore all future developments should achieve net zero GHG emissions. the project requires implementation of technologies such as renewables, all-electric design or carbon capture and storage, or offsets. 	<p>Achieving "net zero" GHGe abatement goes beyond the Climate Change Authority's recommendation to achieve that outcome by 2050. The Australian Government has established a 26-28% emissions reduction target by 2030 and the Paris Agreement encourages Australia to submit a new target by 2025. The State of Western Australian Government has also set an aspiration to achieve net zero emissions by 2050. Woodside's climate policy encourages government to set targets based on climate science.</p> <p>Acceptability for Scarborough project GHGe is achieved by actions taken to achieve compliance with Australian legislation which implements the Paris Agreement by keeping GHGe at or below the emissions baselines set by the Clean Energy Regulator or dealing with any excess emissions accordingly. Further details are provided within the response to 15-23 (Item 2.3).</p>	<p>Section 3.4.1 ('Greenhouse Gas Legislation') has been added, which describes Australian GHG legislation.</p> <p>A statement in the second paragraph of Section 6.2.3 ('Risk Assessment – Environmental Legislation and other requirements') has been added about Australia's ratification of the Paris Agreement as a relevant international standard. A new section 7.1.3.5 (Customer Commitments under the Paris Agreement) has been included to provide examples of how Scope 3 emissions from Scarborough will fit within the international agreement.</p> <p>Paragraph six has been added to section 6.5 ('Environmental Performance Outcomes and Acceptable Levels') to link Australia's implementation of the Paris Agreement via legislation to the acceptability of the project.</p> <p>The new sections 7.1.3.3 (Lifecycle and Intensity) and 7.1.3.4 (Natural Gas in the Context of Global Emissions) have been added to more</p>

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 913 of 919

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Scarborough – Offshore Project Proposal

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					comprehensively explain how Scarborough fits into a decarbonising global economy.
2.7	Environmental Defenders Office (on behalf of CCWA)		<p>Energy Efficiency Measures Insufficient to Manage Impacts of GHGe to Acceptable Level (EDO submission sections 55-58) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the energy efficiency measures listed in the OPP (allowance for battery energy storage system, waste heat recovery unit, gas-gas exchanger, flow coated trunkline, turbine and equipment selection) are not sufficient to achieve the current environmental performance outcome of reducing GHGe to ALARP and Acceptable Levels because there is no inclusion of control measures to avoid, reduce or offset the Proposal's GHG emissions. 	The energy efficiency measures presented in section 4.5.4.1 reflect the design decisions taken to date based on ALARP principles. Demonstrations that greenhouse gas emissions have been reduced to ALARP levels in future design decisions will be submitted to NOPSEMA for approval as part of the regular Environment Plan process which will follow approval of this OPP.	A new section in the Assessment of Alternatives section (4.5.4.1 – Energy Efficiencies) has been added to describe measures implemented to date in design phase. A new section 7.1.3.6 (Greenhouse Gas Management and Mitigation) has been added to describe relevant controls in a hierarchy, including these design features but also how GHG emissions will be managed during operations.
2.8	Environmental Defenders Office (on behalf of CCWA)		<p>Specific Control Measures Required to Manage Impacts of GHGe to Acceptable Level (EDO submission sections 59-64) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the OPP does not refer to any specific control measures to manage impacts or avoid, reduce or offset. DOE report on Prelude is cited in reference to required measures and offsets that result in no net increase to Australia's CO₂ emissions. the OPP should consider LNG projects (Kitimat, Gorgon) that are employing renewable energy and carbon capture storage for management of GHG to an acceptable level. 	The environmental performance outcomes in the OPP are designed to ensure that the risks and impacts associated with the project are acceptable. Compliance with the safeguarding mechanism will ensure that emission reductions implemented through the Emissions Reduction Fund (ERF) are not offset or exceeded by significant GHG emissions (above 'business-as-usual levels') emanating from other industrial or economic sectors. The safeguarding mechanism includes a framework to offset emissions if necessary for compliance.	Section 3.4.1 ('Greenhouse Gas Legislation') has been added, which describes Australian GHG legislation. A statement in the second paragraph of section 6.2.3 ('Risk Assessment – Environmental Legislation and other requirements') has been added about Australia's ratification of the Paris Agreement as a relevant international standard.
2.9	Environmental Defenders Office (on behalf of CCWA)		<p>Reporting Under NGER Act Insufficient to Manage Impacts of GHGe to Acceptable Level (EDO submission sections 65-69) *</p> <p>Submits that voluntary public reporting should be implemented that includes facility level GHG data, including Scope 3, performance on managing GHG to acceptable and ALARP, publish through a government hosted portal and include data on offsets.</p>	The NGER Act requires the Clean Energy Regulator to publish facility level emissions on an annual basis for facilities subject to the Safeguard Mechanism, including the use of Australian Carbon Credit Units. Additionally, Woodside also currently voluntarily participates in the Carbon Disclosure Project which includes publishing scope 3 emissions data at an equity, portfolio level.	Woodside considers that GHG emissions reporting is adequately described in the document and no changes were made. The new sections 7.1.3.3 (Lifecycle and Intensity) and 7.1.3.4 (Natural Gas in the Context of Global Emissions) have been added to more comprehensively explain how Scarborough fits into a decarbonising global economy. A new section in the Assessment of Alternatives section (4.5.4.1 – Energy Efficiencies) has been added to describe measures implemented to date in design phase. A new section 7.1.3.6 (Greenhouse Gas Management and Mitigation) has been added to describe relevant controls in a hierarchy, including these design features but also how GHG emissions will be

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Controlled Ref No: SA0006AF00000022

Revision: 3

Page 914 of 919

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Scarborough – Offshore Project Proposal

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					managed during operations and reporting.
2.10	Environmental Defenders Office (on behalf of CCWA)		<p>Argument that LNG Displaces Emission Intensive Fuels Not Substantiated (EDO submission sections 70-79) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the statement that LNG is able to displace higher carbon intensity fossil fuels and complements renewables is not valid because it is not aligned with market mechanics and fails to consider policy trends and global market transition away from fossil fuels; and the Proponent must produce proof that the claim is substantiated and backed with credible evidence, data from customer countries and robust reporting of Scope 3 GHG emissions. 	<p>Woodside acknowledges that the effect of LNG exports on global GHGe is complex and subject to market mechanisms. However, it does have the potential to play a role in displacing higher carbon intensity fossil fuels and complementing renewables. In 2019, the International Energy Agency concluded that gas use has resulted in over 500 MCO₂e emissions savings since 2010, where it had displaced coal power. Providing clean burning LNG as a power source can displace higher emissions energy sources in transport and power generation and provide firming capacity for renewable energy sources in a growing global economy.</p>	<p>The new sections 7.1.3.3 (Lifecycle and Intensity) and 7.1.3.4 (Natural Gas in the Context of Global Emissions) have been added to more comprehensively explain how Scarborough fits into a decarbonising global economy.</p>
2.11	Environmental Defenders Office (on behalf of CCWA)		<p>Impact on Rock Art (EDO submission sections 80-86) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the OPP does not contain details of risk and impact of the project and related Burrup Hub on Murujuga rock art, or any control measures. includes reference to NOx and CO₂ from the proposal over estimated 2070 life of field and refers to controls for French cave paintings which include mitigation of CO₂ from tourists' breath. 	<p>The effective management of Aboriginal cultural heritage is critical to Woodside's continued operations and growth success.</p> <p>Woodside's preferred development concept is to transport gas from the Scarborough fields through a pipeline for processing at the Woodside operated onshore Pluto LNG Facility. Emissions from the Pluto LNG Facility will remain within the impact envelope of the existing approval for that facility. Woodside has contributed to air monitoring studies of the Burrup Peninsula since 2008 and our approach to emissions management practices has been informed by third-party studies including the work undertaken by the Burrup Rock Art Monitoring Management Committee. Woodside's approach to protection of rock art on the Burrup Peninsula is further informed by our relationship with the Murujuga Aboriginal Corporation and Traditional Owners and takes into account their vision for the protection and management of cultural heritage. Woodside is also playing an active and productive role in the Department of Water and Environmental Regulation's Burrup Rock Art Stakeholder Reference Group, established in 2018.</p> <p>Woodside will continue to focus on emissions reductions from all its operations and support appropriate scientific air emissions monitoring.</p>	<p>Woodside considers potential measures described in this comment to be outside the scope of the OPP. As indicated in the response to this comment, Woodside will continue to work with stakeholders on this issue through the appropriate mechanisms.</p>
2.12	Environmental Defenders Office (on behalf of CCWA)		<p>Control Measures to Manage Impacts on Rock Art Required (EDO submission sections 87-91) *</p> <p>It is submitted that:</p> <ul style="list-style-type: none"> the OPP must include control measures for managing the impacts/risks on rock art and proposes a precautionary approach in context of UNESCO World Heritage nomination for the Burrup Peninsula. 	<p>Woodside supports the decision of Traditional Owners and the State to pursue World Heritage listing for the Burrup Peninsula. This support reflects our commitment to the successful co-existence of heritage and industry. In this context, Woodside also supports the reinstatement of ambient air quality monitoring on the Burrup Peninsula and is working with stakeholders including Traditional Owners and the State on the preferred monitoring options and approach.</p>	<p>Woodside considers potential measures described in this comment to be outside the scope of the OPP. As indicated in response to a related comment above, Woodside will continue to work with stakeholders on this issue through the appropriate mechanisms.</p>
3	Western Gas		<p>It is suggested that in relation to Woodside's statement in the OPP that it is engaging other resource owners on future development opportunities (section 4.1) these opportunities should be included as alternate development options in the OPP.</p>	<p>The OPP currently identifies the Equus development as a future proposal in section 5.7.6. This section has been further updated to show the location of the Equus fields in Figure 5-57 and notes the proposed project in Table 5-11.</p> <p>As per Table 10.5 Woodside has held a series of consultations with Western Gas with regards to alternate development concepts. The merits of these concepts were subject to internal assessment processes and were considered unsuitable for the current development timeline. Details of this assessment process were communicated to</p>	<p>Updates have been made to section 5.7.6 ('Description of the Environment – Industry') and consultation has been added to the table in section 10.4.2 ('Formal OPP Consultation').</p>

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Revision: 3

Page 915 of 919

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Scarborough – Offshore Project Proposal

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				Western Gas along with a commitment to consider future opportunities for cooperation including tie-backs. This consultation has been added to the table in section 10.4.2.	
4	Anonymous		<p><i>"It is clear reviewing all combined impacts from the Scarborough project that offsetting residual impacts (e.g. on protected matters impacted including but not limited to pygmy blue whales, other whales/cetaceans, seabirds, whale sharks, turtles, commonwealth marine area) should occur because the project is not delivering net biodiversity benefit.</i></p> <p><i>In addition, cumulative impacts of the O&G industry operating on the NW shelf should be taken into account here i.e. considering what's there already and what is planned to come and what may reasonably be expected to come in future, the cumulative impacts on the MNES of the marine environment are nothing short of significant.</i></p> <p><i>EPBC policy and international impact assessment process (hierarchy of control) requires offsets to be considered in such circumstances which result in a net biodiversity benefit from the project.</i></p> <p><i>Note, I don't think like for like offsets are appropriate or required in the case of Scarborough, however there should be a strong case of indirect offsets which add value to the broader region from a biodiversity perspective.</i></p> <p><i>Implementing this will ensure the impact assessment follows EPBC policy (http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy) and is consistent with international practice for impact assessment (see bottom of page 16 https://www.unepfi.org/fileadmin/documents/biodiversity_offsets.pdf and principle 7 of https://www.iaia.org/uploads/pdf/SP3%20Biodiversity%20Ecosystem%20Services%2018%20Jan.pdf).</i></p> <p><i>These standards, and many more like them apply to setting the acceptable levels of impact of the project as a whole - no net loss of biodiversity."</i></p>	<p>The Australian Government's <i>Environmental Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, October 2012</i>, refers to 'environmental offsets' as measures that compensate for all residual adverse impacts of an action on the environment. The policy states that for assessments under the EPBC Act, offsets are only required if residual impacts are significant, with significance to be as defined in the <i>Matters of National Environmental Significance (MNES) – Significant impact guidelines 1.1</i>.</p> <p>The residual impacts of Scarborough to all MNES has been assessed to not be significant under the significant impact guidelines.</p> <p>In terms of cumulative impacts, in section 8.2.2 ('Receptor-based Cumulative Impacts'), the cumulative impacts from Pluto, Equus, Fisheries and Shipping were assessed, and it was identified that the aspects that were common to those activities related to vessel movements (i.e. physical presence – displacement, light emissions and vessel discharges). Cumulative assessment has been undertaken which indicates that residual impacts to species (including MNES) are low.</p>	A seventh paragraph was added to section 6.2.3 ('Risk Assessment – Environmental Legislation and other requirements') which describes obligations under the <i>Environmental Protection and Biodiversity Conservation act 1999 Environmental Offsets Policy</i> .
5	Possible Spam	eupoqala@eerr.namnerbca.com	Spurious web link provided.	Comment appears to be spam. This comment is not relevant and has not been addressed further.	No changes made to the document.
6	Possible Spam	eupoqala@eerr.namnerbca.com	Spurious web link provided.	Comment appears to be spam. This comment is not relevant and has not been addressed further.	No changes made to the document.
7	Private		<i>"Great to see another project in the planning. W/A and communities like Exmouth need these projects to go ahead to create secure long-term jobs."</i>	Woodside is pleased to note that independent economic modelling indicates its Burrup Hub proposals, of which Scarborough is a key component, will support the creation of an average 4,000 full-time equivalent jobs per annum nationally over a 40-year time-frame. Almost half of these will be located in northern Western Australia.	Woodside considers that no modification to the document is necessary.
8	Anonymous		<i>"It's great to see these projects going ahead and delivering much needed employment opportunities and opportunities for local businesses under the company's local content policy. In particular the Exmouth community has suffered from all this activity happening offshore for many years now yet very little economic benefit to the town or meaningful contracts for the town and its community. "</i>	Woodside welcomes community support for the proposed development of the Scarborough gas field and will work with communities to identify opportunities for local content and employment.	Woodside considers that no modification to the document is necessary.

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Controlled Ref No: SA0006AF0000022

Revision: 3

Page 916 of 919

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Scarborough – Offshore Project Proposal

Name	Organisation	Email address	Key comment(s) on proposal (summarised where lengthy comment has been made) - including any objections or claims	Woodside assessment of merit of comment(s) and response to comment(s)	Changes made to the OPP in response to comment(s)
			"Get it going as soon as possible and push as much work through Exmouth as practicable. Don't let the loud voices of the minorities drown out the support of the silent majority. The Exmouth community wants it and it is in line with the shire council's strategic plans."		
9	Private		"The Scarborough development proposal is an excellent opportunity for further expansion of Australia's gas resource potential. This development should be fully endorsed by all Australians for the benefit of all Australians."	Woodside is pleased to note that independent economic modelling indicates its Burrup Hub proposals, of which Scarborough is a key component, will boost Australia's Gross Domestic Product by \$414 billion between now and 2063 while tax and royalties payments are estimated to total \$82 billion.	Woodside considers that no modification to the document is necessary.
10	Private		"What capping plan is in place to meet highest risk i.e. a spill results from a leaking well? We know from Macondo failings majority of loss / risk resulted from spill. Why has little been done by operators / regulators to assure that a faster safer capping system is not in place for offshore projects, i.e. a system designed around a Xmas tree that can be kept on site in the field to be able to respond to cap and kill a well in hrs vs days or weeks of spillage that could result to meet worst case needs? There are systems available; e.g. Abel Engineering well control specialists etc. Why is such a safer better cheaper faster response system not to be used?"	The OPP process, is in place to allow the regulator to make an assessment of the environmental acceptability of proposed offshore projects. Following OPP acceptance, activity specific Environment Plans (EPs) (and other permissioning documents such as Well Operations Management Plans (WOMPs) will be required to be prepared and accepted. Broadly, the purpose of EPs will be for the titleholder to confirm that the impacts and risks are within the scope of that accepted under the OPP, and to identify the control measures that will manage the impacts and risks ALARP. The EP will describe the level of performance for these control measures during activities and including emergency situations. An emergency response plan which identifies source control options including capping systems, will be developed and submitted as a part of the activity's EPs. At this stage of the approval process, there will be consideration of source control methods and technology in order to demonstrate that the impacts and risks will be managed to ALARP levels. Hydrocarbons of the Scarborough, Jupiter and Thebe reservoirs contain no measurable liquid condensate fraction. It is therefore expected that there would be no, or negligible, liquid component in a loss of containment scenario. In the event of a loss of well control, the response strategy detailed in the EP will be based on the risk, and the properties of the released hydrocarbons.	On review of the merit of this comment, Woodside considers that the concern raised is adequately addressed and no modification to the document is required.
11	Private		"I think that this project should go ahead with the caveat that cheaper gas is made available for Western Australia. What would be even better is that the AU government develops the fields, undertake all production and distribution / sales of LNG. That way Australia would have a sustainable income for years to come. Not only that all future exploration and development of fields should be under the control of the Australian government not a foreign government or company. With this then could be the Australian engineering rig/ship building capability to ensure jobs and growth for Australia."	Woodside is proposing to expand the Pluto LNG facility to process Scarborough gas and work is underway on the design of a domestic gas plant at Pluto to facilitate supply to Western Australia. As an Australian company, Woodside has a proud history of developing resources and delivering long term benefits to the country. Independent economic modelling indicates tax and royalties payments from the proposed Burrup Hub projects will add up to \$82 billion. Woodside has also developed an Australian Industry Participation Plan for the proposed Scarborough development. This plan has been approved by the Australian Government and is designed to maximise opportunities for Australian businesses.	Woodside considers that no modification to the document is necessary.

*EDO's comments have been summarised and grouped in accordance with section headers provided in EDO's submission.

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Revision: 3

Page 917 of 919

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END NOTES

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APPENDIX G: PROGRAM OF ONGOING ENGAGEMENT WITH TRADITIONAL CUSTODIANS

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Page 740 of 752

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Proposed Program of Ongoing Engagement with Traditional Custodians

This Program of Ongoing Engagement with Traditional Custodians ("Program") has been developed to demonstrate Woodside's commitment to ongoing engagement and support of Traditional Custodians' capacity to care for and manage Country, including Sea Country, and has been directly informed by Traditional Custodians' feedback regarding their capacity to engage and consult on Environment Plans.

It is a living document designed to evolve with ongoing consultation and feedback from Traditional Custodians and, at a minimum, will be subject to annual review. In addition to this Program, Woodside will continue to participate in, and support collective industry engagement with Traditional Owners on the development of a future, sustainable, industry wide Program. Through the Program, Woodside actively supports Traditional Custodians' capacity for, and involvement in, ongoing engagement and feedback on environment plans.

The Program has been developed so that Traditional Custodians can, on an ongoing basis, provide Woodside with feedback relating to the possible consequences of an activity to be carried out under an environment plan on their functions, interests and activities as they relate to cultural values. This feedback will be evaluated in conjunction with Traditional Custodians and, where necessary, avoidance or mitigation strategies will be developed in collaboration with Traditional Custodians. How the Program is implemented with specific Traditional Custodians will depend on their stated needs and priorities.

The Program is underpinned by Woodside's First Nations Communities Policy (woodside.com), the objective of which is to ensure Woodside partners and engages with First Nations communities to create positive economic, social and cultural outcomes that leave a lasting legacy. Woodside does this through building respectful relationships and partnerships with First Nations communities where we are active, in the areas where they are most interested in. We acknowledge the unique connection that First Nations communities have to land, waters and the environment.

The Program will include, as agreed with relevant communities, reasonable commitment to:

1. Support for ongoing dialogue and engagement

Woodside will support the capacity of Traditional Custodians to participate in ongoing dialogue and engagement about the environment plans and to enable the ongoing and future identification of cultural values potentially impacted by Woodside's activities. Woodside further commits to agreeing consultation protocols with individual Traditional Custodians to ensure the material provided is appropriate in level of detail such that the potential for cultural impact from Woodside activities can be determined and as required measures can be adopted to avoid or minimise impact.

In addition, Woodside will receive feedback on cultural values from an individual person or organisation that identifies as a Traditional Custodian, at any stage during the development and implementation of activities. This feedback will be evaluated, in conjunction with the Traditional Custodian individual or group and if required, control measures will put in place to avoid impacts to cultural values, or where avoidance is not possible, to minimise and mitigate the impacts to an acceptable level.

Where cultural values are identified post activity completion, any controls relevant to value management will be implemented during the next relevant activity.

2. Support for the identification and recording of cultural features

Woodside will support Traditional Custodians to record and articulate their Sea Country values and will invest in cultural assessments codesigned with Traditional Custodians, where required, to inform potential risks to cultural values from our petroleum activities.

This may include supporting cultural mapping by Traditional Custodians to identify and map significant cultural features including archaeological sites and other cultural values. The scoping of the mapping process will be codesigned with Traditional Custodians.

Woodside understands that cultural knowledge remains the intellectual property of Traditional Custodians and will agree with Traditional Custodians at the outset how that information from surveys will be used to feedback into and inform the environment plan's design and implementation.

In addition, Woodside applies the Cultural Heritage Management Procedure 2019, updated in 2023, to the Program which:

- provides a process for the identification, protection, and management of Cultural Heritage taking into account relevant standards, in particular, the United Nations Declaration on the Rights of Indigenous Peoples, the Charter for the Protection and Management of the Archaeological Heritage, the Convention for the Safeguarding of the Intangible Cultural Heritage, and the Convention on the Protection of the Underwater Cultural Heritage;
- applies to underwater cultural heritage and, consistent with current practice, provides for the commissioning of (where appropriate) both archaeological and ethnographic assessments of cultural values over the submerged landscape; and
- the process includes the following:
 - early engagement with relevant Traditional Custodians
 - identification of potential heritage, this could include desktop and field surveys undertaken with the Traditional Custodians.
- the development of cultural management strategies; and, where it is determined cultural heritage may be impacted, the development of Cultural Heritage Management Plans codesigned with Traditional Custodians and implemented by Woodside's First Nations team which:
 - focus on avoidance or minimisation of impacts; and
 - provide regular reviews and for inclusion of new information and further development of the Cultural Heritage Management Plan.

Woodside is committed to continue to receive feedback on cultural values for the life of an environment plan, the inclusion of new information and the development of avoidance or mitigation strategies in collaboration with Traditional Custodians. This information will be recorded via the Woodside Management of Knowledge Process and any potential impacts to the accepted Environment Plan evaluated via the Woodside Management of Change Process.

3. Building capacity for the ongoing protection of country

Woodside will support measures to increase the capability and capacity of the Traditional Custodian groups. This is guided by Woodside's Indigenous Affairs Strategy 2019 ("Strategy"), which is designed to enable the building and maintaining of relationships with Traditional Custodians to leave a lasting legacy, including strengthening of Traditional Custodians' capacity to care for and manage Country, including Sea Country. The Strategy was developed with inputs from Traditional Custodians and contains four pillars that direct Woodside's social investment, policies relating to economic development, procurement and employment, and Woodside's agreement making and implementation of agreements. The pillars are:

1. Culture and Heritage Management: support social outcomes through protection, recognition and respect for culture and heritage;
2. Economic Participation: provide training, jobs, and business opportunities;

3. Capability and capacity: ensure strong corporate governance, leadership development and education initiatives to support self-determination; and
4. Safer and Healthier Communities: partner with Aboriginal people and service providers to maximise safer and healthier community outcomes.

Woodside is committed to an ongoing relationship between Woodside and the Traditional Custodian groups. Through consultation with Traditional Custodians Woodside will continue to:

- establish support for Indigenous ranger programs via social investment;
- establish support for Indigenous oil spill response capability via investigating training models;
- establish support for identification and recording of cultural values and the management of that information by Traditional Custodians;
- establish support for programs identified by the Traditional Custodians as important to them and as agreed by Woodside.

4. Support for capacity and capability in relation to governance

Pillar 3 of the Indigenous Affairs Strategy 2019 focuses on ensuring strong corporate governance, leadership development and education initiatives to support self-determination. To enable this, Woodside will support measures to increase the capability and capacity of the Traditional Custodian groups, including in relation to governance and management systems.

The nature of this support will be informed by the individual needs of Traditional Custodian groups, but may include:

- funding or other support for community meetings, particularly where consultation with representative bodies lies outside of that body's core business and cultural authority or mandate needs to be secured,
- resourcing internal expertise so that information is managed consistently and internally, including ensuring appropriate record keeping of consultation to provide stakeholders with a lasting record of discussions, and
- development or upgrade of IT systems to manage information.

5. Program Reporting and Review of Effectiveness

Woodside will undertake an annual review of the Program to assess its effectiveness and adapt the Program accordingly. The annual review will also include an assessment of appropriateness of the methods used to undertake ongoing consultation with Traditional Custodians.

Progress of the Program will be reported annually in line with annual sustainability reporting via the Woodside website.

6. Current Status

Following distribution of this proposed Program, Woodside is now participating in a number of specific ongoing consultation activities with Traditional Custodian Relevant Persons. Specific ongoing activities are tabulated below:

Traditional Custodian Relevant Person	Ongoing Consultation Description	Forward Plan	Estimated Timeframes
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	BTAC proposed a Collaboration Agreement in May 2023. Woodside agreed in principle and exchanged correspondence to understand details of the proposal. The Collaboration Agreement would enable support for BTAC to undertake an ethnographic assessment to articulate values, and ensure appropriate cost recovery.	Woodside and BTAC have executed a Costs Acceptance Letter. Woodside provided a draft Consultation Agreement to BTAC in February 2024. Discussions about the agreement are continuing.	Woodside is in regular discussions with BTAC regarding the draft proposed Consultation Agreement. Woodside continues to be guided by BTAC in relation to BTAC's capacity and priorities to finalise the agreement.
Yamatji Marlpa Aboriginal Corporation (YMAC)	In June 2023, YMAC provided Woodside a proposed draft Framework Agreement, and a proposal to fund in-house expertise to support consultation and implement the Collaboration Framework. In July 2023, Woodside agreed in principle to the proposed Collaboration Framework and the funding proposal and requested a meeting to work together on details. Woodside provided the Proposed Program of Ongoing Consultation to complement the proposed Collaboration Framework.	Woodside provided a draft Consultation Agreement to YMAC for NTGAC, who are represented by YMAC, in February 2024. Discussions about the agreement are continuing.	Woodside is in regular discussions with YMAC regarding the draft proposed Consultation Agreement. Woodside continues to be guided by YMAC in relation to YMAC's capacity and priorities to finalise the agreement.
Wirrawandi Aboriginal Corporation (WAC)	In August 2023, WAC proposed a Framework Agreement with Woodside to provide a streamlined, formalised approach to consultation between WAC and Woodside. Woodside has confirmed receipt of the proposed framework from WAC.	Woodside provided a draft Consultation Agreement to WAC in March 2024. Discussions about the agreement are continuing.	Woodside is in regular discussions with WAC regarding the draft proposed Consultation Agreement. Woodside continues to be guided by WAC in relation to WAC's capacity and priorities to finalise the agreement.
Ngarluma Aboriginal Corporation (NAC)	In September 2023, NAC proposed a Joint Working Group to practically manage consultation processes. It was proposed that the group would meet monthly for 2023 and quarterly thereafter, meetings would include NAC CEO and NAC Directors and potentially independent SME/s, the proposal was that Woodside draft a Framework Agreement, and included a request for funding for this approach. Woodside provided in-principle support for the proposal.	Woodside provided a draft Consultation Agreement to NAC in March 2024. Discussions about the agreement are continuing.	Woodside is in regular discussions with NAC regarding the draft proposed Consultation Agreement. Woodside continues to be guided by NAC in relation to NAC's capacity and priorities to finalise the agreement.
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	In a meeting during August 2023, NTGAC proposed a Framework Agreement. This included terms for ongoing engagement such as frequency of consultation, participation, and content. NTGAC has also requested Woodside provide funding for an in-house environmental scientist to review material. Woodside agreed in principle to this approach and has requested a first draft of the Framework Agreement for consideration. Woodside have agreed to pay for YMAC's in-house scientist to attend NTGAC meetings to advise NTGAC.	Woodside has been responding to queries from NTGAC regarding various Environment Plans, who have passed information provided by Woodside onto their Environmental Scientist. Woodside provided a draft Consultation Agreement to NTGAC via YMAC in February 2024. Discussions about the agreement are continuing.	Woodside is in regular discussions with NTGAC regarding the draft proposed Consultation Agreement. Woodside continues to be guided by NTGAC in relation to NTGAC's capacity and priorities to finalise the agreement.

Yinggarda Aboriginal Corporation (YAC)	In August 2023, YAC requested Woodside provide a draft Framework Agreement for their consideration. Woodside has provided a draft Framework Agreement to YAC for review.	Woodside provided a draft Consultation Agreement to YAC in March 2024. Discussions about the agreement are continuing.	Woodside is in regular discussions with YAC regarding the draft proposed Consultation Agreement. Woodside continues to be guided by YAC in relation to YAC's capacity and priorities to finalise the agreement.
Robe River Kuruma Aboriginal Corporation (RRKAC)	RRKAC have noted that they are insufficiently resourced to engage further and respond to Woodside regarding EPs. Woodside assesses that a Framework Agreement could address this.	Woodside has on several occasions written to RRKAC offering to fund consultation meetings. Woodside will offer RRKAC a Framework Agreement which will propose funding, scope of work and timeframes to assist with consultation and ongoing consultation. If RRKAC are open to the proposal, it is intended to put forward a draft Framework Agreement to RRKAC.	Woodside continues to be guided by RRKAC in relation to RRKAC's capacity and priorities relating to an agreement.
Ngarluma Yindjibarndi Foundation Limited (NYFL)	NYFL and Woodside have an existing Agreement in place which enables quarterly communication about Woodside activities. NYFL has advised they are working with other First Nations organisations and representative Bodies developing a Framework Agreement.	Woodside provided a draft Consultation Agreement to NYFL in March 2024. NYFL responded with a quote for an initial review of the draft terms of agreement. Woodside supports funding requests that are reasonable and will seek to reach agreement on a funding proposal put forward by NYFL.	Woodside is in regular discussions with NYFL regarding the draft proposed Consultation Agreement and continues be guided by NYFL in relation to its progress.
Kariyarra Aboriginal Corporation (KAC)	In September 2023 KAC proposed an agreement which would include meeting arrangements, ongoing consultations, specialist advice and contact protocols.	Woodside supports funding requests that are reasonable and will seek to reach agreement on a funding proposal put forward by KAC. Woodside agrees that a Framework Agreement is a sound tool to set out ongoing consultation with KAC, funding arrangements and social investment opportunities that KAC would want explored. Woodside provided a draft Consultation Agreement to KAC in February 2024. Discussions about the agreement are continuing.	Woodside is in regular discussions with KAC regarding the draft proposed Consultation Agreement and continues be guided by KAC in relation to its progress.

APPENDIX H: OIL SPILL PREPAREDNESS AND RESPONSE MITIGATION ASSESSMENT

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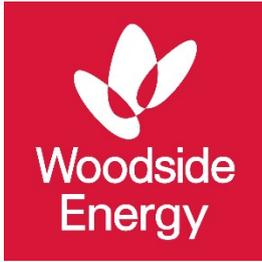
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Page 741 of 752

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Oil Spill Preparedness and Response Mitigation Assessment for Scarborough Offshore Facility and Trunkline Operations Environment Plan

Corporate HSE

Hydrocarbon Spill Preparedness

June 2024

Revision 0

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Woodside ID: 1401801230

Page 2 of 163

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	8
1 INTRODUCTION	11
1.1 Overview.....	11
1.2 Purpose	11
1.3 Scope	11
1.4 Oil spill response document overview	11
2 RESPONSE PLANNING PROCESS.....	16
2.1 Response planning process outline	18
2.1.1 Response Planning Assumptions.....	19
2.2 Environment plan risk assessment (credible spill scenarios).....	20
2.2.1 Hydrocarbon characteristics.....	24
2.3 Hydrocarbon spill modelling	24
2.3.1 Stochastic modelling.....	25
2.3.2 Deterministic modelling.....	25
2.3.3 Response planning thresholds for surface and shoreline hydrocarbon exposure	25
2.3.4 Spill modelling results	30
3 IDENTIFY RESPONSE PROTECTION AREAS.....	32
3.1 Identified sensitive receptor locations	33
3.2 Identify Response Protection Areas	33
4 NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)	36
4.1 Pre-operational / Strategic NEBA.....	37
4.2 Stage 1: Evaluate data.....	37
4.2.1 Define the scenario(s).....	37
4.3 Stage 2: Predict Outcomes	37
4.4 Stage 3: Balance trade-offs.....	37
4.5 Stage 4: Select Best Response Options	37
4.5.1 Determining potential response options	37
5 HYDROCARBON SPILL ALARP PROCESS	42
5.1 Operational Monitoring.....	44
5.1.1 Response need based on predicted consequence parameters.....	44
5.1.2 Environmental performance based on need.....	45
5.2 Source Control via Vessel SOPEP	47
5.2.1 Environmental performance based on need.....	47
5.3 Source control and well intervention	48
5.3.1 Response need based on predicted consequence parameters.....	48
5.3.2 Environmental performance based on need.....	50
5.4 Shoreline Protection and Deflection	52
5.4.1 Response need based on predicted consequence parameters.....	52
5.4.2 Environmental performance based on need.....	53

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5.5	Shoreline Clean-up	55
5.5.1	Response need based on predicted consequence parameters	55
5.5.2	Environmental performance based on need	60
5.6	Oiled wildlife response (including hazing)	62
5.6.1	Response need based on predicted consequence parameters	62
5.6.2	Environmental performance based on need	67
5.7	Waste Management	68
5.7.1	Response need based on predicted consequence parameters	68
5.7.2	Environmental performance based on need	69
5.8	Scientific monitoring	70
5.8.1	Scientific Monitoring Deployment Considerations	72
5.8.2	Response planning assumptions	72
5.8.3	Summary – scientific monitoring	74
5.8.4	Response planning: need, capability and gap – scientific monitoring	74
5.8.5	Environmental performance based on need	75
5.9	Incident Management System	77
5.9.1	Incident action planning	77
5.9.2	Operational NEBA process	77
5.9.3	Consultation process	77
5.9.4	Environmental performance based on need	78
5.10	Measurement criteria for all response techniques	79
6	ALARP EVALUATION	83
6.1	Operational Monitoring – ALARP Assessment	83
6.1.1	Operational Monitoring – Control Measure Options Analysis	83
6.1.2	Selected Control Measures	84
6.2	Source Control via Vessel SOPEP – ALARP Assessment	85
6.2.1	Source Control via Vessel SOPEP – Control Measure Options Analysis	85
6.2.2	Selected control measures	85
6.3	Source Control – ALARP Assessment	86
6.3.1	ROV Intervention	86
6.3.2	Debris clearance and/or removal	86
6.3.3	Capping stack	87
6.3.4	Relief Well drilling	88
6.3.5	Source Control – Control Measure Options Analysis	94
6.3.6	Activation/Mobilisation – Control Measure Options Analysis	95
6.3.7	Deployment Options Analysis	97
6.3.8	Selected Control Measures	98
6.4	Shoreline Protection and Deflection – ALARP Assessment	99
6.4.1	Existing Capability – Shoreline Protection and Deflection	99

6.4.2 Response Planning: Scarborough Project Offshore Facility and Trunkline Operations activity – Shoreline Protection and Deflection 99

6.4.3 Shoreline Protection and Deflection – Control Measure Options Analysis..... 102

6.4.4 Selected Control Measures..... 103

6.5 Shoreline Clean-up – ALARP Assessment 104

6.5.1 Existing Capability – Shoreline Clean-up 104

6.5.2 Response planning: Scarborough Project Offshore Facility and Trunkline Operations activity – Shoreline Clean-up..... 104

6.5.3 Shoreline Clean-up – Control measure options analysis 105

6.5.4 Selected Control Measures..... 106

6.6 Oiled Wildlife Response – ALARP Assessment 107

6.6.1 Existing Capability – Oiled Wildlife Response 107

6.6.2 Oiled Wildlife Response – Control Measure Options Analysis..... 107

6.6.3 Selected control measures 108

6.7 Waste Management – ALARP Assessment 109

6.7.1 Existing Capability – Waste Management 109

6.7.2 Waste Management – Control Measure Options Analysis..... 109

6.7.3 Selected control measures 110

6.8 Scientific Monitoring – ALARP Assessment 111

6.8.1 Existing Capability – Scientific Monitoring 111

6.8.2 Scientific Monitoring – Control Measure Options Analysis..... 111

6.8.3 Selected Control Measures..... 112

6.8.4 Operational Plan 113

6.8.5 ALARP and Acceptability Summary 115

7 ENVIRONMENTAL RISK ASSESSMENT OF SELECTED RESPONSE TECHNIQUES 116

7.1 Identification of impacts and risks from implementing response techniques..... 116

7.2 Analysis of impacts and risks from implementing response techniques..... 116

7.3 Evaluation of impacts and risks from implementing response techniques 117

7.4 Treatment of impacts and risks from implementing response techniques..... 119

8 ALARP CONCLUSION 121

9 ACCEPTABILITY CONCLUSION 122

10 GLOSSARY AND ABBREVIATIONS 123

10.1 Glossary 123

10.2 Abbreviations 125

11 REFERENCES 128

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FIGURES

Figure 1-1: Woodside hydrocarbon spill document structure.....	12
Figure 2-1: Response planning and selection process	17
Figure 2-2: Response planning assumption – timing, resourcing and effectiveness	19
Figure 2-3: Location of CS-01 (outside Mermaid Sound) and CS-02 (within Montebello AMP).....	22
Figure 2-4: Location of CS-03 and CS-04 (FPU location).....	23
Figure 2-5: Proportion of total area coverage (AMSA, 2014).....	28
Figure 2-6: Oil thickness versus potential response options (from Allen and Dale 1996).....	29
Figure 3-1: Identify Response Protection Areas (RPAs) flowchart.....	32
Figure 4-1: Net Environmental Benefit Analysis (NEBA) flowchart	36
Figure 5-1: The planning area for scientific monitoring based on the area potentially contacted by the low (below ecological impact) entrained hydrocarbon threshold of 10 ppb in the event of the worst-case credible spill scenarios (CS-01, CS-02, and CS-03).....	71
Figure 5-2: Example screenshot of the HSP competency dashboard.....	80
Figure 5-3: Example screenshot for the Operation Point Coordinator role.....	80
Figure 6-1: Scarborough Operations process for sourcing relief well MODU.....	88
Figure 6-2: Source control and well intervention response strategy deployment timeframes for Scarborough wells.	90
Figure 6-3: Timeline showing Safety Case revision timings alongside other relief well preparation activity timings for Scarborough Wells.....	92

TABLES

Table 0-1: Summary of the key details for assessment.....	8
Table 1-1: Hydrocarbon Spill preparedness and response – document references.....	13
Table 2-1: Petroleum Activities Program credible spill scenarios.....	21
Table 2-2: Summary of thresholds applied to the stochastic hydrocarbon spill modelling to determine the EMBA and environmental impacts.....	25
Table 2-3: Surface hydrocarbon thresholds for response planning.....	26
Table 2-4: Surface hydrocarbon viscosity thresholds	29
Table 2-5: Worst case credible scenario modelling results.....	31
Table 3-1: Response Protection Areas (RPAs) from stochastic modelling.....	34
Table 4-1: Response technique evaluation – Instantaneous Release of MDO (CS-01, CS-02, CS-03)	39
Table 4-2: Response technique evaluation – Dry gas release (CS-04)	41
Table 5-1: Description of supporting operational monitoring plans	44
Table 5-2: Environmental Performance – Operational Monitoring	45
Table 5-3: Response Planning Assumptions – Source Control	49
Table 5-4: Environmental Performance – Source Control	50
Table 5-5: Response Planning Assumptions – Shoreline Protection and Deflection.....	52
Table 5-6: Environmental Performance – Shoreline protection and deflection.....	53
Table 5-7: Response Planning Assumptions – Shoreline Clean-up.....	56
Table 5-8: Shoreline Clean-up techniques and recommendations	57
Table 5-9: Environmental Performance – Shoreline Clean-up.....	60
Table 5-10: Key at-risk species potentially in Priority Protection Areas and open ocean	64
Table 5-11: WAOWRP Guide for rating wildlife impact of an oil spill (DBCA, 2022)	65
Table 5-12: Environmental Performance – Oiled Wildlife Response	67
Table 5-13: Response Planning Assumptions – Waste Management	68
Table 5-14: Environmental Performance – Waste Management	69
Table 5-15: Scientific monitoring	75
Table 5-16: Environmental Performance – Incident Management System	78
Table 6-1: ROV timings.....	86

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Table 6-2: Relief well drilling timings 89
Table 6-3: Safety Case revision conditions and assumptions..... 93
Table 6-4: Response Planning – Shoreline Protection and Deflection..... 99
Table 6-5: Indicative Tactical response plan, aims and methods for identified RPAs 100
Table 6-6: Response Planning – Shoreline Clean-up..... 104
Table 6-7: Scientific monitoring program operational plan actions..... 113
Table 7-1: Analysis of risks and impacts 117

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EXECUTIVE SUMMARY

Woodside Energy Scarborough Pty Ltd (Woodside) has developed its oil spill preparedness and response position for the Scarborough Offshore Facility and Trunkline Operations, hereafter known as the Petroleum Activities Program (PAP).

This document demonstrates that the risks and impacts from an unplanned hydrocarbon release, and the associated response operations, are controlled to As Low as Reasonably Practicable (ALARP) and an acceptable level. It achieves this by evaluating response options to address the potential environmental impacts resulting from an unplanned loss of hydrocarbon containment associated with the PAP detailed in the Environment Plan (EP). This document then details Woodside’s decisions and techniques for responding to a hydrocarbon release event and the process for determining its level of hydrocarbon spill preparedness.

A summary of the key facts and references to additional detail within this document are presented below.

Table 0-1: Summary of the key details for assessment

Key details of assessment	Summary	Reference to additional detail
Worst Case Credible Scenario	<p>Credible Scenario-01 (CS-01): Instantaneous Release of 250 m³ of Marine Diesel (MDO) outside Mermaid Sound from a vessel collision. 20° 21' 3.28" S, 116° 42' 5.58" E.</p> <p>Instantaneous release of 250 m³ MDO.</p> <p>5% residual component of 12.5 m³.</p>	Section 2.2
	<p>Credible Scenario-02 (CS-02): Instantaneous Release of 250 m³ of MDO within Montebello AMP from a vessel collision. 20° 03' 1.44" S, 115° 31' 35.04" E.</p> <p>Instantaneous release of 250 m³ MDO.</p> <p>5% residual component of 12.5 m³.</p>	
	<p>Credible Scenario-03 (CS-03): Instantaneous Surface Release of 470 m³ of MDO due to a loss of structural integrity at the FPU Location. 19° 53' 54.72" S, 113° 14' 19.56" E.</p> <p>Instantaneous surface release of 470 m³ MDO.</p> <p>5% residual component of 23.5 m³.</p>	
	<p>Credible Scenario-04 (CS-04): Loss of well containment due to a failure at the wellheads and/or Xmas trees.</p> <p>Subsea release of 423 MMscf per day (at virgin reservoir pressure/ day one of production) of dry gas for an estimated 65.3 days until well kill.</p> <p>Negligible liquid component at atmospheric pressures.</p>	
Hydrocarbon Properties	<p>MDO</p> <p>MDO is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 35% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 54% should evaporate over several days (265 °C < BP < 380 °C). Approximately 5% of the oil is shown to be persistent. The aromatic content of the oil is approximately 3%.</p> <p>Dry gas</p> <p>The Scarborough reservoir properties are dry gas, primarily methane (approximately 95%) and nitrogen (approximately 4%), with some ethane, CO₂ contents and limited heavier hydrocarbon components. No liquid hydrocarbons are expected at atmospheric conditions. Furthermore, worst case discharge rate ('blowout' rate) modelling predicts that the gas plume will not breach the water's surface.</p>	<p>Section 6.8.2 of the EP</p> <p>Appendix A of the First Strike Plan</p>

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Modelling Results	<p>Quantitative, stochastic assessments have been undertaken for credible spill scenarios CS-01, CS-02 and CS-03 to help assess the environmental risk of a hydrocarbon spill.</p> <p>A total of 200 replicate simulations were completed for the three scenarios to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed using samples of metocean data that commenced within each calendar quarter (50 simulations per quarter for each scenario).</p> <p>No stochastic hydrocarbon spill modelling was required for CS-04 due to the hydrocarbon type being dry gas.</p>				Section 2.3.4	
		CS-01: Instantaneous release of 250 m³ of MDO outside Mermaid Sound	CS-02: Instantaneous release of 250 m³ of MDO within Montebello AMP	CS-03: Instantaneous surface release of 470 m³ of MDO due to a loss of structural integrity at the FPU Location	CS-04: Loss of well containment due to a failure at the wellheads and/ or Xmas trees	
	Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m ²)	Dampier Archipelago - 6 hours (0.25 days)	Montebello MP - 1 hour (0.04 days)	No contact at threshold	N/A – dry gas	
	Minimum time to shoreline contact (above 100 g/m ²)	Dampier Archipelago - 18 hours (0.75 days) Legendre Island - 18 hours (0.75 days)	No contact at threshold	No contact at threshold	N/A – dry gas	
	Largest volume ashore at any single Response Protection Area (RPA) (above 100 g/m ²)	Dampier Archipelago – 55 m ³	No contact at threshold	No contact at threshold	N/A – dry gas	
	Largest total shoreline accumulation (above 100 g/m ²) all shorelines	Dampier Archipelago – 55 m ³	No contact at threshold	No contact at threshold	N/A – dry gas	
	Minimum time to entrained/dissolved hydrocarbon contact with the offshore	Dampier Archipelago – 5 hours (0.21 days)	Montebello AMP – 1 hour (0.04 days)	Gascoyne MP – 71 hours (2.96 days)	N/A – dry gas	

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	edges of any receptor polygon (at a threshold of 100 ppb)					
Net Environmental Benefit Analysis	Operational monitoring, source control (via vessel SOPEP), source control via capping stack and relief well, protection and deflection, shoreline clean-up and oiled wildlife response, are all identified as potentially having a net environmental benefit (dependent on the actual spill scenario) and carried forward for further assessment.					Section 4
ALARP evaluation of selected response techniques	The evaluation of the selected response techniques shows the proposed controls reduced the risk to an ALARP and an acceptable level for the risk presented in Section 2, without the implementation of considered additional, alternative or improved control measures.					Section 6

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1 INTRODUCTION

1.1 Overview

Woodside Energy Scarborough Pty Ltd (Woodside) has developed its oil spill preparedness and response position for the Scarborough Offshore Facility and Trunkline Operations activity, hereafter known as the Petroleum Activities Program (PAP). This document details Woodside's decisions and techniques for responding to a hydrocarbon loss of containment event and the process for determining its level of hydrocarbon spill preparedness.

1.2 Purpose

This document, together with the documents listed below, meet the requirements of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth) (Environment Regulations) relating to hydrocarbon spill response arrangements.

- The Scarborough Offshore Facility and Trunkline Operations Environment Plan (EP)
- Oil Pollution Emergency Arrangements (OPEA) (Australia)
- The Scarborough Offshore Facility and Trunkline Operations Oil Pollution Emergency Plan (OPEP) including:
 - First Strike Plan (FSP)
 - Relevant Operations Plans
 - Relevant Tactical Response Plans (TRPs)
 - Relevant Supporting Plans
 - Data Directory.

1.3 Scope

This document demonstrates that the risks and impacts from an unplanned hydrocarbon release, and the associated response operations, are controlled to As Low as Reasonably Practicable (ALARP) and an acceptable level. It achieves this by evaluating response options to address the potential environmental risks and impacts resulting from an unplanned loss of hydrocarbon containment associated with the PAP detailed in the EP. This document then outlines Woodside's decisions and techniques for responding to a hydrocarbon release event and the process for determining its level of hydrocarbon spill preparedness. It should be read in conjunction with the documents listed in Table 1-1. The location of the PAP is shown in Figure 3-3 of the EP.

1.4 Oil spill response document overview

The documents outlined in Table 1-1 and Figure 1-1 are collectively used to manage the preparedness and response for a hydrocarbon release.

The Oil Pollution First Strike Plan (FSP) contains a pre-operational Net Environmental Benefit Analysis (NEBA) summary, detailing the selected response techniques for this PAP. Relevant Operational Plans to be initiated for associated response techniques are identified in the FSP and relevant forms to initiate a response are appended to the FSP.

The process to develop an Incident Action Plan (IAP) begins once the Oil Pollution FSP is underway. The IAP includes inputs from the operational monitoring and the operational NEBA (Section 4). Planning, coordination and resource management are initiated by the Corporate Incident Management Team (CIMT). In some instances, technical specialists may be utilised to provide expert advice. The planning may also involve liaison officers from supporting government agencies.

During each operational period, field reports are continually reviewed to evaluate the effectiveness of response operations. In addition, the operational NEBA is continually reviewed and updated to confirm the response techniques implemented continue to result in a net environmental benefit (Section 4).

The response will continue as described in Section 5 until the response termination criteria have been met.

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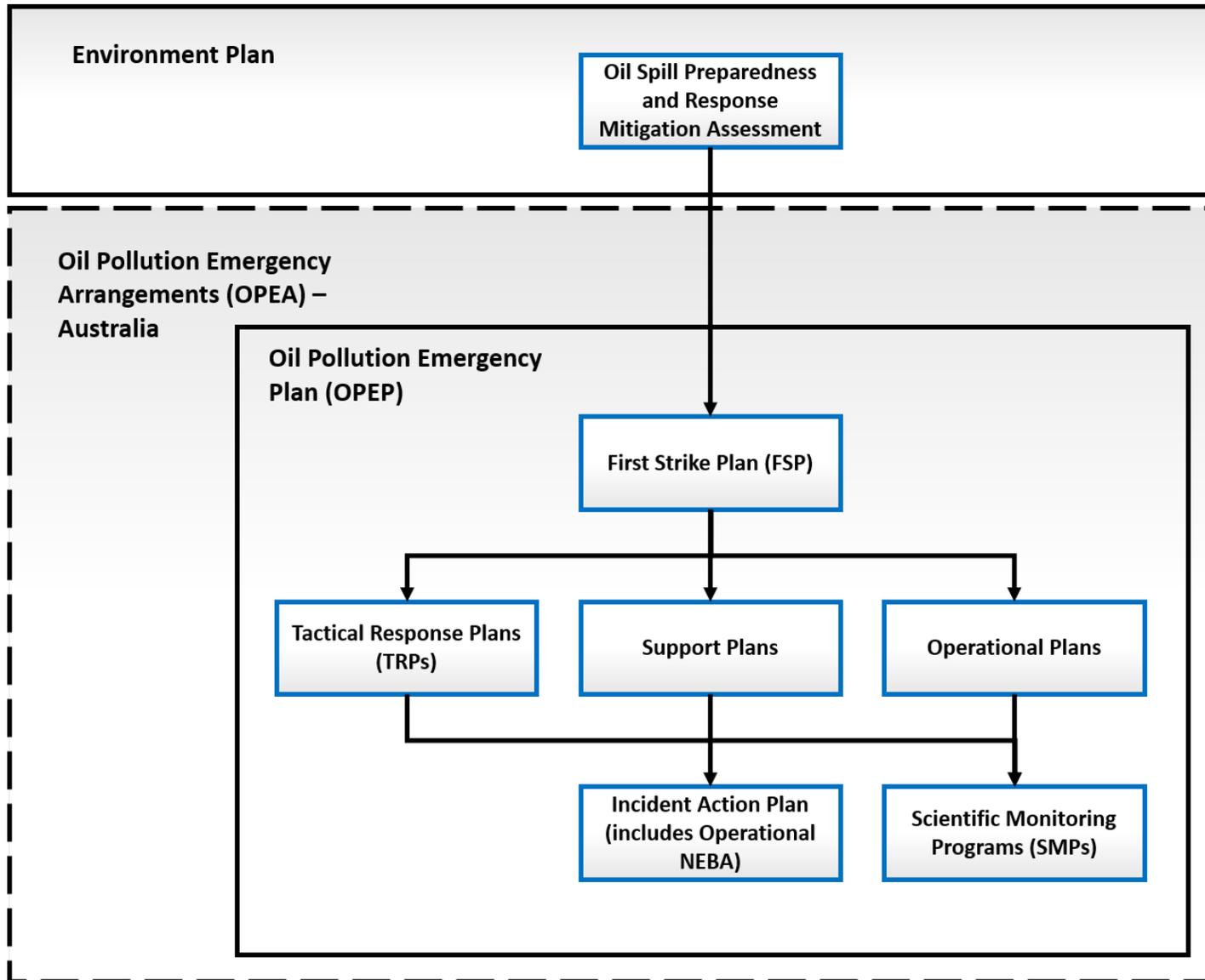


Figure 1-1: Woodside hydrocarbon spill document structure

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Table 1-1: Hydrocarbon Spill preparedness and response – document references

Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
Scarborough Offshore Facility and Trunkline Operations Environment Plan (EP)	Demonstrates that potential adverse impacts on the environment associated with the Scarborough Offshore Facility and Trunkline Operations (during both routine and non-routine operations) are mitigated and managed to As Low As Reasonably Practicable (ALARP) and will be of an acceptable level.	NOPSEMA Woodside internal	EP Section 6 (Identification and evaluation of environmental risks and impacts, including credible spill scenarios) EP Section 6 (Performance outcomes, standards and measurement criteria) EP Section 7 (Implementation strategy – including emergency preparedness and response, and Reporting and compliance)	
Oil Pollution Emergency Arrangements (OPEA) Australia	Describes the arrangements and processes adopted by Woodside when responding to a hydrocarbon spill from a petroleum activity.	Regulatory agencies Woodside internal	All	
Oil Spill Preparedness and Response Mitigation Assessment for the Scarborough Offshore Facility and Trunkline Operations (this document)	Evaluates response options to address the potential environmental impacts resulting from an unplanned loss of hydrocarbon containment associated with the PAP described in the EP.	Regulatory agencies Corporate Incident Management Team (CIMT): Control function in an ongoing spill response for activity-specific response information.	All Performance outcomes, standards and measurement criteria related to hydrocarbon spill preparedness and response are included in this document.	
Scarborough Offshore Facility and Trunkline Operations Oil Pollution First Strike Plan	Facility specific document providing details and tasks required to mobilise a first strike response. Primarily applied to the first 24 hours of a response until a full Incident Action Plan (IAP) specific to the event is developed. Oil Pollution First Strike Plans are intended to be the first document used to provide immediate	Site-based IMT for initial response, activation and notification. CIMT for initial response, activation and notification. CIMT: Control function in an ongoing spill response for activity-specific response information.	Initial notifications and reporting required within the first 24 hours of a spill event. Relevant spill response options that could be initiated for mobilisation in the event of a spill. Recommended pre-planned tactics. Details and forms for use in immediate response. Activation process for oil spill trajectory	

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Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
	guidance to the responding Incident Management Team (IMT).		modelling, aerial surveillance and oil spill tracking buoy details.	
Operational Plans	<p>Lists the actions required to activate, mobilise and deploy personnel and resources to commence response operations.</p> <p>Includes details on access to equipment and personnel (available immediately) and steps to mobilise additional resources depending on the nature and scale of a release.</p> <p>Relevant operational plans will be initially selected based on the Oil Pollution First Strike Plan; additional operational plans will be activated depending on the nature and scale of the release.</p>	<p>CIMT: Operations and Logistics Sections for first strike activities.</p> <p>CIMT: Planning Section to help inform the IAP on resources available.</p>	<p>Locations from where resources may be mobilised.</p> <p>How resources will be mobilised.</p> <p>Details of where resources may be mobilised to and what facilities are needed once the resources arrive.</p> <p>Details on how to implement resources to undertake a response.</p>	<p>Operational monitoring</p> <p>Vessel Shipboard Oil Pollution Emergency Plan (SOPEP)</p> <p>Source Control Emergency Response Planning Guideline</p> <p>Protection and deflection</p> <p>Shoreline clean-up</p> <p>Oiled wildlife response</p> <p>Scientific monitoring program</p>
Tactical Response Plans	<p>Provides options for response techniques in selected RPAs. Provides site, access and deployment information to support a response at the location.</p>	<p>CIMT: Planning Section to help develop IAPs, and Logistics Function to assist with determining resources required.</p>	<p>Indicative response techniques.</p> <p>Access requirements and/or permissions.</p> <p>Relevant information for undertaking a response at that site.</p> <p>Where applicable, may include equipment deployment locations and site layouts.</p>	<p>For full list of relevant Tactical Plans for the Scarborough Offshore Facility and Trunkline Operations oil spill response, refer to ANNEX E: Tactical Response Plans.</p>
Support Plans	<p>Support Plans detail Woodside's approach to resourcing and the provision of services during a hydrocarbon spill response.</p>	<p>CIMT: Operations, Logistics and Planning Sections.</p>	<p>Technique for mobilising and managing additional resources outside of Woodside's immediate preparedness arrangements.</p>	<p>Logistics Support Plan</p> <p>Aviation Support Plan</p> <p>Marine Support Plan</p> <p>Waste Management Plan – Australia</p> <p>Health and Safety Support Plan</p>

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Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
				Hydrocarbon Spill Responder Health Monitoring Guidelines People and Global Capability (Surge Labour Requirements) Support Plan Stakeholder Engagement Support Plan Guidance for Hydrocarbon Spill Claims Management

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2 RESPONSE PLANNING PROCESS

This document details Woodside's process for identifying potential response options for the hydrocarbon release scenarios, identified in the EP. Figure 2-1 details the interaction between Woodside's response, planning, preparedness and selection process.

This structure has been used because it shows how the planning and preparedness activities inform a response and provides indicative guidance on what activities would be undertaken, in sequential order, if a real event were to occur. The process also evaluates alternative, additional and/or improved control measures specific to the PAP.

The Scarborough Offshore Facility and Trunkline Operations First Strike Plan then summarises the outcome of the response planning process and provides initial response guidance and a summary of ongoing response activities if an incident were to occur.

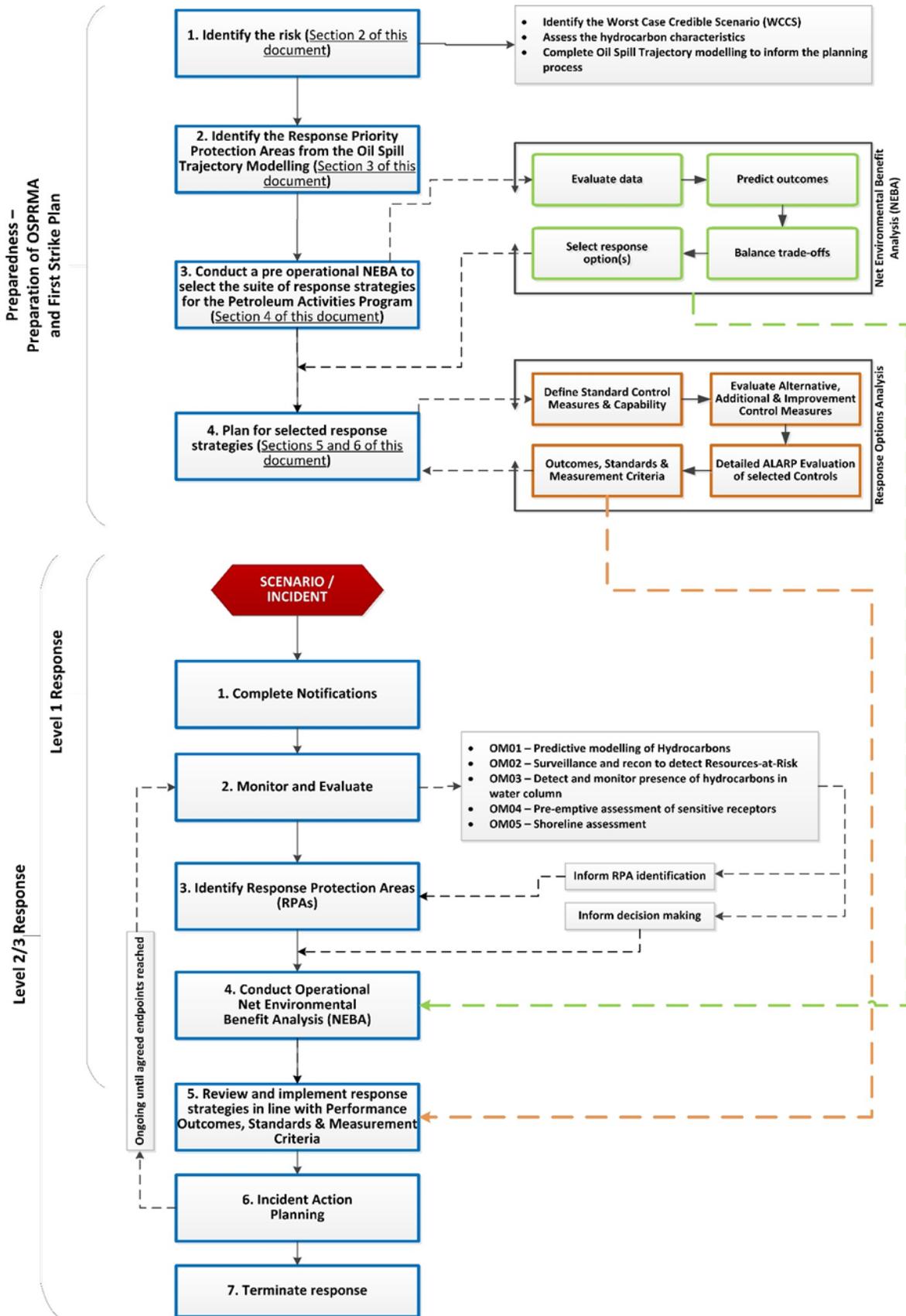


Figure 2-1: Response planning and selection process

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2.1 Response planning process outline

This document is expanded below to provide additional context on the key steps in determining capability, evaluating ALARP and hydrocarbon spill response requirements.

- Section 1. INTRODUCTION
- Section 2. RESPONSE PLANNING PROCESS
 - identification of worst-case credible scenario(s) (WCCS)
 - spill modelling for WCCS.
- Section 3. IDENTIFY RESPONSE PROTECTION AREAS (RPAs)
 - areas predicted to be contacted at concentration >100 g/m².
- Section 4. NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)
 - pre-operational NEBA (during planning/ALARP evaluation): this must be reviewed during the initial response to an incident to confirm its accuracy
 - selected response techniques prioritised and carried forward for ALARP assessment.
- Section 5. HYDROCARBON SPILL ALARP PROCESS
 - determines the response need based on predicted consequence parameters
 - details the environmental performance of the selected response options based on need
 - sets the environmental performance outcomes, environmental performance standards and measurement criteria.
- Section 6. ALARP EVALUATION
 - evaluates alternative, additional, and improved options for each response technique to demonstrate the risk has been reduced to ALARP
 - provides a detailed ALARP assessment of selected control measure options against:
 - predicted cost associated with implementing the option.
 - predicted change to environmental benefit.
 - predicted effectiveness / feasibility of the control measure.
- Section 7. ENVIRONMENTAL RISK ASSESSMENT OF SELECTED RESPONSE TECHNIQUES
 - evaluation of impacts and risks from implementing selected response options.
- Section 8. ALARP CONCLUSION
- Section 9. ACCEPTABILITY CONCLUSION

2.1.1 Response Planning Assumptions

Figure 2-2 illustrates the initial steps of a response to an oil spill event and, where available, the indicative timing. For the latter stages, the timing will be specific to the selective response option.

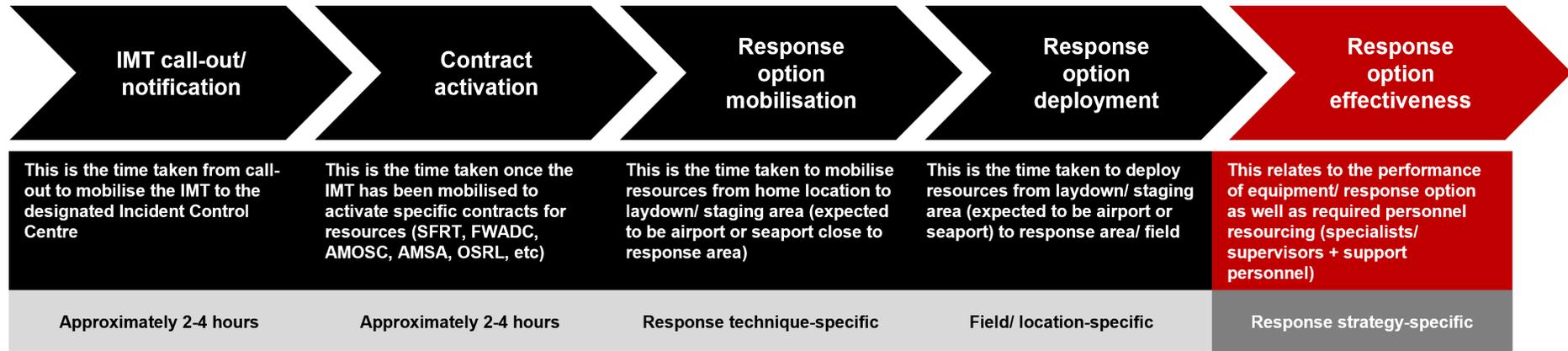


Figure 2-2: Response planning assumption – timing, resourcing and effectiveness

2.2 Environment plan risk assessment (credible spill scenarios)

Potential hydrocarbon release scenarios from the PAP have been identified during the risk assessment process (Section 6 of the EP). Further descriptions of risk, impacts and mitigation measures (which are not related to hydrocarbon preparedness and response) are provided in Section 6 of the EP. Four unplanned events or credible spill scenarios for the PAP have been selected as representative across types, sources and incident/response levels, up to and including the WCCS.

Table 2-1 presents the credible scenarios for the PAP. The WCCS for the activity is then used for response planning purposes, as all other scenarios are of a lesser scale and extent. By demonstrating capability to manage the response to the WCCS, Woodside assumes other scenarios that are smaller in nature and scale can also be managed by the same capability. Response performance measures have been defined based on a response to the WCCS.

Stochastic modelling has been completed for a worst-case spill scenarios of an instantaneous surface release of MDO, representing loss of vessel fuel tank integrity after a collision, at two locations: 250 m³ of MDO outside Mermaid Sound (CS-01) and 250 m³ of MDO within Montebello Marine Park (CS-02). A third scenario has been modelled for the instantaneous surface release of 470 m³ MDO following a loss of structural integrity at the Floating Production Unit (FPU) location in the Scarborough field (CS-03). Credible Scenario 4 (CS-04) is a loss of well containment of dry gas, so no hydrocarbon spill modelling was undertaken for this scenario.

The instantaneous surface release of 250 m³ of MDO outside Mermaid Sound scenario (CS-01) is considered to determine the WCCS for response planning purposes as it is the only scenario with floating and shoreline hydrocarbons contacting shoreline receptors above thresholds. Whilst CS-02 and CS-03 do not contact shorelines above shoreline hydrocarbon thresholds, they are included for planning purposes as they contact offshore receptors above entrained hydrocarbon thresholds. CS-04 has no or negligible liquid hydrocarbon component so the dry gas will dissolve into the immediate water surrounding a spill causing only localised disturbance. Other credible scenarios have smaller volumes of hydrocarbons and so are considered to be within the risk profile and spill response capability requirements of the WCCS.

Table 2-1: Petroleum Activities Program credible spill scenarios

Credible Spill Scenarios	Scenario selected for planning purposes	Scenario description	Maximum credible volume released (liquid m ³)	Incident level	Hydrocarbon type	Residual proportion	Residual volume (m ³)
Instantaneous Release of 250 m ³ of MDO outside Mermaid Sound (CS-01)	Yes	Instantaneous release of 250 m ³ of MDO outside Mermaid Sound	250	2	MDO	5.0 %	12.5
Instantaneous Release of 250 m ³ of MDO within Montebello AMP (CS-02)	Yes	Instantaneous Release of 250 m ³ of MDO within Montebello AMP	250	2	MDO	5.0 %	12.5
Instantaneous surface release of 470 m ³ of MDO following a loss of structural integrity at the FPU location (CS-03)	Yes	Instantaneous Surface Release of 470 m ³ of MDO following a loss of structural integrity at the FPU Location	470	2	MDO	5.0 %	23.5
Loss of well containment due to a failure at the wellheads and/or Xmas trees (CS-04)	Yes	Loss of well containment due to a failure at the wellheads and/or Xmas trees (CS-04)	No or negligible liquid hydrocarbon	3	Dry gas	N/A	N/A
Loss of containment during bunkering	No	Loss of containment during bunkering at the FPU or trunkline route	50	1	MDO	5.0 %	2
Topside loss of containment	No	Topside loss of containment at the FPU	220	2	MDO	5.0 %	11
Subsea infrastructure loss of containment	No	Loss of containment from the trunkline, riser, infield flowlines or subsea equipment	No or negligible liquid hydrocarbon	1	Dry gas	N/A	N/A
Accommodation Support Vessel loss of structural integrity	No	Slow leak of MDO after sinking of the ASV from a loss of structural integrity	Slow leak	1	MDO	5.0 %	N/A

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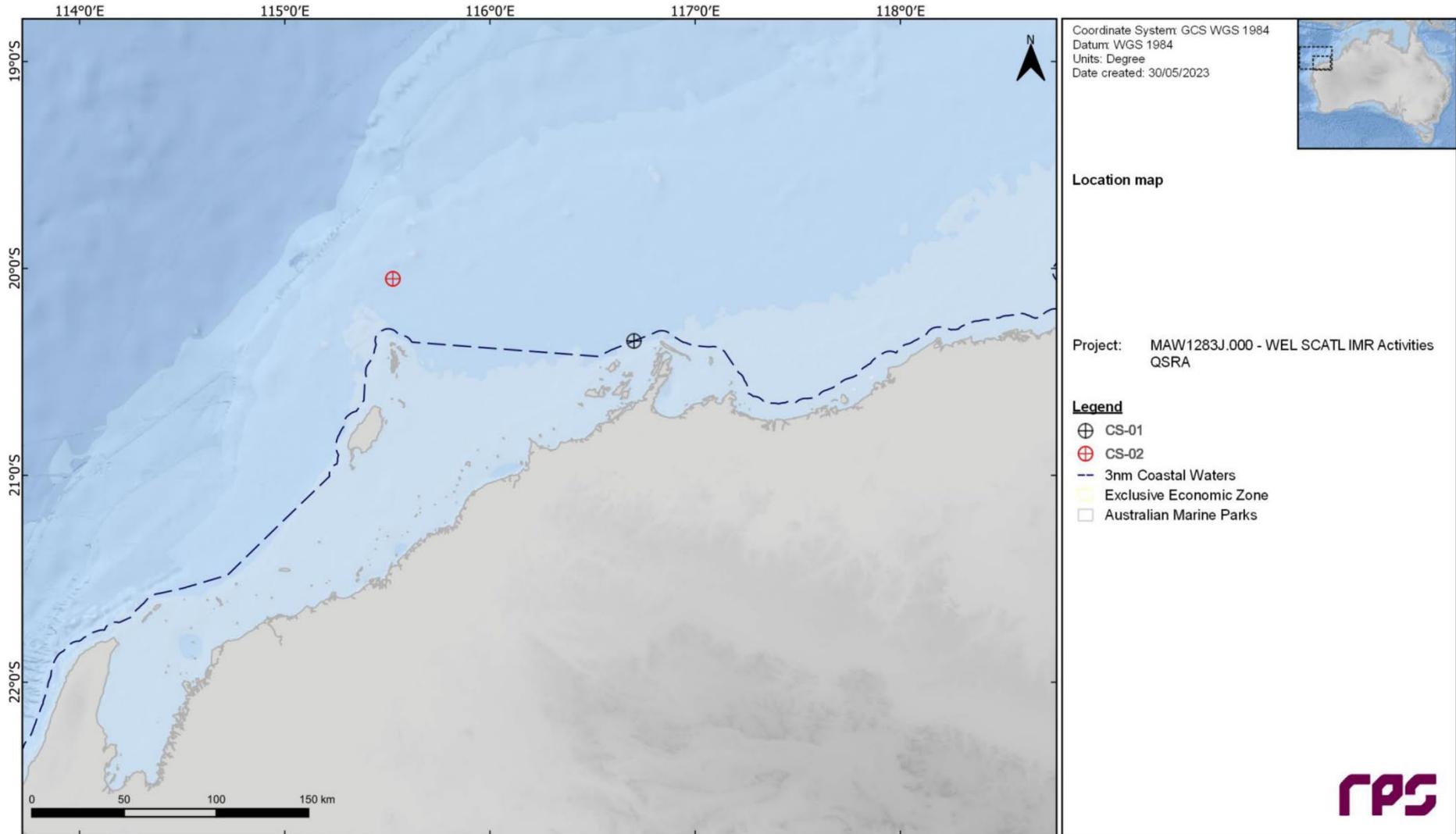


Figure 2-3: Location of CS-01 (outside Mermaid Sound) and CS-02 (within Montebello AMP)

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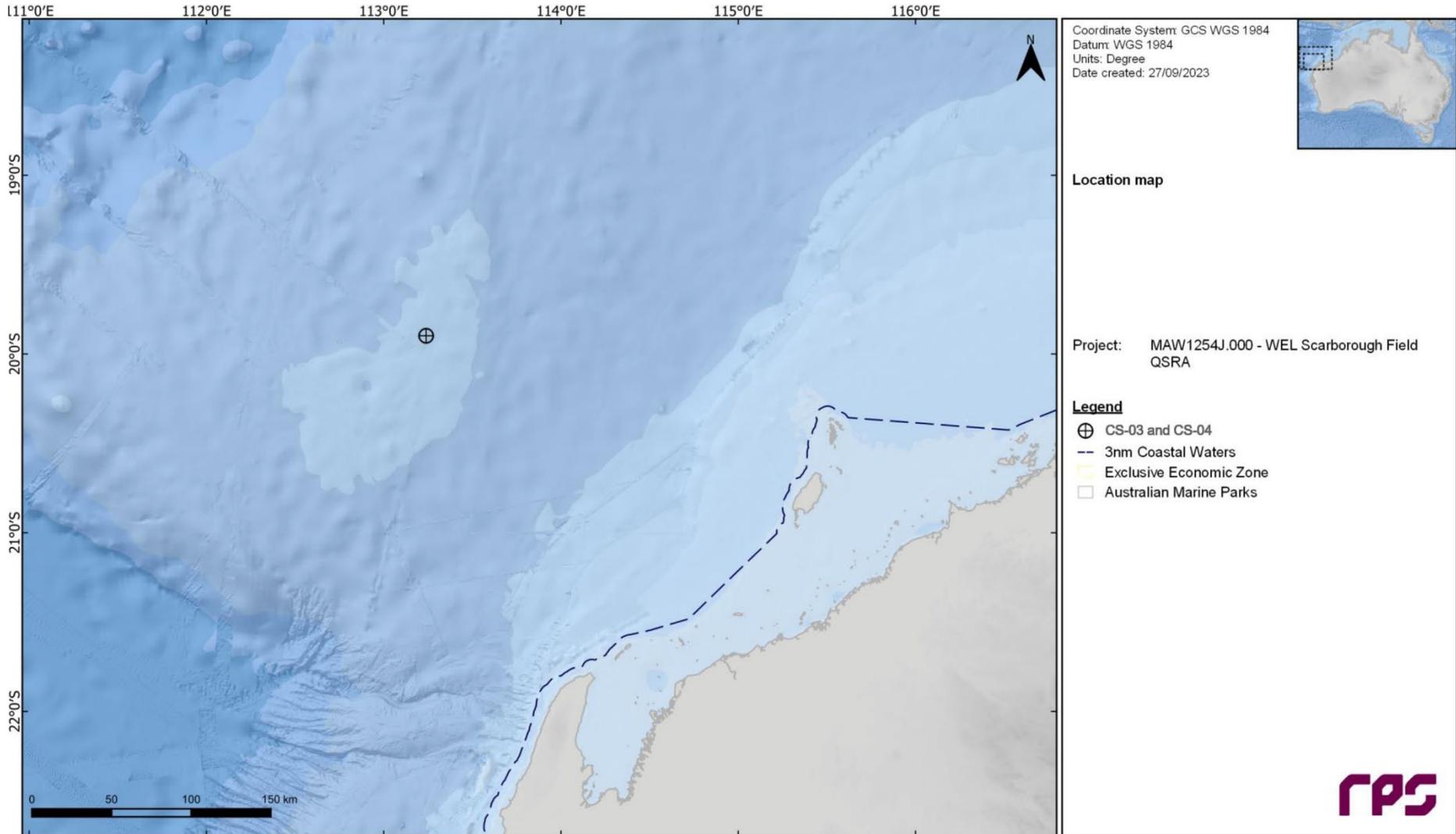


Figure 2-4: Location of CS-03 and CS-04 (FPU location).

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2.2.1 Hydrocarbon characteristics

Hydrocarbon characteristics, including modelled weathering data and ecotoxicity, are included in Section 6 of the EP.

Marine Diesel (CS-01, CS-02, CS-03)

Marine Diesel Oil (MDO) is typically classed as an International Tanker Owners Pollution Federation (ITOPF) Group I/II oil. Group I oils are non-persistent and tend to dissipate completely through evaporation within a few hours and do not normally form emulsions.

MDO is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (boiling point <180°C); a further 35% should evaporate within the first 24 hours (180°C < boiling point <265°C); and a further 54% should evaporate over several days (265°C < boiling point <380°C). About 5% of the oil is shown to be persistent. The aromatic content of the oil is about 3%.

The mass balance forecast for the constant-wind case for MDO shows that about 41% of the oil is predicted to evaporate within 24 hours. Under these calm conditions the majority of the remaining oil on the water surface weathers at a slower rate due to comprising the longer-chain compounds with higher boiling points. Evaporation of the residual compounds slows significantly and is then subject to more gradual decay through biological and photochemical processes.

Under the variable-wind case, where the winds are of greater strength, entrainment of MDO into the water column is indicated to be significant. Approximately 24 hours after the spill, around 72% of the oil mass is forecast to have entrained and a further 24% is forecast to have evaporated, leaving only a small proportion of the oil floating on the water surface (<1%). The residual compounds will tend to remain entrained beneath the surface under conditions that generate wind waves (approximately > 6 m/s).

The increased level of entrainment in the variable-wind case results in a higher percentage of biological and photochemical degradation, where the decay of the floating slicks and oil droplets in the water column occurs at an approximate rate of 2.4% per day with an accumulated total of ~16% after seven days, in comparison to a rate of ~0.2% per day and an accumulated total of 1.3% after seven days in the constant-wind case. Given the large proportion of entrained oil and the tendency for it to remain mixed in the water column, the remaining hydrocarbons decay and/or evaporate over time scales of several weeks to a few months. This long weathering duration will extend the area of potential effect, requiring the break-up and dispersion of the slicks and droplets to reduce concentrations below the thresholds considered in this study.

Dry gas (CS-04)

The Scarborough reservoir properties are dry gas, primarily methane (approximately 95%) and nitrogen (approximately 4%), with some ethane, CO₂ contents and limited heavier hydrocarbon components. No liquid hydrocarbons are expected at atmospheric conditions. Furthermore, worst case discharge rate ('blowout' rate) modelling predicts that the gas plume will not breach the water's surface.

2.3 Hydrocarbon spill modelling

Oil spill trajectory modelling (OSTM) tools are used for environmental impact assessment and during response planning to understand spatial scale and timeframes for response operations. Woodside recognises there is a degree of uncertainty related to the use of modelling data and has subsequently utilised conservative approaches to volumes, weathering, spatial areas, timing and response effectiveness to scale capability to need.

The Oil Spill Model and Response System (OILMAP) and Integrated Oil Spill Impact Model System (SIMAP) models are both used for stochastic and deterministic trajectory modelling. They have been developed over three decades of planning, exercises, actual responses, several peer reviews, and validation studies. OILMAP was originally derived from the United States Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Type A model (French et al. 1996), for assessing marine transport, biological impact and economic damage that was also used under the United States Oil Pollution Act 1990 Natural Resource Damage Assessment (NRDA) regulations. Notable spills where the model has been used and validated against actual field observations include, Exxon Valdez (French McCay 2004), North Cape Oil Spill (French McCay 2003), along with an assessment of 20 other spills (French McCay and Rowe, 2004). In addition, test spills designed to verify fate, weathering and movement algorithms have been conducted regularly and in a

range of climate conditions (French and Rines 1997; French et al. 1997; Payne et al. 2007; French McCay et al. 2007).

Further to this, the algorithms have been updated using the latest findings from the Macondo/Deepwater Horizon well blowout in the Gulf of Mexico and validated according to the Deepwater Horizon (DWH) oil spill in support of the NRDA (Spaulding et al. 2015; French McCay et al. 2015, 2016). Finally, the OILMAP and SIMAP models have been used extensively in Australia to prosecute pollution offences, predict discharge locations and likely spill volumes based on weathering and surveillance observations, and has been used as expert witness evidence in Australian court proceedings, aiding the prosecution to determine spill quantum estimates.

2.3.1 Stochastic modelling

Quantitative, stochastic assessments have been undertaken for the credible spill scenarios (refer to Table 2-1) to help assess the environmental consequences of a hydrocarbon spill.

A total of 200 replicate simulations were completed for each of the scenarios to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed using samples of metocean data that commenced within each calendar quarter (50 simulations per quarter). Further details relating to the assessments for the scenarios can be found in Section 6 of the EP.

2.3.1.1 Environmental impact thresholds – Environment that May Be Affected (EMBA) and hydrocarbon exposure

The outputs of the stochastic spill modelling are used to assess the potential environmental impact from the credible scenarios. The stochastic modelling results are used to delineate areas of the marine and shoreline environment that could be exposed to hydrocarbon levels exceeding environmental impact threshold concentrations. The summary of all the locations where hydrocarbon thresholds could be exceeded by any of the simulations modelled is defined as the EMBA and is discussed further in Section 6 of the EP. As the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean mechanism of transportation, a different EMBA is presented for each fate within the EP.

A conservative approach – adopting accepted accumulation thresholds for impacts on the marine environment – is used to define the EMBA. These hydrocarbon thresholds are presented in Table 2-2 below and described in Section 6 of the EP.

Table 2-2: Summary of thresholds applied to the stochastic hydrocarbon spill modelling to determine the EMBA and environmental impacts

Hydrocarbon	Surface hydrocarbon (g/m ²)	Dissolved hydrocarbon (ppb)	Entrained hydrocarbon (ppb)	Accumulated hydrocarbon (g/m ²)
Diesel	10	50	100	100

2.3.2 Deterministic modelling

Deterministic modelling is undertaken where initial stochastic modelling has indicated that floating oil is present at an impact threshold of 50 g/m² and/or where there are shoreline accumulations at an impact threshold of 100 g/m². The deterministic modelling outputs are then used to scale the required capability for the offshore (containment and recovery and dispersant) and/or shoreline responses.

Whilst modelling for this activity predicts that there may be some floating hydrocarbons present at the 50 g/m² threshold at Dampier Archipelago (CS-01), Montebello Marine Park (CS-02) and in open waters, together with some shoreline contact above 100 g/m², many standard response techniques requiring deterministic analysis are not feasible for spills of MDO e.g. dispersant application and containment and recovery. Stochastic modelling has therefore been used to scale the response.

2.3.3 Response planning thresholds for surface and shoreline hydrocarbon exposure

Thresholds to determine the EMBA are used to predict and assess environmental impacts and inform the Scientific Monitoring Program (SMP), however they do not appropriately represent the thresholds at which an effective response can be implemented. Additional response thresholds are used for response planning and

to determine areas where response techniques would be most effective. The modelling is then used to assess the nature and scale of a response.

In the event of an actual response, modelling would be reviewed for suitability and additional modelling would be conducted using real-time data and field information to inform CIMT decisions.

The modelling outputs are presented at response planning thresholds for surface hydrocarbons for the WCCS. Surface spill concentrations are expressed as grams per square metre (g/m²). The thresholds used are derived from oil spill response planning literature and industry guidance and are summarised in the following subsections.

2.3.3.1 Surface hydrocarbon concentrations

Table 2-3: Surface hydrocarbon thresholds for response planning

Surface hydrocarbon threshold (g/m ²)	Description	Bonn Agreement Oil Appearance Code	Mass per area (m ³ /km ²)
>10	Predicted minimum threshold for commencing operational monitoring ¹	Code 3 – Dull metallic colours	5 to 50
50	Predicted minimum floating oil threshold for containment and recovery and surface dispersant application ²	Code 4 – Discontinuous true oil colour	50 to 200
100	Predicted optimum floating oil threshold for containment and recovery and surface dispersant application	Code 5 – Continuous true oil colour	>200
Shoreline hydrocarbon threshold (g/m ²)	Description	National Plan Guidance on Oil Contaminated Foreshores	Mass per area (m ³ /km ²)
100	Predicted minimum shoreline accumulation threshold for shoreline assessment operations	Stain	>100
250	Predicted minimum threshold for commencing shoreline clean-up operations	Level 3 – Thin Coating	200 to 1000

The surface thickness of oil at which dispersants are typically effective is approximately 100 g/m². However, substantial variations occur in the thickness of the oil within the slick, and most fresh crude oils spread within a few hours, so that overall the average thickness is 0.1 mm or approximately 100 g/m² (ITOPF 2011). Additionally, the recommended rate of application for surface dispersant is typically one part dispersant to 20 or 25 parts of spilled oil. These figures assume a 0.1 mm slick thickness, averaged over the thickest part of the spill, to calculate a litres/hectare application rate from vessels and aircraft. In practice this can be difficult to achieve as it is not possible to accurately assess the thickness of the floating oil.

Some degree of localised over-dosage and under-dosage is inevitable in dispersant response. An average oil layer thickness of 0.1 mm is often assumed, although the actual thickness can vary over a wide range (from less than 0.0001 mm to more than 1 mm) over short distances (International Petroleum Industry Environment Conservation Association [IPIECA] 2015).

Guidance from the Australian Maritime Safety Authority (AMSA, 2020) indicates spreading of spills of Group II or III products will rapidly decrease slick thickness over the first 24 hours of a spill resulting in the potential requirement of up to a ten fold increase in capability on day 2 to achieve the same level of performance.

Further guidance from the European Maritime Safety Authority (EMSA) states spraying the 'metallic' looking area of an oil slick (Bonn Agreement Oil Appearance Code (BAOAC) 3, approx. 5 – 50 µm) with dispersant

¹ Operational monitoring will be undertaken from the outset of a spill whether or not this threshold has been reached. Monitoring is needed throughout the response to assess the nature of the spill, track its location and inform the need for any additional monitoring and/or response techniques. It also informs when the spill has entered State Waters and control of the incident passes to statutory authorities e.g. Western Australia Department of Transport (WA DoT) or AMSA.

² At 50 g/m², containment and recovery and surface dispersant application operations are not expected to be particularly effective. This threshold represents a conservative approach to planning response capability and containing the spread of surface oil.

from spraying gear designed to treat an oil layer 0.1 mm (100 µm) thick, will inevitably cause dispersant over-treatment by a factor of 2 to 20 times (EMSA 2012).

Therefore, dispersant application should be concentrated on the thickest areas of an oil slick and Woodside intends on applying surface dispersants to only BAOAC 4 and 5. Spraying areas of oil designated as BAOAC Code 4 (Discontinuous true oil colour) with dispersant will, on average, deliver approximately the recommended treatment rate of dispersant.

Spraying areas of oil designated as BAOAC Code 5 with dispersant (Continuous true oil colour and more than 0.2 mm thick) will, on average, deliver approximately half the recommended treatment rate of dispersant. Repeated application of these areas of thicker oil, or increased dosage ratios, will be required to achieve the recommended treatment rate of dispersant (EMSA 2012).

Guidance from the National Oceanic and Atmospheric Administration (NOAA) in the United States is found in the document: *Characteristics of Response Strategies: A Guide for Spill Response Planning in Marine Environments 2013* (NOAA 2013). This guide outlines advice for response planning across all common techniques, including surface dispersant spraying and containment and recovery. It states oil thickness can vary by orders of magnitude within distinct areas of a slick, thus the actual slick thickness and oil distribution of target areas are crucial for determining response method feasibility. Further to this, ITOPF also states in terms of oil spill response, sheen can be disregarded as it represents a negligible quantity of oil, cannot be recovered or otherwise dealt with to a significant degree by existing response techniques, and is likely to dissipate readily and naturally (ITOPF, 2014a, 2014b).

Figure 2-5 from AMSA's Identification of Oil on Water – Aerial Observation and Identification Guide (AMSA, 2014) shows expected percent coverage of surface hydrocarbons as a proportion of total surface area. Windrows, heavy oil patches and tar balls, for example, must be considered, as they influence oil encounter rates, chemical dosages and ignition potential. Each method has different thickness thresholds for effective response.

From this information and other relevant sources (Allen and Dale, 1996; EMSA, 2012; Spence, 2018) the surface threshold of 50 g/m² was chosen as an average/equilibrium thickness (50 g/m² is an average of 50% coverage of 0.1 mm Bonn Agreement Code 4 – discontinuous true oil colour, or 25% coverage of 0.2 mm Bonn Agreement Code 5 – continuous true oil colour which would represent small patches of thick oil or windrows).

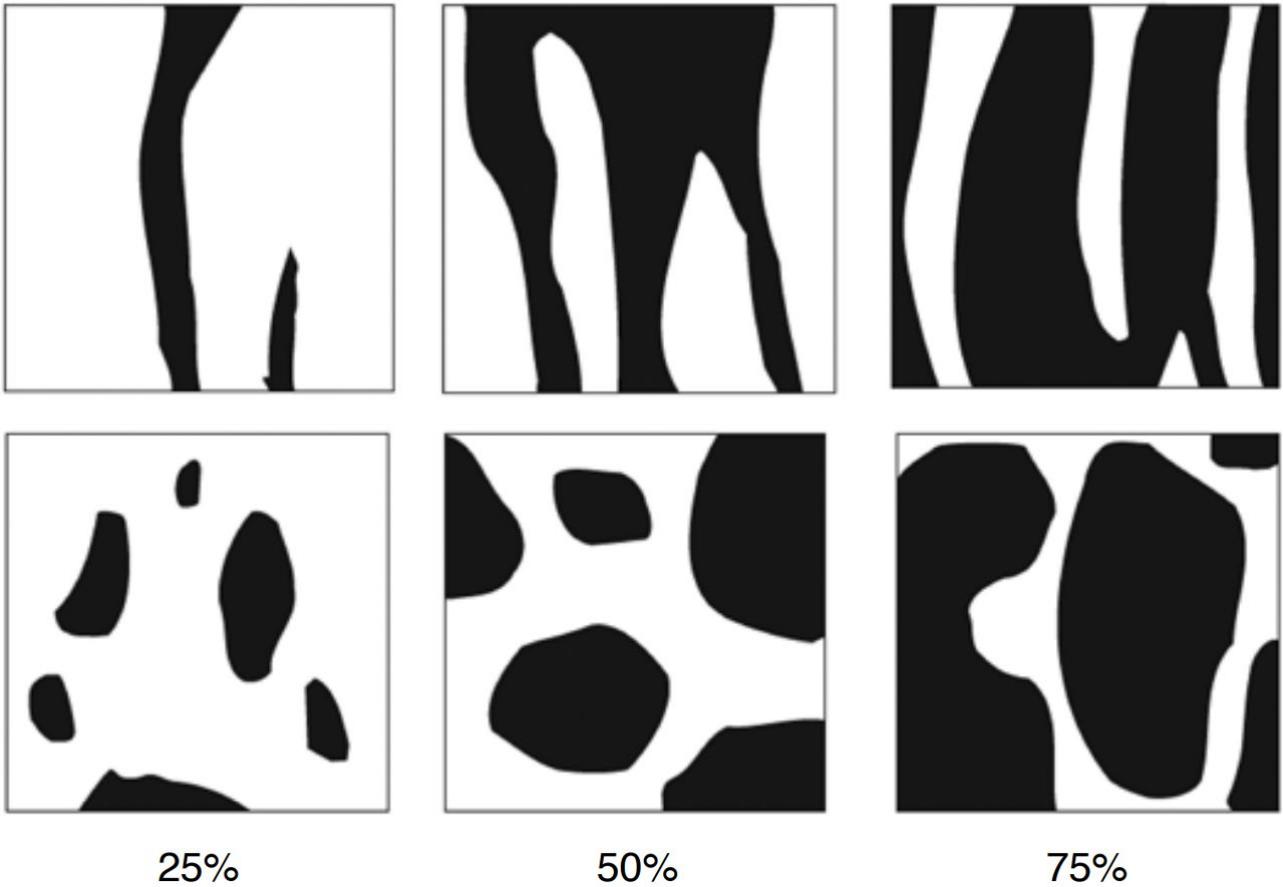


Figure 2-5: Proportion of total area coverage (AMSA, 2014)

Figure 2-6 illustrates the general relationships between on-water response techniques and slick thickness. Windrows, heavy oil patches and tar balls, for example, must be considered, as they influence oil encounter rates, chemical dosages and ignition potential. Each method has different thickness thresholds for effective response.

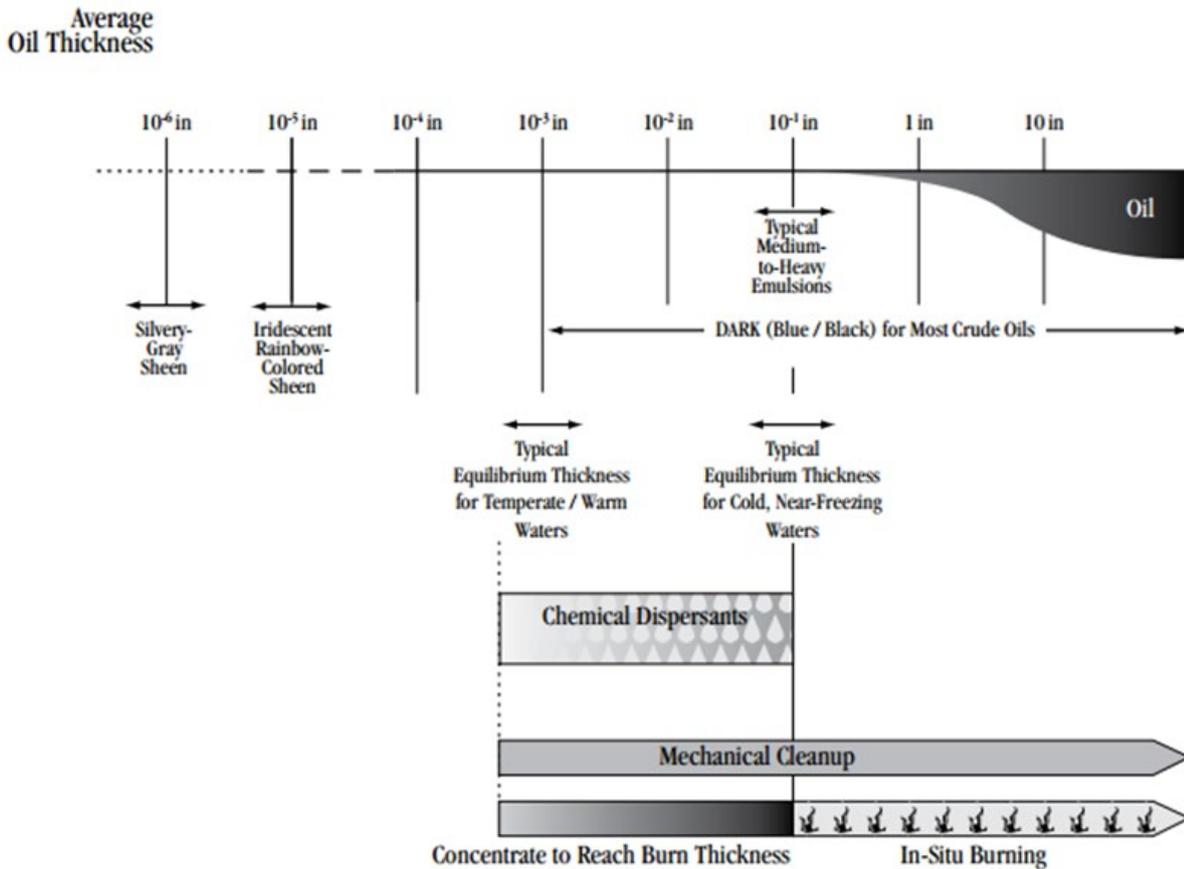


Figure 2-6: Oil thickness versus potential response options (from Allen and Dale 1996)

Wind and waves influence the feasibility of response operations, dropping the effectiveness significantly because of entrainment and/or splash-over as short period waves develop beyond two to three feet (0.6 to 0.9 m) in height. Waves and wind can also be limiting factors for the safe operation of vessels and aircraft.

2.3.3.2 Surface hydrocarbon viscosity

Table 2-4: Surface hydrocarbon viscosity thresholds

Surface viscosity (cSt)	Description	European Maritime Safety Authority	Viscosity at sea temperature (cSt)
5,000*	Predicted optimum viscosity for surface dispersant operations	Generally possible to disperse	500-5000
10,000*	Predicted maximum viscosity for effective surface dispersant operations	Sometimes possible to disperse	5,000-10,000

*Measured at sea surface temperature

Further to the required thickness for surface dispersant application and containment and recovery to be deployed effectively as outlined above, changes to viscosity will also limit the treatment of offshore response techniques. As outlined in the EMSA Manual on the Applicability of Oil Spill Dispersants (EMSA, 2012), guidance around changes to viscosity and likely effectiveness of surface dispersant application is provided.

This includes the following statements: "It has been known for many years that it is more difficult to disperse a high viscosity oil than a low or medium viscosity oil. Laboratory testing had shown that the effectiveness of dispersants is related to oil viscosity, being highest for modern "Concentrate, UK Type 2/3" dispersants at an oil viscosity of about 1000 or 2000 mPa (1000 – 2000 cSt) and then declining to a low level with an oil viscosity of 10,000 mPa (10,000 cSt). It was considered that some generally applicable viscosity limit, such as 2000 or 5000 mPa (2000 – 5000 cSt), could be applied to all oils."

However, modern oil spill dispersants are generally effective up to an oil viscosity of 5000 mPa (5000 cSt) or more, and their performance gradually decreases with increasing viscosity; oils with a viscosity of more than 10,000 cSt are in most cases, no longer dispersible. Guidance from CEDRE (EMSA, 2012) also indicates products with a range of 500 – 5000 cSt at sea temperature are generally possible to disperse, while 5000 – 10,000 cSt at sea temperature above pour point are sometimes possible to disperse, with products beyond 10,000 cSt at sea temperature below pour point are generally impossible to disperse.

To support decision making and response planning, a threshold of 10,000 cSt at sea temperature was chosen as a conservative estimate of maximum viscosity for surface dispersant spraying operations.

Spills of MDO will not reach the 10,000 cSt threshold for the duration of the spill and dispersant is not deemed to provide a net environmental benefit for response to a spill of MDO. The thresholds described above are compared with the modelling results for the WCCS (**Table 2-5**).

2.3.4 Spill modelling results

Details of the scenario and modelling inputs and results are included in **Table 2-5**.

The volumes as presented in **Table 2-5** are the worst-case volumes resulting from the stochastic modelling and have been used to determine appropriate level of response.

Table 2-5: Worst case credible scenario modelling results

Scenario description	Results			
	CS-01	CS-02	CS-03	CS-04
WCCS – total volume released Refer to Section 2.2.1 for detailed hydrocarbon characteristics	Instantaneous Release of 250 m³ of MDO outside Mermaid Sound Hydrocarbon release resulting from a collision with a third-party vessel - Loss of containment from the IMMR vessel fuel tank within the Trunkline Operational Area. Instantaneous release of 250 m ³ of MDO.	Instantaneous Release of 250 m³ of MDO within Montebello AMP Hydrocarbon release resulting from a collision with a third-party vessel - Loss of containment from the IMMR vessel fuel tank within the Trunkline Operational Area. Instantaneous release of 250 m ³ of MDO.	Instantaneous surface release of 470 m ³ of MDO following a loss of structural integrity at the FPU location. Instantaneous release of 470 m ³ of MDO.	Loss of well containment due to a failure at the wellheads and/or Xmas trees.
WCCS – residual volume remaining post-weathering	5% residual component of 12.5 m ³	5% residual component of 12.5 m ³	5% residual component of 23.5 m ³	N/A – dry gas with no liquid hydrocarbons
Location	20° 21' 3.28" S, 116° 42' 5.58" E	20° 03' 1.44" S, 115° 31' 35.04" E	19° 53' 54.72" S, 113° 14' 19.56" E	N/A – dry gas
Modelling results				
Surface area of hydrocarbons (>50 g/m²)	Deterministic modelling was not undertaken so spatial area information is not available. Surface hydrocarbon concentrations greater than 50 g/m ² are predicted at Dampier Archipelago after 7 hours, however, offshore response techniques, i.e. containment and recovery, and surface dispersant application, are not considered appropriate for spills of MDO.	Deterministic modelling was not undertaken so spatial area information is not available. Surface hydrocarbon concentrations greater than 50 g/m ² are predicted at Montebello Marine Park after 1 hour, however, offshore response techniques, i.e. containment and recovery, and surface dispersant application, are not considered appropriate for spills of MDO.	Deterministic modelling was not undertaken so spatial area information is not available. Surface hydrocarbon concentrations greater than 50 g/m ² are not predicted at any RPA for the duration of the spill.	N/A – dry gas
Surface area of hydrocarbons (>50 g/m² and <15,000 cSt)	N/A	N/A	N/A	N/A – dry gas
Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m²)	Dampier Archipelago - 0.25 days	Montebello MP – 1 hour	No contact at threshold	N/A – dry gas
Minimum time to commencement of hydrocarbon accumulation at any shoreline receptor (at a concentration of 100 g/m²)	Dampier Archipelago - 0.75 days (55 m ³) Keast Island - 0.75 days (20 m ³)	No contact at threshold	No contact at threshold	N/A – dry gas
Maximum cumulative hydrocarbon volume accumulated at any individual shoreline receptor (at a concentration of 100 g/m²).	Dampier Archipelago – 55 m ³	No contact at threshold	No contact at threshold	N/A – dry gas
Maximum cumulative hydrocarbon volume accumulated across all shoreline receptors contacted by accumulated hydrocarbons (at a concentration of 100 g/m²)	Dampier Archipelago – 55 m ³	No contact at threshold	No contact at threshold	N/A – dry gas
Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb)	Dampier Archipelago – 0.21 days	Montebello MP – 1 hour	Gascoyne MP – 2.96 days	N/A – dry gas
The full list of response protection areas (RPAs) predicted from modelling is available in Table 3-1				

From the above modelling results, the volumes and timeframes for CS-01 have been selected as the basis for response planning.

3 IDENTIFY RESPONSE PROTECTION AREAS

In a response, operational monitoring programs (OMPs) – including trajectory modelling and vessel/aerial observations – would be used to predict Response Protection Areas (RPAs) that may be impacted. For the purposes of planning and appropriately scaling a response, modelling has been used to identify RPAs as outlined below in Figure 3-1.

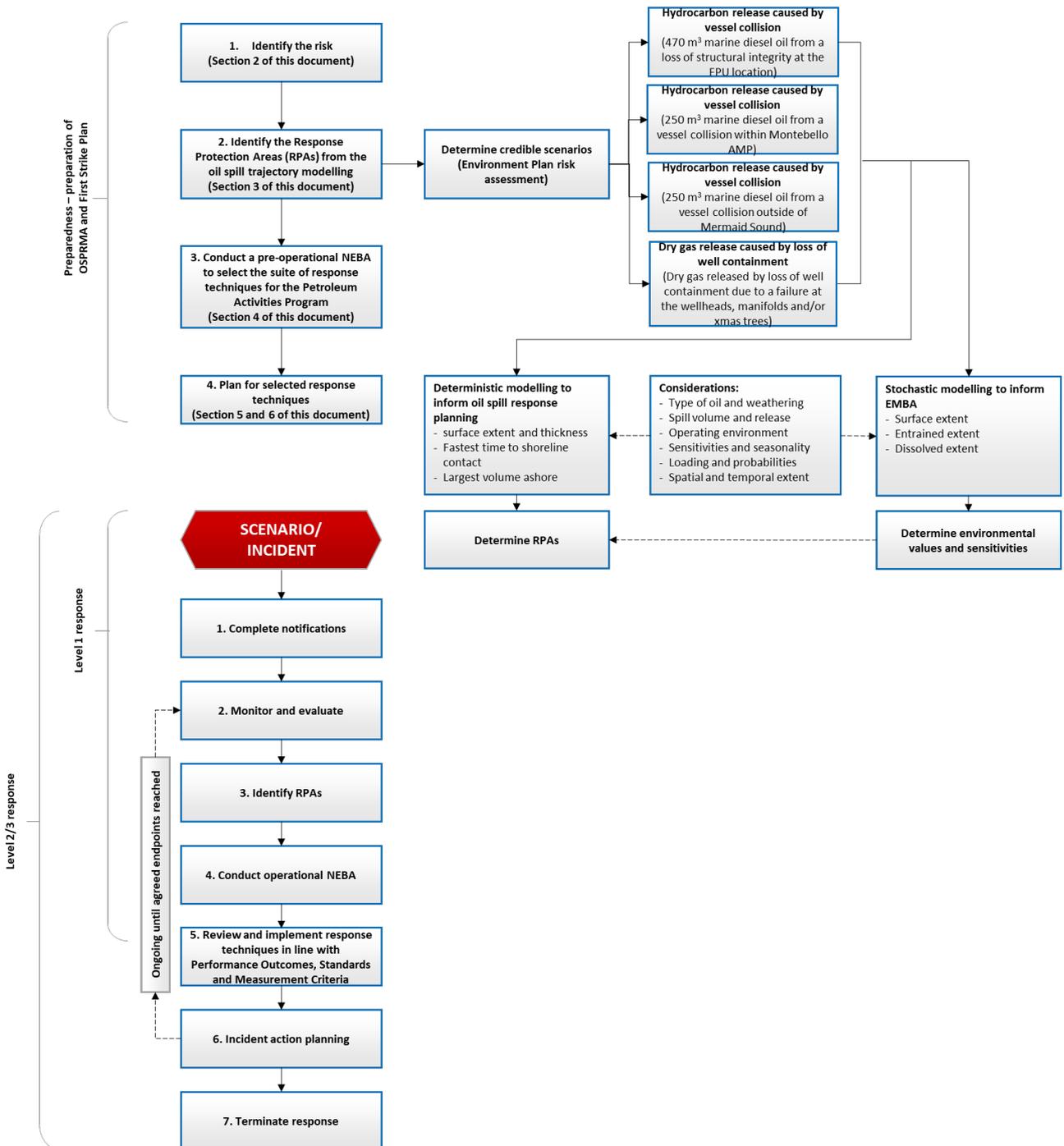


Figure 3-1: Identify Response Protection Areas (RPAs) flowchart

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3.1 Identified sensitive receptor locations

Section 6 of the EP includes the list of sensitive receptor locations that have been identified by stochastic modelling as meeting the requirements outlined below:

- receptors with the potential to incur surface, entrained or shoreline accumulation contact above environmental impact thresholds
- receptors within the EMBA which meet any of the following:
 - priority protection criteria/ categories
 - International Union of Conservation of Nature (IUCN) marine protected area categories
 - high conservation value habitat and species
 - important socio-economic/heritage value.

3.2 Identify Response Protection Areas

RPAs have been selected on the basis of their environmental ecological, social, economic, cultural and heritage values and sensitivities and the ability to conduct a response based on the minimum response thresholds (Section 2.3.3). The figures outlined in Table 3-1 are the combined results of the individual worst-case runs and do not indicate a single worst case credible scenario (where the timings and volumes are all expected from one release).

From the identified sensitive receptors described in Section 6 of the EP, only those which a shoreline response could feasibly be conducted (accumulation > 100 g/m² for shoreline assessment and/or contact with surface slicks >10 g/m² for operational monitoring) have been selected for response planning purposes. While not discounting other sensitivities, these RPAs have been used as the basis for demonstrating the capability to respond to the nature and scale of a spill from the WCCS and prioritising response techniques.

Table 3-1 outlines locations which were identified from the modelling runs for the WCCS but does not constitute the full list of Priority Protection Areas (PPAs) potentially contacted from stochastic modelling (as per EMBA definition) (see Section 4 of the EP). Other RPA outliers were identified from the modelling and have been included in the assessment of capability in Sections 5 and 6.

Additional sensitive receptors are presented the existing environment description (Section 4 of the EP) and impact assessment section (Section 6 of the EP) for each respective spill scenario. The pre-operational NEBA (Section 4) includes the results from the stochastic modelling to allow consideration of all feasible response techniques in the planning phase, therefore additional receptors are also included in the pre-operational NEBA.

The RPAs identified in Table 3-1 are used to plan for the nature and scale of a shoreline response.

Table 3-1: Response Protection Areas (RPAs) from stochastic modelling

Response protection area	Conservation status	IUCN protection category	Minimum time to shoreline contact (above 100 g/m ²) in days ⁽³⁾	Maximum shoreline accumulation (above 100 g/m ²) in m ³ ⁽⁴⁾	Minimum time to shoreline contact (above 100 g/m ²) in days ⁽⁵⁾	Maximum shoreline accumulation (above 100 g/m ²) in m ³ ⁽⁶⁾	Minimum time to shoreline contact (above 100 g/m ²) in days ⁽⁷⁾	Maximum shoreline accumulation (above 100 g/m ²) in m ³ ⁽⁸⁾	Minimum time to shoreline contact (above 100 g/m ²) in days ⁽⁹⁾	Maximum shoreline accumulation (above 100 g/m ²) in m ³ ⁽¹⁰⁾
			CS-01		CS-02		CS-03		CS-04	
Dampier Archipelago	Nature reserve and National Heritage Place	IUCN Ia – Strict Nature Reserve IUCN II – National Park IUCN IV – Habitat/Species Management Area IUCN VI – Multiple Use Zone	Day 0.75	55 m ³	N/A	N/A	N/A	N/A	N/A	N/A
Gidley Island	Nature reserve	IUCN Ia – Strict Nature Reserve	Day 1.63	12 m ³	N/A	N/A	N/A	N/A	N/A	N/A
Keast Island	Nature reserve	IUCN Ia – Strict Nature Reserve	Day 0.75	20 m ³	N/A	N/A	N/A	N/A	N/A	N/A
Legendre Island	Nature reserve	IUCN Ia – Strict Nature Reserve	Day 0.83	15 m ³	N/A	N/A	N/A	N/A	N/A	N/A

³ This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24-hour period.

⁴ This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24-hour time period

⁵ This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24-hour period.

⁶ This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24-hour time period

⁷ This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24-hour period.

⁸ This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24-hour time period

⁹ This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24-hour period.

¹⁰ This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24-hour time period

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Cape Bruguieres	National Heritage Property	N/A	Day 1.25	48 m ³	N/A	N/A	N/A	N/A	N/A	N/A
Angel Island	Nature reserve	IUCN Ia – Strict Nature Reserve	Day 2.46	3 m ³	N/A	N/A	N/A	N/A	N/A	N/A
Rosemary Island	Nature reserve	IUCN Ia – Strict Nature Reserve	Day 1.21	21 m ³	N/A	N/A	N/A	N/A	N/A	N/A
Cohen Island	Nature reserve	IUCN Ia – Strict Nature Reserve	Day 1.29	5 m ³	N/A	N/A	N/A	N/A	N/A	N/A

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4 NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)

A Net Environmental Benefit Analysis (NEBA) is a structured process to consider which response techniques are likely to provide the greatest net environmental benefit.

The NEBA process typically involves four key steps outlined in Figure 4-1: evaluate data, predict outcomes, balance trade-offs, and select response options. These steps are followed in the planning/preparedness process and would also be followed in a response.

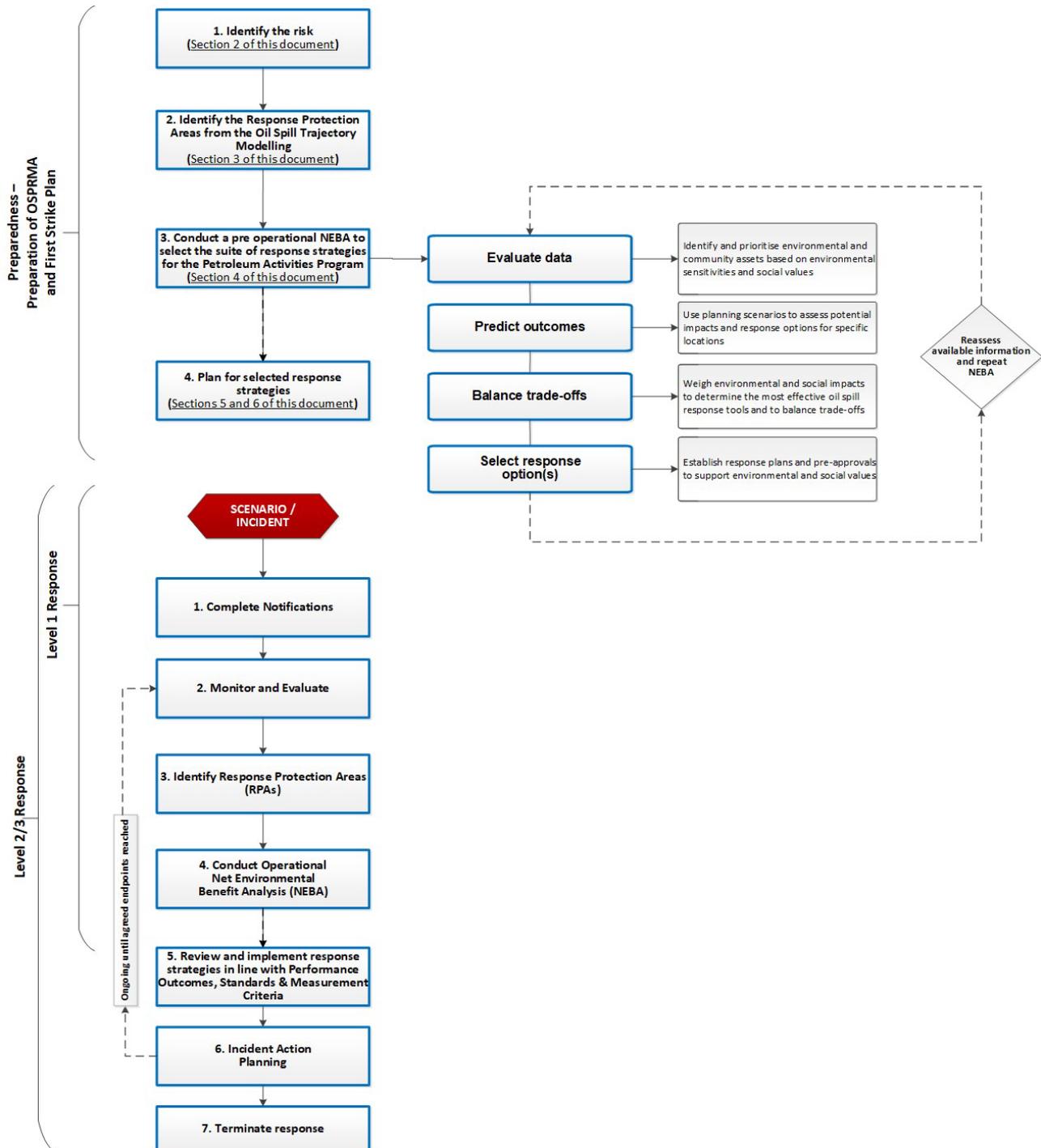


Figure 4-1: Net Environmental Benefit Analysis (NEBA) flowchart

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4.1 Pre-operational / Strategic NEBA

The pre-operational NEBA identifies positive and negative impacts to sensitive receptors from implementing the response techniques. Feasibility is considered by assessing the receptors potentially impacted above response thresholds (Section 2.3.3) and the surface concentrations (Section 2.3.3.1) from the modelling.

Completing a pre-operational NEBA is a key response planning control that reduces the environmental risks and impacts of implementing the selected response techniques. Comprehensive details of the pre-operational NEBA for this PAP are contained in **ANNEX A: Net Environmental Benefit Analysis detailed outcomes**.

4.2 Stage 1: Evaluate data

Woodside identifies and prioritises environmental and community assets based on environmental sensitivities and social values, informed using trajectory modelling. Interpretation of stochastic oil spill modelling determines the EMBA for the release, which defines the spatial area that may be potentially impacted by the PAP.

4.2.1 Define the scenario(s)

Woodside uses scenarios identified from the risk assessment in the EP to assess potential impacts and response options for specific locations. The WCCS is then selected for deterministic modelling and is used for this pre-operational NEBA. Outlier locations with potential environmental impacts, selected from the stochastic modelling may also be included for assessment. Response thresholds and deterministic modelling are then used to assess the feasibility/effectiveness and scale of the response. Modelling results are available in Table 2-5 and Table 3-1.

4.3 Stage 2: Predict Outcomes

Woodside uses planning scenarios to assess potential impacts and response options for specific locations. Locations with potential environmental impacts, selected from the stochastic modelling are included for assessment. Response thresholds and deterministic modelling are then used to assess the feasibility/effectiveness of a response.

4.4 Stage 3: Balance trade-offs

Woodside considers environmental impacts and response feasibility/ effectiveness to determine the most effective oil spill response tools and balance trade-offs, using an automated NEBA tool. The tool considers potential benefits and impacts associated with a response at sensitive receptors and then considers the feasibility/ effectiveness of the response to select the response techniques carried forward to the ALARP assessment. The NEBA can be found in **ANNEX A: Net Environmental Benefit Analysis detailed outcomes**.

4.5 Stage 4: Select Best Response Options

To select the response technique, all the other stages in the NEBA process are considered and used to establish response plans and any pre-approvals to support protection of identified environmental and social values.

The response techniques implemented may vary according to a particular spill. The hydrocarbon type released, and the sensitivities of the receptors (both ecological and socio-economic), may influence the response. The pre-operational NEBA broadly evaluates each response technique and supports decisions on whether they are feasible and of net environmental benefit. Response techniques that are not feasible or beneficial are rejected at this stage and not progressed to planning.

Further risks and impacts from implementing these selected response options are outlined in Section 7.

4.5.1 Determining potential response options

The available response techniques based on current technology can be summarised under the following headings:

- Operational monitoring
- Source control
 - remotely operated vehicle (ROV) intervention
 - debris clearance and/or removal

- capping stack
- relief well drilling
- Source control via vessel SOPEP
- Surface dispersant application:
 - aerial dispersant application
 - vessel dispersant application
- Mechanical dispersion
- In-situ burning
- Containment and recovery
- Shoreline protection and deflection:
 - protection
 - deflection
- Shoreline clean-up:
 - Phase 1 – mechanical clean-up
 - Phase 2 – manual clean-up
 - Phase 3 – final polishing
- Oiled wildlife response (including hazing).

Support functions may include:

- Waste management
- Post spill/scientific monitoring.

Table 4-1 and Table 4-2 include scenario-specific assessments of feasible response options and justification for the exclusion of inappropriate options. These options are evaluated against the scenario parameters including oil type, volume, characteristics, prevailing weather conditions, logistical support, and resource availability to determine deployment feasibility.

A shortlist of the feasible response options is then carried forward for the ALARP assessment. This assessment will typically result in a range of available options, that are deployed at different areas (at-source, offshore, nearshore and onshore) and different times during the response. The NEBA process assists in prioritising which options to use where and when, and timings throughout the response.

Table 4-1: Response technique evaluation – Instantaneous Release of MDO (CS-01, CS-02, CS-03)

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: MDO				
Operational Monitoring	<p>Will be effective in tracking the location of the spill, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include:</p> <ul style="list-style-type: none"> OM01 Predictive modelling of hydrocarbons – used throughout spill. ‘Ground-truthed’ using the outputs of all other monitoring techniques. OM02 Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill. OM03 Monitoring of hydrocarbon presence, properties, behaviour and weathering in water – from outset of spill. OM04 Pre-emptive assessment of sensitive receptors at risk – triggered once OM01, OM02 and OM03 inform likely RPAs at risk. OM05 Shoreline assessment – once OM02, OM03 and OM04 inform if any RPAs have been impacted. 	<p>Monitoring of a MDO spill is a feasible response technique and outputs will be used to guide decision making on the use of other monitoring/response techniques and providing information to regulatory agencies including AMSA and WA DoT. Practicable techniques that could be used for this scenario include predictive modelling (OM01), surveillance and reconnaissance OM02) and monitoring of hydrocarbon presence in water (OM03).</p> <p>Modelling predicts impact of the Dampier Archipelago, Gidley Island, Cape Bruguieres, Keast Island, and Legendre Island shoreline receptors at threshold (CS-01), therefore, pre-emptive assessment of sensitive receptors at risk (OM04) and monitoring of contaminated resources (OM05) will be utilised.</p>	Yes	<p>Monitoring the spill will be necessary to:</p> <ul style="list-style-type: none"> validate trajectory and weathering models determine the behaviour of the oil in water determine the location and state of the slick provide forecasts of spill trajectory determine appropriate response techniques determine effectiveness of response techniques confirm impact pathways to receptors provide regulatory agencies with required information.
Source control via vessel SOPEP	Controlling the spill of diesel at source would be the most effective way to limit the quantity of hydrocarbon entering the marine environment.	A spill of diesel from a vessel collision (CS-01 and CS-02) or loss of structural integrity on the FPU (CS-03) will be instantaneous and source control will be limited to what the vessel or facility can safely achieve whilst responding to the incident.	Yes	Ability to stop the spill at source will be dependent upon the specific spill circumstances and whether it is safe for response personnel to access/isolate the source of the spill.
Surface dispersant application	<p>Application of surface dispersant would likely reduce the volumes of hydrocarbons contacting sensitive surface receptors.</p> <p>Dispersant can also enhance biodegradation and may reduce volatile organic compounds (VOCs) in some circumstances therefore reducing potential health and safety risk to responders.</p> <p>Dispersant can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons.</p> <p>Subsurface oil plume likely to increase in size resulting in greater spatial extent of entrained oil.</p> <p>Entrained oil could potentially impact on sensitive shallow-water receptors e.g. corals, which otherwise may have been unaffected.</p>	<p>Whilst modelling for CS-02 predicts that floating oil will reach the minimum feasible threshold at which to commence surface dispersant application (>50 g/m²) within the Montebello AMP, this technique is not suitable for MDO spills as this hydrocarbon is prone to rapid spreading and evaporation and are not considered effective when applied on thin surface films such as MDO as the dispersant droplets tend to pass through the surface films without binding to the hydrocarbon resulting in the unnecessary addition of chemicals to the marine environment.</p> <p>The volatile nature of MDO is also likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon thus this response technique is deemed inappropriate.</p>	No	The application of dispersant to MDO is unnecessary as the diesel will rapidly evaporate and would thus unnecessarily introduce additional chemical substances to the marine environment. The additional entrainment would also increase exposure of subsea species and habitats to hydrocarbons.
Mechanical dispersion	Mechanical dispersion involves the use of a vessel’s prop wash and/or fire hose to target surface hydrocarbons to achieve dispersion into the water column. However, this technique is of limited benefit in an open ocean environment where wind and wave action are likely to deliver similar advantages.	<p>Although the technique is feasible, highly volatile hydrocarbons are likely to weather, spread and evaporate quickly.</p> <p>The volatile nature of the oil likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon.</p> <p>Additionally, any vessel used for mechanical dispersion activities would be contaminated by the hydrocarbon and could potentially cause secondary contamination of unimpacted areas when exiting the spill area.</p> <p>The decontamination of a vessel used for mechanical dispersion activities would result in additional quantities of oily waste requiring appropriate handling and treatment.</p>	No	Given the limited benefit of mechanical dispersion over natural wind and wave action, secondary contamination and waste issues, and the associated safety risk of implementing the response for this activity, this strategy is deemed unsuitable.
In-situ burning	In-situ burning is only effective where minimum slick thickness can be achieved.	<p>Use of in-situ burning as a response technique for MDO is unfeasible as the minimum slick thickness cannot be attained due to rapid spreading.</p> <p>In addition, there is a limited window of opportunity in which this technique can be applied (prior to evaporation of the volatiles) which is unlikely to be achieved.</p> <p>Furthermore, entering a volatile environment to undertake this technique would be unsafe for response personnel and its used would unnecessarily cause an increase the release of atmospheric pollutants.</p>	No	Diesel characteristics are not appropriate for the use of in-situ burning and would unnecessarily cause an increase the release of atmospheric pollutants.

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Containment and recovery	Containment and recovery has an effective recovery rate of 5-10% when a hydrocarbon encounter rate of 25-50% is achieved at BAOAC 4 and 5 with a 50-100% coverage of 100 g/m ² to 200 g/m ² .	<p>Whilst modelling predicts that floating oil will reach the minimum feasible threshold at which to commence containment and recovery (50 g/m²) within the Montebello Marine Park, this technique is not suitable for MDO spills as it is prone to rapid spreading and evaporation and is deemed unsuitable for effective containment and recovery operations.</p> <p>The volatile nature of MDO is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon thus this response technique is deemed inappropriate.</p>	No	Containment and recovery would be an inappropriate response technique for a spill of MDO. Corraling a volatile hydrocarbon such as MDO is deemed unsafe for response personnel thus this response strategy is not considered feasible. In addition to the safety issues, most of the spilled diesel would have been subject to rapid evaporation prior to the commencement of containment and recovery operations.
Shoreline protection and deflection	Shoreline protection and deflection can be effective at preventing contamination of at-risk areas.	<p>Real-time Operational Monitoring activities (OM01, OM02 and OM03) will be used to track surface hydrocarbons moving towards shorelines. Where feasible, pre-emptive assessments of sensitive receptors at risk (OM04) and existing TRPs will be utilised to guide shoreline protection and deflection operations, in agreement with WA DoT (for Level 2/3 spills).</p> <p>For CS-01, first shoreline accumulation (> 100 g/m²) is predicted on day 0.75 at Dampier Archipelago (55 m³) and Keast Island (20 m³). Feasibility of deploying this technique prior to shoreline contact will be assessed based on real-time monitoring.</p> <p>For scenarios CS-2 and CS-03, no shoreline receptors will be contacted at threshold.</p> <p>Access to sensitive areas may cause more negative impact than benefit.</p>	Yes (CS-01)	<p>The modelling undertaken for CS-01 predicts that shoreline receptors would be contacted by floating oil concentrations above 100 g/m².</p> <p>RPA's predicted to be contacted are based on modelling outputs and thus may differ under the prevailing conditions of a real event.</p> <p>For RPA's deemed to be at risk based on real-time modelling during a spill event, shoreline protection and deflection techniques will be employed to minimise hydrocarbon accumulation providing a net environmental benefit.</p>
Shoreline clean-up	Shoreline clean-up is an effective means of hydrocarbon removal from contaminated shorelines where coverage is at an optimum level of 250 g/m ² .	<p>Real-time Operational Monitoring activities (OM01, OM02 and OM03) will be used to indicate shorelines at risk of hydrocarbon contact. Pre-emptive assessments of sensitive receptors at risk (OM04), shoreline assessments (OM05) and existing TRPs will be utilised to guide shoreline clean-up operations, in agreement with WA DoT (for Level 2/3 spills).</p> <p>For CS-01, first shoreline accumulation (> 100 g/m²) is predicted on day 0.75 at Dampier Archipelago (55 m³) and Keast Island (20 m³).</p> <p>The modelling for CS-02 and CS-03 predicts that no shoreline receptors will be contacted at threshold – any minor contact is significantly below any threshold concentration that would allow a response to be feasible.</p> <p>Through shoreline assessment, verify that sensitive sites will benefit from clean-up activities as the response itself may cause more negative impact than benefit through disturbance of habitats and species.</p>	Yes (CS-01)	<p>The modelling undertaken for CS-01 predicts that shoreline receptors would be contacted by floating oil concentrations above 100 g/m².</p> <p>Response Protection Areas predicted to be contacted are based on modelling outputs and thus may differ under the prevailing conditions of a real event.</p> <p>If RPA's are at risk, based on real-time monitoring and modelling during a spill event, shoreline clean-up techniques will be deployed to expedite clean-up of the impacted sites.</p> <p>Removal of hydrocarbons will help shorten the recovery window unless shoreline type is of a sensitive nature.</p> <p>This technique can help prevent remobilisation of hydrocarbon and impact on shorelines.</p>
Oiled wildlife response	Oiled wildlife response is an effective response technique for reducing the overall impact of a spill on wildlife. This is mostly achieved through hazing to prevent additional wildlife from being contaminated and through rehabilitation of those already subject to contamination.	<p>Operational Monitoring will be deployed from the outset of a spill to track the spill location and fate in real-time. Thus, in the event that wildlife is at risk of contamination, oiled wildlife response will be undertaken in accordance with the Oiled Wildlife Response Operational Plan as and where required. In addition, any rehabilitation would only be undertaken by trained specialists.</p> <p>Due to the likely volatile atmospheric conditions surrounding a diesel spill, response options may be limited to hazing to maximise the safety of response personnel.</p> <p>For CS-01, first shoreline accumulation (> 100 g/m²) is predicted from day 0.75 at Dampier Archipelago and Keast Island. The modelling undertaken for CS-02 and CS-03 predicts that no shoreline areas will be impacted thus it is unlikely that this technique would be required.</p>	Yes	<p>The modelling undertaken for CS-01 predicts above 100 g/m² for Dampier Archipelago, Gidley Island, Cape Bruguieres, Keast Island, and Legendre Island receptors.</p> <p>In the event that wildlife is at risk of contamination, oiled wildlife response will be undertaken as and where required.</p>

Table 4-2: Response technique evaluation – Dry gas release (CS-04)

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: Dry gas				
Operational Monitoring	For a dry gas release, established (liquid hydrocarbon) spill monitoring techniques are not applicable. Monitoring the gas plume via the ROV sonar tool may be effective, in conjunction with other well information, in determining appropriate source control techniques.	Monitoring the gas plume may be feasible where safe access via the ROV can be achieved and line of (sonar) sight is achievable to observe the gas plume. Outputs may be used to guide decision making on the use of source control techniques including options for safe and effective capping stack deployment, and relief well execution. Although modelling of the gas release for CS-04 predicts the plume will not breach the water's surface, gas monitoring at the surface is a feasible practice and may be undertaken via the support vessels' gas monitoring equipment.	Yes	If feasible and safe, monitoring the gas plume via ROV and gas monitoring at the surface may: <ul style="list-style-type: none"> determine the behaviour of the plume monitor the surface plume (if water's surface is breached) determine appropriate source control response techniques inform on effectiveness of response techniques verify safety of response personnel guide SIMOPS.
Source control via Xmas tree intervention	It may be possible to isolate flow from the tree, depending on the nature of the leak.	The installed tree system incorporates several isolation valves, both hydraulically actuated and manually operated, which could be used to prevent or reduce flow depending on the nature of the leak. ROV intervention to close subsea valves is a routine and standard operation.	Yes	The use of source control intervention via ROV may be feasible and would reduce quantity of methane released.
Source control via debris clearance and capping stack	Controlling a loss of well containment at source via capping stack could be an effective way to limit the quantity of hydrocarbon entering the marine environment, depending on the nature of the leak/failure. Debris clearance tools could, in some scenarios, be useful.	Woodside has developed a project specific capping stack deployment plan and also commissioned an independent, capping stack landing study for the Scarborough wells (Wild Well Control Inc (WWCI), 2021). The study indicates that deployment of the capping stack is feasible. Woodside maintains several frame agreements with various vessel service providers and maintains the ability to call off services with a capping stack and debris clearance agreement.	Yes	Conventional/vertical capping stack deployment with a heavy lift vessel is feasible once metocean conditions (wind, waves etc) are appropriate for safe deployment. Since the produced gas does not breach the sea surface, the response to the incident should not be unduly hampered by plume conditions.
Source control via relief well drilling	A subsea release of methane will be stopped approximately 65.3 days after the initiation of a relief well response.	If required, relief well drilling is a widely accepted and utilised technique.	Yes	Relief well drilling is a proven technique employed to control a loss of well containment event should the other containment measures be unsuccessful.
Surface dispersant application	Not applicable for a dry gas loss of well containment (LOWC).	Not applicable for a dry gas LOWC.	No	Not applicable for a dry gas LOWC.
Mechanical dispersion	Not applicable for a dry gas LOWC.	Not applicable for a dry gas LOWC.	No	Not applicable for a dry gas LOWC.
In-situ burning	Not applicable for a dry gas LOWC.	Not applicable for a dry gas LOWC.	No	Not applicable for a dry gas LOWC.
Containment and recovery	Not applicable for a dry gas LOWC.	Not applicable for a dry gas LOWC.	No	Not applicable for a dry gas LOWC.
Shoreline protection and deflection	Not applicable for a dry gas LOWC.	Not applicable for a dry gas LOWC.	No	Not applicable for a dry gas LOWC.
Shoreline clean-up	Not applicable for a dry gas LOWC.	Not applicable for a dry gas LOWC.	No	Not applicable for a dry gas LOWC.
Oiled wildlife response	Not applicable for a dry gas LOWC.	Not applicable for a dry gas LOWC.	No	Not applicable for a dry gas LOWC.

5 HYDROCARBON SPILL ALARP PROCESS

Woodside's hydrocarbon spill ALARP process is aligned with guidance provided by NOPSEMA in *ALARP Guidance Note N-04300-GN0166* (2022) and *Oil Spill Risk Management Guidance Note N-04750-GN1488* (2021) and is set out in the 'Woodside Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) Guidelines'.

From the identified response planning need and pre-operational NEBA/SIMA, Woodside conducts a structured, semi-quantitative hydrocarbon spill process which has the following steps:

- It considers the Response Planning Need identified in terms of surface area (km²) and available surface hydrocarbon volumes (m³) against existing Woodside capability.
- It considers alternative, additional, and improved options for each response technique/control measure by providing an initial and, if required, detailed evaluation of:
 - predicted cost associated with adopting the control measure
 - predicted change/environmental benefit
 - predicted effectiveness/feasibility of the control measure.
- It evaluates the risks and impacts of implementing the proposed response techniques, and any further control measures with associated environmental performance to manage these additional risks and impacts.

Woodside considers the risks and impacts from a hydrocarbon spill to have been reduced to ALARP when:

- A structured process for identifying and considering alternative, additional, and improved options has been completed for each selected response technique.
- The analysis of alternate, additional, and improved control measures meets one of the following criteria:
 - all identified, reasonably practicable control measures have been adopted; or
 - no identified reasonably practicable additional, alternative and/or improved control measures would provide further overall increased proportionate environmental benefit; or
 - no reasonably practical additional, alternative, and/or improved control measures have been identified.
- Where an alternative, additional and/or improved control measure is adopted, a measurable level of environmental performance has been assigned.
- Higher order impacts/ risks have received more comprehensive alternative, additional, and improved control measure evaluations and do not just compare the cost of the adopted control measures to the costs of an extreme or unreasonable control measure.
- Cumulative effects have been analysed when considered in combination across the whole activity.

The response technique selection is based on the risk assessment conducted in the EP. The risk assessment identifies the type of oil, volume of release, duration of release, predicted fate, weathering and the EMBA (along with other requirements such as time to impact and predicted volumes ashore). Modelling is then used to inform the NEBA and the prioritisation of suitable response options. The scale of the response techniques selected in the pre-operational NEBA is informed through the assessment of results from deterministic modelling.

For the ALARP assessment, the following terms and definitions have been used:

- Response techniques are considered the control measures that reduce consequences from hydrocarbon spill events. The terms 'response technique' and 'control measure' are used interchangeably.
- Cost is defined as the time, effort and/or complexity of financial, safety, design/ storage/ installation, capital/ lease, and/or operations/ maintenance required to adopt a control measure.

- Environmental impact is the comparison against standard environmental values and sensitivities' impacts using positive or negative criteria from the NEBA Impact Ranking Classification Guidance in Annex A.

5.1 Operational Monitoring

Operational Monitoring includes the gathering and evaluation of data to inform the oil spill response planning and operations. It includes fate and trajectory modelling, spill tracking, weather updates and field observations. This response option is deployed in some capacity for every event.

The table below provides the operations monitoring plans that support the successful execution of this response technique.

Table 5-1: Description of supporting operational monitoring plans

ID	Title
OM01	Predictive modelling of hydrocarbons to assess resources at risk
OM02	Surveillance and reconnaissance to detect hydrocarbons and resources at risk
OM03	Monitoring of hydrocarbon presence, properties, behaviour and weathering in water
OM04	Pre-emptive assessment of sensitive receptors at risk
OM05	Shoreline assessment

Woodside maintains an *Operational Monitoring Operational Plan*. If shoreline contact is predicted, RPAs will be identified and assessed before contact. If shorelines are contacted, a shoreline assessment survey will be completed to guide effective shoreline clean-up operations. This plan includes the process for the IMT to mobilise resources depending on the nature and scale of the spill.

The proximity of Dampier, Onslow and Exmouth to the spill event location means that multiple logistical options are available to monitor the spill in relatively short timeframes. The primary mobilisation base for initial monitoring activities would be Dampier. However, in the unlikely event of an extended spill with potential to impact receptors further afield, monitoring activities may also be mobilised from Exmouth and Onslow.

5.1.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which a response need can be based:

- Floating surface oil in sufficient concentrations for effective operational monitoring is expected:
 - for CS-01 with surface concentrations of 10 g/m² up to ~19 km from the vessel collision location outside of Mermaid Sound
 - for CS-02 with surface concentrations of 10 g/m² up to ~43 km from the vessel collision location within the Montebello AMP
 - for CS-03 with surface concentrations of 10 g/m² up to ~105 km from the loss of structural integrity at the FPU location.
- The shortest timeframe that shoreline contact from floating oil is predicted is 0.75 days (Dampier Archipelago and Keast Island) for CS-01. No shore contact at response threshold is predicted for CS-02 or CS-03.
- The time to contact for oil at concentrations of entrained hydrocarbons greater than 100 ppb at shoreline receptors is 5 hours at Dampier Archipelago (CS-01), 1 hour at Montebello AMP (CS-02), and 71 hours at Gascoyne MP (CS-03).
- Arrangements for support organisations who provide specialist services or resources should be tested regularly.
- Plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.
- Response operations may take up to 7-8 days based on the predicted time to complete shoreline clean-up operations.

5.1.2 Environmental performance based on need

Table 5-2: Environmental Performance – Operational Monitoring

Environmental Performance Outcome		To gather information from multiple sources to establish an accurate common operating picture as soon as possible and predict the fate and behaviour of the spill to validate planning assumptions and adjust response plans as appropriate to the scenario.		
Control measure		Performance Standard		Measurement Criteria (Section 5.10)
1	Oil spill trajectory modelling	1.1	Initial modelling available within 6 hours using the Rapid Assessment Tool.	1, 3B, 3C, 4
		1.2	Detailed modelling available within 4 hours of RPS receiving information from Woodside.	
		1.3	Detailed modelling service available for the duration of the incident upon contract activation.	
2	Tracking buoy	2.1	Tracking buoy located on facility/ lead vessel and ready for deployment 24/7.	1, 3A, 3C, 4
		2.2	Deploy tracking buoy from facility/ lead vessel within 2 hours as per the First Strike Plan.	1, 3A, 3B, 4
		2.3	Contract in place with service provider to allow data from tracking buoy to be received 24/7 and processed.	1, 3B, 3C, 4
		2.4	Data received to be uploaded into Woodside COP daily to improve the accuracy of other Operational Monitoring techniques.	1, 3B, 4
3	Satellite imagery	3.1	Contract in place with 3 rd party provider to enable access and analysis of satellite imagery. Imagery source/type requested on activation of service.	1, 3C, 4
		3.2	3 rd party provider will confirm availability of an initial acquisition within 2 hours.	1, 3B, 3C, 4
		3.3	First image received with 24 hours of Woodside confirming to 3 rd party provider its acceptance of the proposed acquisition plan.	1
		3.4	3 rd party provider to submit report to Woodside per image. Report is to include a polygon of any possible or identified slick(s) with metadata.	1
		3.5	Data received to be uploaded into Woodside COP daily to improve accuracy of other Operational Monitoring techniques.	1, 3B, 4
		3.6	Satellite Imagery services available and employed during response.	1, 3C, 4
4	Aerial surveillance	4.1	2 trained aerial observers available to be deployed by day 1 from resource pool.	1, 2, 3B, 3C, 4
		4.2	1 aircraft available for two sorties per day, available for the duration of the response from day 1.	1, 3C, 4
		4.3	Observer to compile report during flight as per First Strike Plan. Observers report available to the IMT within 2 hours of landing after each sortie.	1, 2, 3B, 4
		4.4	Unmanned Aerial Vehicles/Systems (UAV/UASs) to support SCAT, containment and recovery and surface dispersal and pre-emptive assessments as contingency if required.	1, 2
5	Hydrocarbon detections in water	5.1	Activate 3 rd party service provider as per first strike plan. Deploy resources within 3 days: <ul style="list-style-type: none"> • 3 specialists in water quality monitoring • 2 monitoring systems and ancillaries • 1 vessel for deploying the monitoring systems with a dedicated winch, A-frame or Hiab and ancillaries to deploy the equipment. 	1, 2, 3C, 3D, 4

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Environmental Performance Outcome		To gather information from multiple sources to establish an accurate common operating picture as soon as possible and predict the fate and behaviour of the spill to validate planning assumptions and adjust response plans as appropriate to the scenario.		
Control measure		Performance Standard		Measurement Criteria (Section 5.10)
		5.2	Water monitoring services available and employed during response.	1, 3C, 4
		5.3	Preliminary results of water sample as per contractor's implementation plan within 7 days of receipt of samples at the accredited lab.	
		5.4	Daily fluorometry reports as per service provider's implementation plan will be provided to IMT to validate modelling and monitor presence/ absence of entrained hydrocarbons.	
6	Pre-emptive assessment of sensitive receptors	6.1	Within 24 hours, in liaison with WA DoT (for Level 2/3 incidents), deployment of 1 specialist(s) from resource pool in establishing the status of sensitive receptors.	1, 2, 3B, 3C, 4
		6.2	Daily reports provided to CIMT on the status of the receptors to prioritise Response Protection Areas (RPAs) and maximise effective utilisation of resources.	1, 3B, 4
7	Shoreline assessment	7.1	Within 24 hours, in liaison with WA DoT (for Level 2/3 incidents), deployment of 1 specialist(s) in SCAT from resource pool for each of the Response Protection Areas (RPAs) with predicted impacts.	1, 2, 3B, 3C, 4
		7.2	SCAT reports provided to IMT daily detailing the assessed areas to maximise effective utilisation of resources.	1, 3B, 4
		7.3	Shoreline access routes with the least environmental impact identified will be selected by a specialist in SCAT operations.	1

The control measures and capability of Woodside and its third-party service providers are shown to support Operational Monitoring activities up to and including the identified WCCS. This is demonstrated by the following:

- Woodside has a documented, structured and tested capability for Operational Monitoring operations including internal trajectory modelling capabilities, tracking buoys located offshore and contracted aerial observation platforms with access to trained observers.
- Woodside and its third-party service providers seek to maintain sufficient capability for the duration of the response.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.1.

5.2 Source Control via Vessel SOPEP

Vessel source control will be conducted, where feasible and in accordance with MARPOL 73/78 Annex I, by the Vessel Master under the Shipboard Oil Pollution Emergency Plan (SOPEP) triggered by any loss of containment from the PAP vessels.

The SOPEP provides guidance to the Master and Officers on board the vessel with respect to the extra steps to be taken when an unexpected pollution incident has occurred or is likely to occur. The SOPEP contains all information and operational instructions required by IMO Resolution MEPC.54 (32) adopted on 6 March 1992, as amended by resolution MEPC.86 (44) adopted on 13 March 2000.

Its purpose is to set in motion the necessary actions to stop or minimise oil discharge and mitigate its effects and outlines responsibilities, pollution reporting requirements, procedures and resources needed in the event of a hydrocarbon spill from vessel activities.

In the event of the WCCS vessel collision event, the vessel master may engage precautionary marine manoeuvres to avoid collision or commence pumping operations to transfer MDO and thus minimise the release.

5.2.1 Environmental performance based on need

Woodside has established control measures, environmental performance outcomes, performance standards and measurement criteria to be used for vessel-source oil spill response during the PAP which are detailed in Section 6.8 of the EP. The vessel master's roles and responsibilities are described in EP Section 7.3.

Performance standards for each contracted PAP vessel are detailed in the vessel's specific SOPEP.

These standards maintain availability of sufficient resources and are adequately tested for successful implementation of the SOPEP in the event of a hydrocarbon spill.

5.3 Source control and well intervention

The worst-case scenario for a loss of well containment is considered to be loss of well control due to a 'tree off' scenario. This scenario would result in an uncontrolled flow of dry gas from the well as outlined in the EP. In the event of a loss of well containment, the primary response would be source control and well intervention.

The Woodside Source Control Emergency Response Planning Guideline has been developed as part of the Woodside assurance plans and in alignment with the guidelines in the *NOPSEMA Source Control Planning and Procedures Information Paper* (N-04750-IP1979 A787102). It includes the process for the CIMT to mobilise resources for Subsea First Response Toolkit (SFRT) support, and capping support. This plan has pre-identified vessel specifications and contracts required for SFRT debris clearance work.

Woodside is a signatory to a MoU between Australian offshore operators to provide mutual aid to facilitate and expedite mobilising a MODU and drilling a relief well if a loss of well containment incident were to occur. The MoU commits the signatories to share rigs, equipment, personnel and services to assist another operator in need. Moored and Dynamically Positioned (DP) MODUs are suitable for the Scarborough wells.

Source control operations cannot be implemented if the safety of response personnel cannot be guaranteed. Circumstances that limit the safe execution of this control measure include lower explosive limit (LEL) concentrations, volatile concentrations of hydrocarbons in the atmosphere, weather window, waves and/or sea states (>1.5m waves) and high ambient temperatures. As the dry gas plume for the PAP is not predicted to breach the water's surface, LEL concentrations and volatile concentrations of hydrocarbons in the atmosphere are unlikely to pose a safety issue for response personnel. Gas monitoring will, however, be undertaken in line with standard protocol.

5.3.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which a response need can be based:

- Prior to any source control activities, Woodside will implement protocols seeking to ensure that the site is safe including subsea ROV surveys and surface air monitoring.
- Hydrocarbons will flow from the well until one of the following interventions can be made:
 - closure of the tubing retrievable safety valve (TRSV) if present (only present after installation of the completion)
 - intervention with a capping stack
 - a relief well is drilled and first attempt at well kill within 65.3 days.
- Arrangements for support organisations who provide specialist services or resources should be tested regularly.
- Plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.
- The duration of the release may be up to 65.3 days.

In addition, a number of assumptions are required to estimate the response need for source control. These assumptions have been described in the table below.

Table 5-3: Response Planning Assumptions – Source Control

Response planning assumptions	
Capping stack feasibility	Woodside has developed a project specific capping stack deployment plan and also commissioned an independent, capping stack landing study for the Scarborough wells (WWCI, 2021). The study indicates that the safe deployment of a capping stack is feasible.
Safety considerations	<p>Source control operations cannot be implemented if the safety of response personnel cannot be guaranteed. This requires an initial and ongoing risk assessment of health and safety hazards and risks at the site, in accordance with the Woodside Management System (WMS). Personnel safety issues may include:</p> <ul style="list-style-type: none"> • hydrocarbon gas and/or liquid exposure • high winds, waves and/or sea states • high ambient temperatures.
Feasibility considerations	<p>Woodside’s primary source control options would be ROV intervention and capping stack deployment. Relief well drilling operations may be needed to provide an option to permanently abandon the well after the well flow is stopped.</p> <p>The following approaches outline Woodside’s hierarchy approach for selecting suitable MODU’s for relief well operations;</p> <ul style="list-style-type: none"> • primary – review internal drilling programs and MODU availability to source appropriate rig(s) operating within Australia with an approved Safety Case • alternate – source and contract MODUs through Australian Energy Producers (AEP) (formerly Australian Petroleum Production & Exploration Association (APPEA)) Memorandum of Understanding (MoU) that is operating within Australia with an approved Safety Case • contingency – source and contract a MODU outside Australia with an approved Australian Safety Case.

5.3.2 Environmental performance based on need

Table 5-4: Environmental Performance – Source Control

Environmental Performance Outcome		To stop the flow of hydrocarbons into the marine environment		
Control measure		Performance Standard	Measurement Criteria (Section 5.10)	
8	Subsea First Response Toolkit (SFRT)	8.1	Oceanering support staff available all year round, via contract, to assist with the mobilisation, deployment, and operation of the SFRT equipment.	1, 3B, 3C
		8.2	Intervention vessel with minimum requirement of a working class ROV and operator.	1, 3C
		8.3	Mobilised to site for deployment within 11 days.	1, 3B, 3C
		8.4	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
9	Well intervention	9.1	Frame agreements with ROV providers in place to be mobilised upon notification. ROV equipment deployed within 7 days.	1, 3B, 3C
		9.2	Source control vessel will have the following minimum specifications: <ul style="list-style-type: none"> active heave compensated crane, rated to at least 150 T in shallower water and 250 T in deeper water. at least 90 m in length deck has water/electricity supply deck capacity to hold at least 110 T of capping stack. 	1, 3B, 3C
		9.3	Identify source control vessel availability within 24 hours and begin contracting process. Vessel mobilised to site for deployment within 16 days for conventional capping.	1, 3B, 3C
		9.4	Well intervention attempt made using ROV and SFRT within 11 days.	1, 3B, 3C
		9.5	Capping stack on suitable vessel mobilised to site within 16 days. Deployment and well intervention attempt will be made once safety and metocean conditions are suitable.	1, 3C
		9.6	Contract in place for access to equipment and staff to assist with the mobilisation, deployment, and operation of the capping stack and well intervention equipment.	1, 3B, 3C
		9.7	MODU mobilised to site for relief well drilling within 21 days.	1, 3C
		9.8	First well kill attempt completed within 65.3 days.	1, 3B, 3C
		9.9	Open communication line(s) to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
		9.10	Monthly monitoring of the availability of MODUs through existing market intelligence including current Safety Case history.	3C
10	Support vessels	10.1	Access to 24/7 vessel tracking software to monitor availability of suitable vessels to meet specifications for source control.	3C
		10.2	Frame agreements for installation support vessels (ISVs) require vessels maintain in-force Safety Case approvals covering ROV operations and provide support in the event of an emergency.	1, 3B, 3C
		10.3	MODU and vessel contracts include clause outlining requirement for support in the event of an emergency	1, 3C
11	Safety case	11.1	Woodside will prioritise MODU or vessel(s) for intervention work(s) that have an existing Safety Case.	1, 3C
		11.2	Woodside Planning, Logistics, and Safety Officers (on-roster/ call 24/7) to assist in expediting the Safety Case assessment process as far as practicable.	1, 3C

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Environmental Performance Outcome	To stop the flow of hydrocarbons into the marine environment		
Control measure	Performance Standard		Measurement Criteria (Section 5.10)
	11.3	Woodside will maintain minimum safe operating standards that can be provided to MODU and vessel operators for Safety Case guidance.	1, 3C

The resulting source control capability has been assessed against the WCCS. The range of techniques provide a feasible and viable approach to well intervention and, if necessary, relief well drilling operations to stop the well flowing.

The health and safety, financial, capital and operations/maintenance costs of implementing the alternative, additional or improved control measures identified and not carried forward are considered disproportionate to the insignificant environmental benefit gained and/or not reasonably practicable for this PAP.

Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in **Section 6.3.8**.

5.4 Shoreline Protection and Deflection

The placement of containment, protection or deflection booms on and near a shoreline is a response technique to reduce the potential volume of hydrocarbons contacting or spreading along shorelines, which may reduce the scale of shoreline clean-up. Hydrocarbons contained by the booms would be collected where practicable.

Shorelines would be protected where accessible via vessel or shore. Where hydrocarbon contact has already occurred, there may still be value in deploying protection equipment to limit further accumulations and preventing remobilisation of stranded hydrocarbons.

Shoreline protection and deflection equipment would be mobilised to selected locations, where the following conditions were met:

- Sea-states and hydrocarbon characteristics are safe to deploy protection and deflection measures,
- Oil trajectory has been identified as heading towards identified RPAs.

5.4.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which the response need can be based:

- The shortest timeframe that shoreline contact from floating oil above threshold is predicted to be 0.75 days at Dampier Archipelago (55 m³) and Keast Island (20 m³) for CS-01. No shore contact at response threshold is predicted for CS-02 or CS-03.
- Pre-emptive assessment and shoreline assessments (OM04 and OM05) will be mobilised to RPAs contacted at 100 g/m², which occurs from day 0.75 at Dampier Archipelago and Keast Island.
- The duration of the spill will be instantaneous with shoreline response operations extending to 7 to 8 days based on the predicted time to complete shoreline clean-up operations.
- Arrangements for support organisations who provide specialist services (trained personnel, protection and deflection equipment) and/or resources and should be tested regularly.
- TRPs for RPAs along with other relevant plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.

In addition, a number of assumptions are required to estimate the response need for shoreline protection and deflection. These assumptions have been described in the table below.

Table 5-5: Response Planning Assumptions – Shoreline Protection and Deflection

Response Planning Assumptions	
Safety considerations	<p>Shoreline protection and deflection operations cannot be implemented if the safety of response personnel cannot be guaranteed. This requires an initial and ongoing risk assessment of health and safety hazards and risks at the site. Personnel safety issues may include:</p> <ul style="list-style-type: none"> • hydrocarbon gas and/or liquid exposure • safe for deployment and conditions within range of vessels • high ambient temperatures.
Shoreline Protection and Deflection	<p>One Shoreline Protection and Deflection operation may include:</p> <ul style="list-style-type: none"> • quantity of shoreline sealing boom (as outlined in TRP) • quantity of fence or curtain boom (as outlined in TRP) • 1-2 trained supervisors • 8-10 personnel/ labour hire <p>Specific details of each operation would be tailored to the TRP implemented (where available).</p>

5.4.2 Environmental performance based on need

Table 5-6: Environmental Performance – Shoreline protection and deflection

Environmental Performance Outcome		To stop hydrocarbons encountering particularly sensitive areas		
Control measure	Performance Standard		Measurement Criteria (Section 5.10)	
12	Response teams	12.1	In liaison with WA DoT (for Level 2/3 incidents), relevant Tactical Response Plans (TRPs) will be identified in the First Strike plan for activation within 12 hours of the release.	1, 3A, 3C, 4
		12.2	In liaison with WA DoT (for Level 2/3 incidents), mobilise teams to RPAs within 24 hours. Teams to contaminated RPAs comprised of: <ul style="list-style-type: none"> • 1-2 trained specialists per operation • 8-10 personnel/labour hire • personnel sourced through resource pool. 	1, 2, 3B, 3C, 4
		12.3	In liaison with WA DoT (for Level 2/3 incidents), 1 operation mobilised within 24 hours to each identified RPA.	1, 3A, 3B, 4
		12.4	12 trained personnel available within 24 hours sourced through resource pool.	1, 2, 3A, 3B, 3C, 4
		12.5	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
		12.6	The safety of shoreline response operations will be considered and appropriately managed. During shoreline operations: <ul style="list-style-type: none"> • All personnel in a response will receive an operational/safety briefing before commencing operations. • Gas monitoring and site entry protocols will be used to assess safety of an operational area before allowing access to response personnel. 	1, 3B, 4
13	Response equipment	13.1	Equipment mobilised from closest stockpile within 24 hours.	1, 3A, 3C, 4
		13.2	Supplementary equipment mobilised from AMOSC, AMSA and State stockpiles within 48 hours.	1, 3C, 3D, 4
		13.3	Supplementary equipment mobilised from OSRL within 48 hours.	
		13.4	Woodside maintains integrated fleet of vessels. Additional vessels can be sourced through existing contracts/frame agreements.	1, 3A, 3C, 4
14	Management of environmental impact of the response risks	14.1	If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified.	1
		14.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines.	

The resulting shoreline protection and deflection capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to shoreline protection and deflection at identified RPAs.

Under optimal conditions, the capability available meets the need identified by day 3. It indicates that, the shoreline protection and deflection capability has the following expected performance:

- The shortest predicted timeframe for shoreline contact from floating oil is 0.75 days at Dampier Archipelago (55 m³) and Keast Island (20 m³) for CS-01. No shore contact at response threshold is predicted for CS-02 or CS-03.

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- Existing capability allows for mobilisation and deployment of 1-2 protection and deflection operations within 24 hours (if required). Whilst modelling predicts contact at a further 6 RPAs above response threshold within 24-48 hours (Table 3-1), it should be noted that this is based upon 200 stochastic model runs thus it is unfeasible for this to all occur from a single release.
- The most significant constraint on expanding the scale of response operations is the availability of accommodation and transport services in the region between Exmouth and Port Hedland, and the management of response generated waste. From previous assessment of accommodation in this region, Woodside estimates that current accommodation can cater for a range of 500-700 personnel per day for an ongoing operation.
- TRPs have been developed for identified RPAs excepting international locations.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.4.

5.5 Shoreline Clean-up

Shoreline clean-up may be undertaken using a broad range of techniques when floating hydrocarbons contact shorelines. The timing, location and extent of shoreline clean-up activities can vary from one scenario to another, depending on the hydrocarbon type, sensitivities and values contacted, shoreline type and access, degree of oiling, and area oiled.

Shoreline clean-up is typically undertaken as a three-phase process:

- phase one (gross contamination removal) involving the collection of bulk oil, either floating against the shoreline or stranded on it
- phase two (moderate to heavy contamination removal) involving removal or in-situ treatment of shoreline substrates such as sand or pebble beaches
- phase three (final treatment or polishing) involving removal of the remaining residues of oil.

As phase one typically involves recovery of floating and pooled oil, and phase three removes minor volumes, they have not been considered in the assessment of response need for the scenarios identified.

The *Shoreline Clean-up Operational Plan* details the mobilisation and resource requirements for a shoreline clean-up operation including the logistics, support and facility arrangements to manage the movement of personnel and resources.

The *Shoreline Clean-up Operational Plan* includes the process for the IMT to mobilise resources depending on the nature and scale of the spill. Woodside would activate and mobilise trained and competent personnel in shoreline assessment before or following shoreline contact at response thresholds.

Shoreline clean-up consists of different manual and mechanical recovery techniques to remove hydrocarbons and contaminated debris from a shoreline; this is to minimise ongoing environmental contamination and impact. The National Plan also provides guidance on shoreline clean-up techniques as outlined in National Plan Guidance *Response assessment and termination of cleaning for oil contaminated foreshores* (AMSA 2015).

5.5.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which the response need can be based:

- The shortest predicted timeframe for shoreline contact from floating oil above feasible response threshold is 0.75 days at Dampier Archipelago (55 m³) and Keast Island (20 m³) for CS-01 with shoreline accumulation peaking on day 2. No shore contact at response threshold is predicted for CS-02 or CS-03.
- The nature of the spill is instantaneous, with shoreline response operations extending to 7-8 days based on the predicted time to complete shoreline clean-up operations.
- Pre-emptive assessment and shoreline assessments (OM04 and OM05) will be mobilised to RPAs with shoreline contact.
- Following Shoreline Assessment and agreement of prioritisation with WA Department of Transport, clean-up operations would commence until agreed termination criteria are reached.
- Arrangements for support organisations who provide specialist services (trained personnel, labour hire, shoreline clean-up, and site management equipment) and/or resources and should be tested regularly.
- TRPs for RPAs along with other relevant plans, procedures and support documents should be in developed and in place for Operational and Support functions. These should be reviewed and updated regularly.

In addition, assumptions are required to estimate the response need for shoreline clean-up. These assumptions have been described in the table below.

Table 5-7: Response Planning Assumptions – Shoreline Clean-up

Response planning assumptions: Shoreline clean-up	
Safety considerations	<p>Shoreline clean-up operations cannot be implemented if the safety of response personnel cannot be guaranteed. This requires an initial and ongoing risk assessment of health and safety hazards and risks at the site. Personnel safety issues may include:</p> <ul style="list-style-type: none"> • hydrocarbon gas and/or liquid exposure • waves and/or sea states, tidal cycle and intertidal zone limits • presence of wildlife • high ambient temperatures.
Manual shoreline clean-up operation (Phase 2)	<p>One, manual shoreline clean-up operation (Phase 2) may include:</p> <ul style="list-style-type: none"> • 1–2 x trained supervisor • 8–10 x personnel/ labour hire • supporting equipment for manual clean-up including rakes, shovels, plastic bags etc.
Physical properties	<p>Surface Threshold</p> <ul style="list-style-type: none"> • Lower – 100 g/m²–100% coverage of ‘stain’ – cannot be scratched off easily on coarse sediments or bedrock. Expected trigger to undertake detailed shoreline survey. • Optimum – 250 g/m²– 25% coverage of ‘coat’ – can be scratched off with a fingernail on coarse sediments. Expected trigger to commence clean-up operations.
Efficiency (m ³ oil recovered per person per day)	<p>Manual shoreline clean-up (Phase 2) – approximately 0.25–1 m³ oil recovered per person per 10 hour day is based on moderate to high coverage of oil (100 g/m²–1000 g/m²) with manual removal using shovels/rakes, etc. from studies of previous response operations and exercises.</p>

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Table 5-8: Shoreline Clean-up techniques and recommendations

Technique	Description	Shoreline type		Application
		Recommended	Not recommended	
Natural recovery	Allowing shoreline to self-clean; no intervention undertaken.	<p>Remote and inaccessible shorelines for personnel, vehicles and machinery.</p> <p>Other clean-up techniques may cause more damage than allowing the shoreline to naturally recover.</p> <p>Natural recovery may be recommended for areas with mangroves and coral reefs due to their sensitivity to disturbance from other shoreline clean-up techniques.</p> <p>High-energy shorelines: where natural removal rates are high, and hydrocarbons will be removed over a short timeframe.</p>	<p>Low-energy shorelines: these areas tend to be where hydrocarbon accumulates and penetrates soil and substrates.</p>	<p>May be employed, if the operational NEBA identifies that other clean-up techniques will have a negligible or negative environmental impact on the shoreline.</p> <p>May also be used for buried or reworked hydrocarbons where other techniques may not recover these.</p>
Manual recovery	<p>Use of manpower to collect hydrocarbons from the shoreline.</p> <p>Use of this form of clean-up is based on type of shoreline.</p>	<p>Remote and inaccessible shorelines for vehicles and machinery.</p> <p>Areas where shorelines may not be accessible by vehicles or machinery and personnel can recover hydrocarbons manually.</p> <p>Where hydrocarbons have formed semi-solid to solid masses that can be picked up manually.</p> <p>Areas where nesting and breeding fauna cannot or should not be disturbed.</p>	<p>Coral reef or other sensitive intertidal habitats, as the presence of a response may cause more environmental damage than allowing them to recover naturally.</p> <p>For some high-energy shorelines such as cliffs and sea walls, manual recovery may not be recommended as it may pose a safety threat to responders.</p>	<p>May be used for sandy shorelines. Buried hydrocarbons may be recovered using shovels into small carry waste bags, but where possible the shoreline should be left to naturally recover to prevent any further burying of hydrocarbons (from general clean-up activities).</p>

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Technique	Description	Shoreline type		Application
		Recommended	Not recommended	
Sorbents	Sorbent boom or pads used to recover fluid or sticky hydrocarbons. Can also be used after manual clean-up to remove any residues from crevices or from vegetation.	When hydrocarbons are free-floating close to shore or stranded onshore. As a secondary treatment method after hydrocarbon removal and in sensitive areas where access is restricted.	Access for deploying and retrieving sorbents should not be through soft or sensitive habitats or affect wildlife.	Used for rocky shorelines. Sorbent boom will allow for deployment from small shallow draught vessels, which will allow deployment close to shore where water is sheltered and to aid recovery. Sorbents will create more solid waste compared with manual clean-up, so will be limited to cleaning rocky shorelines.
Vacuum recovery, flushing, washing	The use of high volumes of low-pressure water, pumping and/or vacuuming to remove floating hydrocarbons accumulated at shorelines.	Suited to rocky or pebble shores where flushing can remobilise hydrocarbons (to be broken up) and aid natural recovery. Any accessible shoreline type from land or water. May be mounted on barges for water-based operations, on trucks driven to the recovery area, or hand-carried to remote sites. Flushing and vacuum may be useful for rocky substrate. Medium- to high-energy shorelines where natural removal rates are moderate to high. Where flushed hydrocarbons can be recovered to prevent further oiling of shorelines.	Areas of pooled light, fresh hydrocarbons may not be recoverable via vacuum due to fire and explosion risks. Shorelines with limited access. Flushing and washing not recommended for loose sediments. High-energy shorelines where access is restricted.	High volume low pressure (HVLP) flushing and washing into a sorbent boom could be used for rocky substrate, if protection booming has been unsuccessful in deflecting hydrocarbons from these areas.
Sediment reworking	Movement of sediment to surf to allow hydrocarbons to be removed from the sediment and move sand via heavy machinery.	When hydrocarbons have penetrated below the surface. Recommended for pebble/cobble shoreline types. Medium- to high-energy shorelines where natural removal rates are moderate to high.	Low-energy shorelines as the movement of substrate will not accelerate the natural cleaning process. Areas used by fauna which could potentially be affected by remobilised hydrocarbons.	Use of wave action to clean sediment: appropriate for sandy beaches where light machinery is accessible.

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Technique	Description	Shoreline type		Application
		Recommended	Not recommended	
Vegetation cutting	Cutting vegetation to prevent oiling and reduce volume of waste and debris.	Vegetation cutting may be recommended to reduce the potential for wildlife being oiled. Where oiling is restricted to fringing vegetation.	Access in bird-nesting areas should be restricted during nesting seasons. Areas of slow-growing vegetation.	May be used on shorelines where vegetation can be safely cleared to reduce oiling.
Cleaning agents (OSCA)	Application of chemicals such as dispersants to remove hydrocarbons.	May be used for manmade structures and where public safety may be a concern.	Natural substrates and in low-energy environments where sufficient mixing energy is not present.	Not recommended for shorelines. Could be used for manmade structures such as boat ramps.

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5.5.2 Environmental performance based on need

Table 5-9: Environmental Performance – Shoreline Clean-up

Environmental Performance Outcome		To remove bulk and stranded hydrocarbons from shorelines and facilitate shoreline amenity habitat recovery.		
Control measure	Performance Standard		Measurement Criteria (Section 5.10)	
15	Shoreline responders	15.1	In liaison with WA DoT (for Level 2/3 incidents), deployment of shoreline clean-up teams to contaminated RPAs comprised of: <ul style="list-style-type: none"> • 1-2 trained specialists per operation • 8-10 personnel/labour hire • personnel sourced through resource pool within 24 hours of request from the IMT. 	1, 2, 3A, 3B, 3C, 4
		15.2	Relevant Tactical Response Plans (TRPs) will be identified in the first strike plan for activation within 24 hours of a release.	1, 3A, 3C, 4
		15.3	Clean-up operations for shorelines in line with results and recommendations from SCAT outputs.	1, 3A, 3B
		15.4	All shoreline clean-up sites will be zoned and marked before clean-up operations commence to prevent secondary contamination and minimise the mixing of clean and oiled sediment and shoreline substrates.	
		15.5	In liaison with WA DoT (for Level 2/3 incidents), mobilise and deploy 1-2 shoreline clean-up operations within 24 hours.	1, 2, 3A, 3C, 4
		15.6	The safety of shoreline response operations will be considered and appropriately managed. During shoreline clean-up operations: <ul style="list-style-type: none"> • All personnel in a response will receive an operational/safety briefing before commencing operations • Gas monitoring and site entry protocols will be used to assess safety of an operational area before allowing access to response personnel. 	1, 3B, 4
		15.7	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
16	Shoreline clean up equipment	16.1	Contract in place with 3 rd party providers to access equipment.	1, 3A, 3C, 4
		16.2	Equipment mobilised from closest stockpile within 24 hours.	
		16.3	Supplementary equipment mobilised from AMOSC, AMSA and State stockpiles within 48 hours.	1, 3C, 3D, 4
		16.4	Supplementary equipment mobilised from OSRL within 48 hours.	
17	Management of environmental impact of the response risks	17.1	If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified.	1
		17.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines.	
		17.3	Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves.	
		17.4	Removal of vegetation will be limited to moderately or heavily oiled vegetation.	
		17.5	Shoreline access routes with the least environmental impact identified will be selected by a specialist in SCAT operations.	
		17.6	Oversight by trained personnel who are aware of the risks.	
		17.7	Trained unit leaders will brief personnel prior to operations of the environmental risks of presence of personnel on the shoreline.	

The resulting shoreline clean-up capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to shoreline clean-up at identified RPAs. Woodside's existing capability will cover all required shoreline clean-up operations for the PAP by day 4.

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Existing capability allows for mobilisation and deployment of 1-2 shoreline clean-up operations within 24 hours (if required). Whilst a further 6 RPAs are predicted to be contacted above response threshold (Table 3-1) within 24-48 hours, it should be noted that this is based upon 200 stochastic model runs thus unlikely that these could all be contacted from a single release.

Safety factors have also been considered, including the potential for personnel to be exposed to hydrocarbon gas vapours in the early stages of the response. In addition, given the natural weathering rate of MDO, mobilising additional capability is not expected to provide a material net environmental benefit, therefore the current capability is managing risks and impacts to ALARP.

The capability available has limitations identified for this activity. The shoreline clean-up capability has the following performance (if required during a response):

- Woodside has the capacity to mobilise and deploy up to 15–20 shoreline clean-up teams within 7 days at up to 6-10 RPAs using existing labour hire contracts with Woodside, AMOSC, Core Group, AMSA and OSRL team leads.
- Assessment of response capability indicates that for a worst-case scenario the actual teams required would not meet the available capability until day 4, with the response completed by day 7-8.
- Woodside has considered deployment of additional personnel to undertake shoreline clean-up operations but is satisfied that the identified level of resource is balanced between cost, time and effectiveness.
- The most significant constraint on expanding the scale of response operations is the availability of accommodation and transport services in the region between Onslow and Dampier and management of response generated waste. From previous assessment of accommodation in Onslow and Dampier, Woodside estimates that current accommodation can cater for a range of 500-700 personnel per day for an ongoing operation.
- TRPs have been developed for identified RPAs excepting international locations.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.5.

5.6 Oiled wildlife response (including hazing)

Oiled wildlife response (OWR) includes wildlife surveillance/reconnaissance, wildlife hazing, pre-emptive capture, and the capture, cleaning, treatment, and rehabilitation of animals that have been oiled. In addition, it includes the collection, post-mortem examination, and disposal of deceased animals that have succumbed to the effects of oiling.

For a petroleum activity spill in Commonwealth waters, Woodside will act as the Control Agency and will be responsible for the wildlife response. In such circumstances, Woodside would implement a response in accordance with the *Oiled Wildlife Operational Plan*, the WA Oiled Wildlife Response Plan (WAOWRP) (DBCA, 2022a) and the WA OWR Manual (DBCA, 2022b). The *Oiled Wildlife Operational Plan* includes the process for the IMT to mobilise resources depending on the nature and scale of the spill. Oiled wildlife operations would be implemented with advice and assistance from the Oiled Wildlife Advisor from the Department of Biodiversity, Conservation and Attractions (DBCA).

The key plan for OWR in WA is the WAOWRP (DBCA, 2022a). The WAOWRP establishes the framework for preparing and responding to potential or actual wildlife impacts during a spill and sets out the management arrangements for implementing an OWR in conjunction with the DoT *State Hazard Plan – Maritime Environmental Emergencies* (SHP-MEE). It is the responsibility of DBCA to administer the WAOWRP under the direction of the DoT. The WA OWR Manual (DBCA, 2022b) supports, and should be used in conjunction with, the WAOWRP. The purpose of the WA OWR Manual is to standardise the operating procedures, protocols and processes for an OWR during a spill event in WA waters, and to create alignment between the wildlife response processes and the overall incident response (DBCA, 2022b).

If a spill occurs in WA State waters or enters State waters, DBCA is the Jurisdictional Authority for wildlife, for level 2/3 spills, and will also lead the oiled wildlife response under the control of the DoT. DBCA is the State Government agency responsible for administering the *Biodiversity Conservation Act 2016 (WA) (BC Act)* which has provisions for authorising activities that affect wildlife.

For level 1 spills in State waters, Woodside will be the Control Agency, including for wildlife response. It is, however, also an expectation that for level 2/3 petroleum activity spills, Woodside will conduct the initial first-strike response actions for wildlife response and continue to manage those operations until DBCA is activated as the lead agency for wildlife response and formal handover occurs. Following formal handover, Woodside will function as a support organisation for the OWR and will be expected to continue to provide planning and resources as required.

Woodside retains specialist personnel to support and manage oiled wildlife operations, including trained and competent responders for deployment in Exmouth and Dampier. Additional personnel would be sourced through Woodside's arrangements to support an oiled wildlife response as required.

5.6.1 Response need based on predicted consequence parameters

Wildlife response protection areas and assessment of wildlife impact

French-McCay et al. (2002), based on a review of existing literature at the time, determined lethal thresholds for floating and shoreline oil for the external coating of wildlife to be 10 g/m² for floating, and 100 g/m² for shoreline accumulation. It should however be noted that toxicity thresholds for wildlife are likely to be highly variable due to differences in species sensitivity, type of hydrocarbon, type of exposure (ingestion or external oiling), life-stage, and on-water versus land habitat.

For planning purposes, determination of wildlife priority protection areas is based on stochastic modelling of the worst-case spill scenarios at 10 g/m² for floating, and 100 g/m² for shoreline accumulation (acknowledging that impacts to wildlife may occur at lower concentrations), the known presence of wildlife, and in consideration of the following:

- presence of high densities of wildlife, threatened species, and/or endemic species with high site fidelity
- greatest probability of shoreline accumulation
- shortest timeframe to contact.

At the time of a spill, identification and allocation of wildlife response protection areas should also take into consideration any key biological activities.

For WA, although somewhat out-dated, the Pilbara and Kimberley Regional Oiled Wildlife Plans (DBCA [formerly Department of Parks and Wildlife], 2014) provide useful information relating to wildlife priority response areas in their respective regions.

Table 5-10: Key at-risk species potentially in Priority Protection Areas and open ocean

Species	Dampier Archipelago	Gidley Island	Keast Island	Legendre Island	Cape Bruguieres	Angel Island	Rosemary Island	Cohen Island	Montebello MP	Gascoyne MP	Hammersley Shoal	Madeleine Shoal
Marine turtles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Whale sharks	✓	✓	✓			✓	✓		✓	✓		
Seabirds and/or migratory shorebirds	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Cetaceans – migratory whales	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Cetaceans – dolphins and porpoises	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dugongs	✓	✓	✓	✓		✓	✓	✓				
Sharks and rays	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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The following statements identify the key parameters upon which a wildlife response need can be based:

- For CS-01, floating hydrocarbon at >10 g/m² is predicted at:
 - Dampier Archipelago within 6 hours
 - Hammersley Shoal within 17 hours
 - Madeleine Shoal within 18 hours
 - Legendre Island within 19 hours
 - Rosemary Island within 28 hours
 - Cape Bruguieres within 29 hours
 - Keast Island within 38 hours
- For CS-02, floating hydrocarbon at >10 g/m² is predicted at:
 - Montebello MP within 1 hour
 - Gascoyne MP within 58 hours
- For CS-03, floating hydrocarbon at >10 g/m² is not predicted for the duration of the spill.
- The shortest timeframe for shoreline accumulation at response thresholds (>100 g/m²) is predicted to be 0.75 days at Dampier Archipelago (55 m³) and Keast Island (20 m³) for CS-01. There is no shoreline impact predicted at response thresholds for CS-02 and CS-03.
- At sea, there are likely to be low numbers of at risk or impacted wildlife, and limited opportunities to rescue wildlife, given the distribution and behaviour of animals in the open marine environment.
- As the surface oil approaches shorelines and as oil accumulates on the shoreline, potential for oiled wildlife impacts is likely to increase as well as opportunities to rescue wildlife.
- It is estimated that the wildlife impact would be between low and medium, as defined in the WAOWRP (DBCA, 2022a) (Table 5-11).

Table 5-11: WAOWRP Guide for rating wildlife impact of an oil spill (DBCA, 2022)

Wildlife Impact Rating	Low	Medium	High
What is the likely duration of the wildlife response?	<3 days	3-10 days	>10 days
What is the likely total intake of animals?	<10	11-25	>25
What is the likely daily intake of animals?	0-2	2-5	>5
Are threatened species, or species protected by treaty, likely to be impacted, either directly or by pollution of habitat or breeding areas?	No	Yes – possible	Yes – likely
Is there likely to be a requirement for building primary care facility for treatment, cleaning and rehabilitation?	No	Yes – possible	Yes – likely

Tactics

Where there is imminent or actual impact to wildlife, Woodside will activate the Wildlife Division and follow the oiled wildlife incident management framework and implementation plan outlined in the Woodside *Oiled Wildlife Operational Plan*.

In Commonwealth waters, Woodside will be responsible for the planning and implementation of the OWR in its entirety. Noting that at sea, and in comparison, to the shoreline, there are likely to be less wildlife impacted by an oil spill and limited opportunities to rescue wildlife, given the distribution and behaviour of animals in the open marine environment. At sea, continued wildlife reconnaissance, carcass recovery, sampling of carcasses that cannot be retrieved and integration with scientific monitoring are more likely to be the focus of the OWR.

In State waters, Woodside will conduct the initial first-strike response actions for wildlife and continue to manage those operations until DBCA is activated as the lead agency for wildlife response and formal handover occurs. Following formal handover, Woodside will function as a support organisation for the OWR and will be expected to continue to provide planning and resources as required.

If a protracted response requiring preventative actions and/or wildlife rescue is likely, and formal hand over to the Control Agency (in State waters) has not yet occurred, the Wildlife Division will be responsible for the development of the Wildlife Division portion of the IAP. Preventative actions, such as hazing, capture,

intake and treatment, require a higher degree of planning, approval (licenses) and skills. These activities will be planned for and carried out under the IAP as outlined in the *Oiled Wildlife Operational Plan* and in accordance with the WAOWRP (DBCA, 2022a) and WA OWR Manual (DBAC, 20022b).

5.6.2 Environmental performance based on need

Table 5-12: Environmental Performance – Oiled Wildlife Response

Environmental Performance Outcome		OWR is conducted in accordance with the Western Australian Oiled Wildlife Response Plan (WAOWRP, 2022) to meet legislative requirements to house, release or euthanise wildlife under the <i>Biodiversity Conservation Act 2016 (WA)</i> .		
Control measure		Performance Standard	Measurement Criteria (Section 5.10)	
18	Wildlife response arrangements	18.1	Oiled Wildlife Operational Plan in place and utilised during a response to plan, coordinate, implement and terminate operations.	1, 3A, 4
		18.2	Initiate a wildlife first strike response within 24 hours of confirmed or imminent wildlife contact as directed by relevant Operational Monitoring techniques (OM01-05) and in liaison with DBCA.	1
19	Wildlife response equipment	19.1	Maintain contract with AMOSC for immediate access to oiled wildlife response equipment.	1, 3C, 3D, 4
		19.2	Maintain contract with OSRL to access additional oiled wildlife response equipment.	1, 3C, 3D, 4
20	Wildlife responders	20.1	Two Oiled Wildlife Team Members to supervise the oiled wildlife operations who have completed an Oiled Wildlife Response Management course.	1, 2, 3B
		20.2	Maintain contract with AMOSC for immediate access to trained oiled wildlife response specialists.	1, 3B, 3C
		20.3	Maintain contract with OSRL to access additional trained OWR specialists.	1, 3B, 3C
		20.4	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
21	Management of environmental impacts of response risks	21.1	Oiled wildlife operations (including hazing) would be implemented with advice and assistance from the Oiled Wildlife Advisor from the DBCA, and in accordance with the processes and methodologies described in the WA OWRP and the relevant regional plan.	1

The resulting wildlife response capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to response at identified RPAs.

Under optimal conditions, during the subsea or surface release, the capability available meets the need identified. It indicates that, the wildlife response capability has the following expected performance to:

- undertake OWR first strike response including
 - mobilisation of operational monitoring (OM01-05) to identify wildlife and RPAs contacted or at imminent risk of contact by hydrocarbons
- confirm availability and mobilisation of trained OWR personnel to supervise OWR activities
- access to wildlife resources (personnel and equipment) to meet the needs where there are medium or high levels of wildlife impact.

5.7 Waste Management

Waste management is considered a support technique to wildlife response, containment and recovery and shoreline clean-up. Waste generated and collected during the response that will require handling, management and disposal may consist of:

- liquids (hydrocarbons and contaminated liquids) collected during shoreline clean-up and oiled wildlife operations
- solids/semi-solids (oily solids, garbage, contaminated materials) and debris (e.g. seaweed, sand, woods, and plastics) collected during shoreline clean-up and oiled wildlife operations.

Expected waste volumes during an event are likely to vary depending on oil type, volume released, response techniques employed and how weathering of hydrocarbons. Waste management, handling and capacity should be scalable to maintain continuous response operations.

All waste management activities will follow the Environment Protection (Controlled Waste) Regulations 2004 (WA) and the waste will be managed to minimise final disposal volumes. Waste treatment techniques will consider contaminated solids treatment to allow disposal to landfill and solids with high concentrations of hydrocarbon will be treated and recycled where possible or used in clean fill if suitable.

The waste products would be transported from response locations to the nearest suitable staging area/waste transfer station for treatment, disposal or recycling. Waste will be transferred with appropriately licensed vehicles. Containers will be available for temporary waste storage and will be:

- labelled with the waste type
- provided with appropriate lids to prevent waste being blown overboard
- banded if storing liquid wastes.

Processes will be in place for transfers of bulk liquid wastes and include

- inspection of transfer hose undertaken prior to transfer
- watchman equipped with radio visually monitors loading hose during transfer
- tank gauges monitored throughout operation to prevent overflow.

The *Oil Spill Preparedness Waste Management Support Plan* details the procedures, capability and capacity in place between Woodside and its primary waste services contractor to manage waste volumes generated from response activities.

5.7.1 Response need based on predicted consequence parameters

Table 5-13: Response Planning Assumptions – Waste Management

Response planning assumptions: Waste management	
Waste loading per m ³ oil recovered (multiplier)	Shoreline clean-up (manual) – approximately 5-10x multiplier for oily solid and liquid wastes generated by manual clean-up.
	Oiled wildlife response – approximately 1 m ³ of oily solid and liquid waste generated for each wildlife unit cleaned.

5.7.2 Environmental performance based on need

Table 5-14: Environmental Performance – Waste Management

Environmental Performance Outcome		To minimise further impacts, waste will be managed, tracked and disposed of in accordance with laws and regulations.		
Control measure	Performance Standard		Measurement Criteria (Section 5.10)	
22	Waste Management	22.1	Contract with waste management services for transport, removal, treatment and disposal of waste.	1, 3A, 3B, 3C, 4
		22.2	Access to at least 124 m ³ of solid and liquid waste storage available within 24 hours upon activation of 3 rd party contract.	
		22.3	Access to up to 2400 m ³ by within 7 days.	
		22.4	Recovered hydrocarbons and wastes will be transferred to licensed treatment facility for reprocessing or disposal.	
		22.5	Waste management provider support staff available year-round to assist in the event of an incident with waste management as detailed in contract.	
		22.6	Open communication line to be maintained between IMT and waste management services to ensure the reliable flow of accurate information between parties.	1, 3A, 3B
		22.7	Waste management to be conducted in accordance with Australian laws and regulations.	1, 3A, 3B, 3C, 4
		22.8	Waste management services available and employed during response.	
23	Management of environmental impacts of response risks	23.1	Teams will segregate liquid and solid wastes at the earliest opportunity.	1, 3A, 3B, 3C, 4

The resulting waste management capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to waste management at identified RPAs.

The largest shoreline volumes ashore are predicted during day 1 and 2 at a maximum volume of 90 m³ and 86 m³ respectively, with between 413 m³ and 2099 m³ of waste expected across all shoreline clean-up operations up to and including day 7. The capability available meets the need identified by day 4. It should be noted that the shoreline volumes predicted by modelling are based upon 200 stochastic model runs thus it is unfeasible for this to all occur from a single release. Safety factors have also been considered, including the potential for personnel to be exposed to hydrocarbon gas vapours in the early stages of the response. In addition, given the natural weathering rate of MDO, mobilising additional capability is not expected to provide a material net environmental benefit, therefore the current capability is managing risks and impacts to ALARP.

It indicates that the waste management capability has the following expected performance:

- Shoreline and nearshore operations may generate up to 2099 m³ over seven days of operations.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.6.
- Woodside’s waste contractor has access to approximately 120,000 m³ to treat overall waste volumes. The waste management requirements are within Woodside’s and its service providers’ existing capacity.

5.8 Scientific monitoring

A scientific monitoring program (SMP) would be activated following a Level 2 or 3 unplanned hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. This would consider receptors at risk (ecological and socio-economic) for the entire predicted EMBA and, in particular, any identified Pre-emptive Baseline Areas (PBAs) for the credible spill scenario(s) or other identified unplanned hydrocarbon releases associated with the Petroleum Activities Program (PAP) (refer to Table 2-1: PAP credible spill scenarios).

The outputs of the stochastic hydrocarbon spill modelling are used to assess the environmental risk, in terms of delineating which areas of the marine environment are predicted to be exposed to hydrocarbons exceeding environmental threshold concentrations (refer to Table 2-2, Section 2.3.1.1). The summary of all the locations where hydrocarbon thresholds could be exceeded by any of the simulations modelled is defined as the EMBA. The PAP worst-case credible spill scenarios, CS-01, CS-02 and CS-03, define the EMBA and are the basis of the SMP approach presented in this section.

It should be noted that the resulting SMP receptor locations differ from the RPAs presented and discussed in Section 3 of this document due to the applicability of different hydrocarbon threshold levels. The SMP would be informed by the data collected via the Operational Monitoring Program (OMP) studies, however, it differs from the OMP in being a long-term program independent of, and not directing, the operational oil spill response or monitoring of impacts from response activities (refer to Section 5.1) for operational monitoring overview).

Key objectives of the Woodside oil spill scientific monitoring program are:

- assess the extent, severity and persistence of the environmental impacts from the spill event
- monitor subsequent recovery of impacted key species, habitats and ecosystems.

The SMP comprises ten targeted environmental monitoring programs to assess the condition of a range of physico-chemical (water and sediment) and biological (species and habitats) receptors including EPBC Act listed species, environmental values associated with protected areas and socio-economic values, such as fisheries. The ten SMPs are as follows:

- SM01 – assessment of the presence, quantity and character of hydrocarbons in marine waters (linked to OM01 to OM03)
- SM02 – assessment of the presence, quantity and character of hydrocarbons in marine sediments (linked to OM01 and OM05)
- SM03 – assessment of impacts and recovery of subtidal and intertidal benthos
- SM04 – assessment of impacts and recovery of mangroves/saltmarsh habitat
- SM05 – assessment of impacts and recovery of seabird and shorebird populations
- SM06 – assessment of impacts and recovery of nesting marine turtle populations
- SM07 – assessment of impacts to pinniped colonies including haul-out site populations
- SM08 – desktop assessment of impacts to other non-avian marine megafauna
- SM09 – assessment of impacts and recovery of marine fish (linked to SM03)
- SM10 – assessment of physiological impacts to important fish and shellfish species (fish health and seafood quality/safety) and recovery.

These SMPs have been designed to cover all key tropical and temperate habitats and species within Australian waters and broader, if required. A planning area for scientific monitoring is also identified to acknowledge potential hydrocarbon contact below the environmental threshold concentrations and beyond the EMBA. This planning area has been set with reference to the entrained low exposure value of 10 ppb detailed in NOPSEMA Bulletin #1 Oil Spill Modelling (2019), as shown in Figure 5-1.

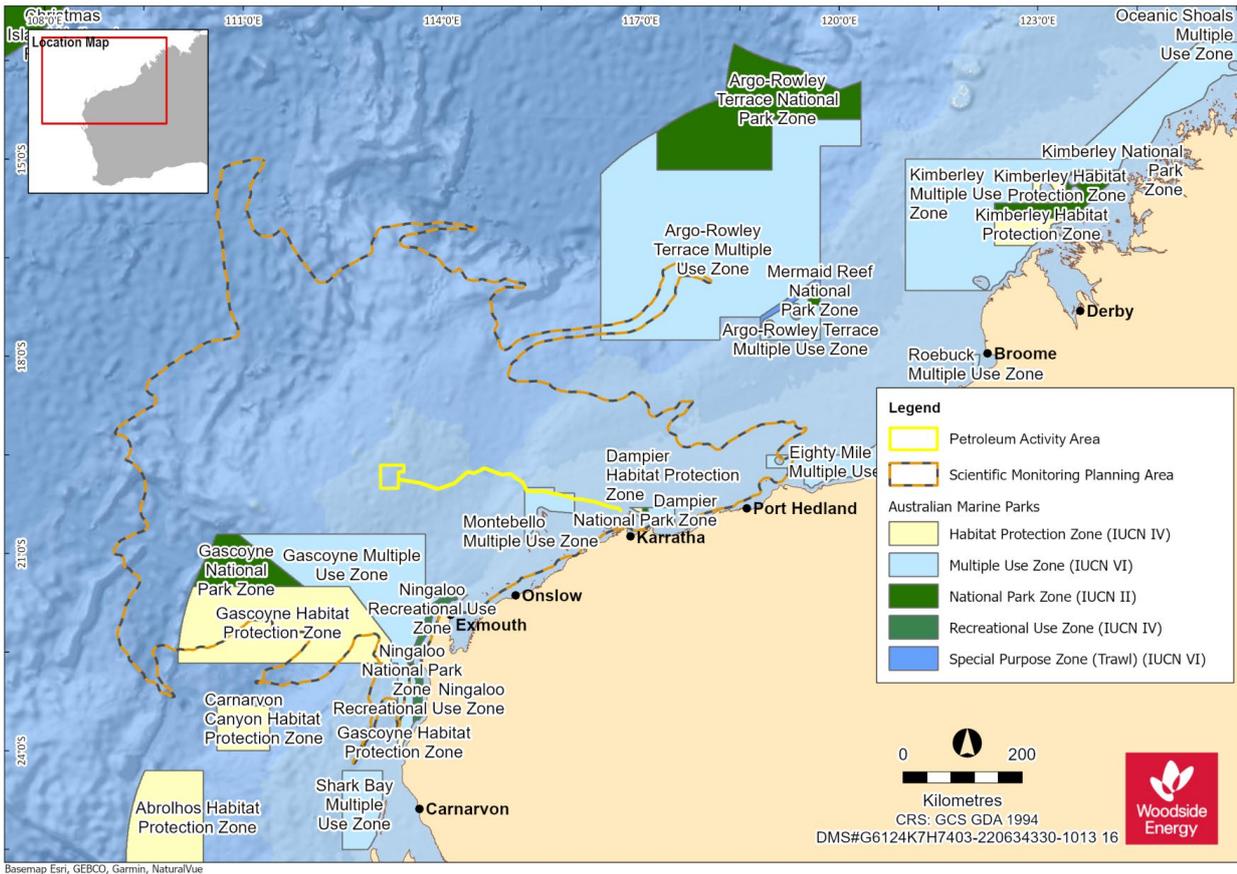


Figure 5-1: The planning area for scientific monitoring based on the area potentially contacted by the low (below ecological impact) entrained hydrocarbon threshold of 10 ppb in the event of the worst-case credible spill scenarios (CS-01, CS-02, and CS-03).

Please note that Figure 5-1 represents the overall combined extent of the oil spill model outputs based on a total of 200 replicate simulations per scenario over an annual period and therefore represents the largest spatial boundaries of all oil spill combinations, not the spatial extent of a single spill.

5.8.1 Scientific Monitoring Deployment Considerations

Scientific Monitoring Deployment Considerations	
Existing baseline studies for sensitive receptor locations predicted to be affected by a spill	<p>PBAs of the following two categories:</p> <ul style="list-style-type: none"> • PBAs within the predicted <10-day hydrocarbon contact time prediction: The approach is to conduct a desktop review of available and appropriate baseline data for key receptors for locations (if any) that are potentially impacted within 10 days of a spill and look to conduct baseline data collection to address data gaps and demonstrate spill response preparedness. Planning for baseline data acquisition is typically commenced pre-PAP and execution of studies undertaken with consideration of weather, receptor type, seasonality and temporal assessment requirements. • PBAs >10 days to predicted hydrocarbon contact in the event of an unplanned hydrocarbon release from a vessel collision outside of Mermaid Sound (CS-01), a vessel collision within Montebello MP (CS-02), and a loss of structural integrity at the FPU location (CS-03). SMP activation (as per the Scarborough Offshore Facility and Trunkline Operations First Strike Plan) directs the SMP team to follow the steps outlined in the SMP Operational Plan. The steps include checking the availability and type of existing baseline data, with particular reference to any PBAs identified as >10 days to hydrocarbon contact. Such information is used to identify response phase PBAs and plan for the activation of SMPs for pre-emptive (i.e. pre-hydrocarbon contact) baseline assessment.
Pre-emptive Baseline in the event of a spill	Activation of SMPs in order to collect baseline data at sensitive receptor locations with predicted hydrocarbon contact time >10 days (as documented in ANNEX C).
Survey platform suitability and availability	In the event of the SMP activation, suitable survey platforms are available and can support the range of equipment and data collection methodologies to be implemented in nearshore and offshore marine environments.
Trained personnel to implement SMPs suitable and available	Access to trained personnel and the sampling equipment contracted for scientific monitoring via a dedicated scientific monitoring program standby contract.
Metocean conditions	<p>The following metocean conditions have been identified to implement SMPs:</p> <ul style="list-style-type: none"> • Waves <1 m for nearshore systems • Waves <1.5 m for offshore systems • Winds <20 knots • Daylight operations only <p>SMP implementation will be planned and managed according to HSE risk reviews and the metocean conditions on a day to day basis by SMP operations.</p>

5.8.2 Response planning assumptions

Response Planning Assumptions	
Pre-emptive Baseline Areas (PBAs)	<p>PBAs identified through the application of defined hydrocarbon impact thresholds during the Quantitative Spill Risk Assessment process and a consideration of the minimum time to contact at receptor locations fall into two categories:</p> <ul style="list-style-type: none"> • PBAs for which baseline data exist or are planned for and data collection may commence pre-PAP (≤ 10 days minimum time to contact). • PBAs (> 10 days minimum time to contact) for which baseline data may be collected in the event of an unplanned hydrocarbon release. Response phase PBAs are prioritised for SMP activities due to vulnerability (i.e. time to contact and environmental sensitivity) to potential impacts from hydrocarbon contact and an identified need to acquire baseline data. <p>Time to hydrocarbon contact of >10 days has been identified as a minimum timeframe within which it is feasible to plan and mobilise applicable SMPs and commence collection of</p>

	<p>baseline (pre-hydrocarbon contact) data, in the event of an unplanned hydrocarbon release from the Scarborough Offshore Facility and Trunkline Operations.</p> <p>Pre-emptive Baseline Areas for the Scarborough Offshore Facility and Trunkline Operations facility are identified and listed in ANNEX D, Table D-1. The PBAs together with the situational awareness (from the operational monitoring) are the basis for the response phase SMP planning and implementation.</p>
Pre-spill	<p>A review of existing baseline data for receptor locations with potential to be contacted by floating or entrained hydrocarbons at environmental thresholds within ≤ 10 days has identified the following locations based on the combined EMBA for the credible spill scenarios (CS-01, CS-02 and CS-03):</p> <ul style="list-style-type: none"> • Rankin Bank ¹¹ • Dampier Archipelago • Barrow, Lowendal and Montebello Island groups • Barrow Island MMA and Montebello State Marine Park • Pilbara Islands – Middle and Southern Island Groups • Ningaloo Coast and the Muiron Islands (State Marine Park, MMA and WHA) <p>Australian Marine Parks (AMPs) potentially affected include:</p> <ul style="list-style-type: none"> • Dampier AMP • Montebello AMP • Gascoyne AMP • Ningaloo AMP. <p>Note: The AMPs are located in offshore, open waters where hydrocarbon exposure is possible on surface waters and in the upper water column (entrained hydrocarbons) only.</p>
In the event of a spill	<p>Receptor locations with >10 days to hydrocarbon contact, as well as the wider area, will be investigated and identified by the SMP team (in the Environment Unit of the CIMT) as the spill event unfolds and as the situational awareness provided by the OMPs permits delineation of the spill affected area (for example, updates to the spill trajectory tracking). The full list is presented in Annex D, based on the PAP credible spill scenario(s) (Table 2-1).</p> <p>No additional receptor locations were predicted to be contacted between >10 days and 20 days.</p> <p>The unfolding spill affected area predictions and confirmation of appropriate baseline data will determine the selection of receptor locations and SMPs to be activated in order to gather pre-emptive (pre-hydrocarbon contact) data. Refer to ANNEX C for further details on scientific monitoring plan implementation and delivery). The timing of SMP activation and mobilisation of the individual SMPs to undertake data collection will be decided and documented by the Woodside SMP team following the process outlined in the SMP Operational Plan.</p> <p>In the event key receptors within geographic locations that are potentially impacted after 10 days following a spill event or commencement of the spill and where adequate and appropriate baseline data are not available, there will be a response phase effort to collect baseline data for the following purposes:</p> <ul style="list-style-type: none"> • Priority will be given to the collection of baseline data for receptors predicted to be within the spill affected area prior to hydrocarbon contact. The process is initiated with the investigation of available baseline and time to hydrocarbon contact (>10 days which is sufficient time to mobilise SMP teams and acquire data before hydrocarbon contact). • Collect baseline data for receptors predicted to be outside the spill affected area so reference datasets for comparative analysis with impacted receptor types can be assessed post-spill.

¹¹ Floating oil will contact submerged features in open ocean locations; therefore, only entrained hydrocarbon contact is predicted at ≤ 10 days. Predicted upper water column entrained hydrocarbons may extend to approximately 20 m depth and contact the submerged shoal benthic communities.

Baseline data	<p>A summary of the spill affected area and receptor locations as defined by the EMBA for the PAP credible spill scenarios is presented Section 2.3.</p> <p>The key receptors at risk by location and corresponding SMPs based on the EMBA for the PAP are presented in ANNEX D, as per credible spill event scenario(s). This matrix maps the receptors at risk with their location and the applicable SMPs that may be triggered in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. Receptor locations and applicable SMPs are colour coded to highlight possible time to contact based on receptor types and locations.</p> <p>The status of baseline studies relevant to the PAP are tracked by Woodside through the maintenance of a Corporate Environment Environmental Baseline Database (managed by the Woodside Biodiversity and Science Team), as well as accessing external databases such as the Department of Water and Environmental Regulation (WA) Index of Marine Surveys for Assessment (IMSA)[1] (refer to ANNEX C: Oil Spill Scientific Monitoring</p>
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5.8.3 Summary – scientific monitoring

The resulting scientific monitoring capability has been assessed against the PAP credible spill scenario(s). The range of techniques provide an ongoing approach to monitoring operations to assess and evaluate the scale and extent of impacts. All known reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be moderate and the overall delivery effectiveness determined to be medium. The SMP's main objectives can be met, with no additional, alternative or improved control measures providing further benefit.

5.8.4 Response planning: need, capability and gap – scientific monitoring

The receptor locations identified in Annex D provide the basis of the SMPs likely to be selected and activated. Once the Woodside SMP Delivery team and the SMP standby contractor have been stood up and the exact nature and scale of the spill becomes known, the SMPs to be activated will be confirmed as per the process set out in the SMP Operational.

Scope of SMP Operations in the event of a hydrocarbon spill

Receptor locations of interest for the SMP during the response phase are:

- Rankin Bank
- Dampier Archipelago
- Barrow, Lowendal and Montebello Island groups
- Barrow Island MMA and Montebello State Marine Park
- Pilbara Islands – Middle and Southern Island Groups
- Ningaloo coast and the Muiron Islands (State Marine Park, MMA and WHA).

Documented baseline studies are available for certain receptor locations including the Dampier Archipelago, Montebello Islands, Barrow Island, Lowendal Islands, Rankin Bank, Pilbara Islands – Middle and Southern Island Groups, and Ningaloo coast and the Muiron Islands (Annex D, Table D-2). The SMP approach in the response phase would still deploy SMP teams to maximise the opportunity to collect pre-emptive baseline data at sensitive receptor locations, i.e., the sections of the WA Coast not immediately contacted by hydrocarbons. As the exact locations where hydrocarbon contact occurs may be unpredictable, SM01 would be mobilised as a priority to detect hydrocarbons and track the leading edge of the spill to verify where hydrocarbon contact occurs which will assist in prioritising deployment of SMP resources to obtain pre-emptive baseline data.

The ALARP assessment for the SMP (Section 6.8) considers alternate, additional, and/or improved control measures on each selected response technique.

[1] <https://biocollect.ala.org.au/imsa#max%3D20%26sort%3DdateCreatedSort>

5.8.5 Environmental performance based on need

Table 5-15: Scientific monitoring

Environmental Performance Outcome		Woodside can demonstrate preparedness to stand up the SMP to quantitatively assess and report on the extent, severity, persistence and recovery of sensitive receptors impacted from the spill event		
Control measure		Performance Standard	Measurement Criteria	
24	<ul style="list-style-type: none"> Woodside has an established and dedicated SMP team comprising the Biodiversity and Science Team and additional Environment Advisers within the HSEQ Business Group. 	24.1	SMP team comprises a pool of competent Environment Advisers (stand up personnel) who receive training regarding the SMP, SMP activation and implementation of the SMP on an annual basis	<ul style="list-style-type: none"> Training materials Training attendance registers Process that maps minimum qualification and experience with key SMP role competency and a tracker to manage availability of competent people for the SMP team including redundancy and rostering
25	<ul style="list-style-type: none"> Woodside has a SMP standby contractor to provide scientific personnel to resource a base capability of one team per SMP (SM01-SM10, see Table C-2, ANNEX C) as detailed in Woodside's SMP Implementation Plan, to implement the oil spill scientific monitoring programs. The availability of relevant personnel is reported to Woodside monthly via a simple report on the base-loading availability of people for each of the SMPs comprising field work for data collection (SMP resourcing report register). In the event of a spill and the SMP is activated, the base-loading availability of scientific personnel will be provided by SMP standby contractor for the individual SMPs and where gaps in resources are identified, SMP standby contractor/Woodside will seek additional personnel (if needed) from other sources including Woodside's Environmental Services Panel. 	25.1	<p>Woodside maintains the capability to mobilise personnel required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08):</p> <ul style="list-style-type: none"> Personnel are sourced through the existing standby contract with SMP standby, as detailed within the SMP Implementation Plan. SMP Implementation Plan describes the process for standing up and implementing the scientific monitoring programs. SMP team stand up personnel receive training regarding the stand up, activation and implementation of the SMP on an annual basis 	<ul style="list-style-type: none"> Hydrocarbon Spill Preparedness (HSP) Internal Control Environment (ICE) tracks the quarterly review of the Oil Spill Contracts Master. SMP resource report of personnel availability provided by SMP contractor on monthly basis (SMP resourcing report register). Training materials Training attendance registers Competency criteria for SMP roles SMP annual arrangement testing and reporting
26	<ul style="list-style-type: none"> Roles and responsibilities for SMP implementation are captured in Table C-1 (Annex C) and the SMP team (as per the organisational structure of the CIMT) is outlined in the Oil Spill Scientific Monitoring Program Operational Plan. Woodside has a defined Crisis and Incident Management structure including Source Control, Operations, Planning and Logistics Sections to manage a loss of well control response. SMP Team structure, interface with SMP standby contractor (standby SMP contractor) and linkage to the CIMT is presented in Figure C-1, ANNEX C Woodside has a defined Command, Control and Coordination structure for Incident and Emergency Management that is based on the ICS framework. Woodside utilises online incident management software to coordinate and track key incident management Sections. This includes specialist modelling programs, geographic information systems (GIS), as well as communication flows within the Command, Control and Coordination structure. SMP activated via the Oil Pollution First Strike Plan. Step by step process for activation of individual SMPs provided in the SMP Operational Plan. All decisions made regarding SMP logged in the online incident management software (SMP team members trained in its use.). SMP component input to the CIMT Incident Action Plan (IAP) as per the identified CIMT timed sessions and the SMP IAP logged on the online incident management software. Woodside Biodiversity and Science Team provide awareness training on the activation and stand-up of the SMP for the Environment Advisers in Woodside who are listed on the SMP team on an annual basis. Woodside Biodiversity and Science Team provide awareness training on the activation and stand-up of the SMP for the SMP standby contractor. Woodside Biodiversity and Science Team co-ordinates an annual SMP arrangement testing exercise with the SMP standby contractor. 	26.1	<ul style="list-style-type: none"> Woodside have established an SMP organisational structure and processes to stand up and deliver the SMP. 	<ul style="list-style-type: none"> Oil Spill Scientific Monitoring Program Operational Plan SMP Implementation Plan SMP annual arrangement testing and reporting
27	<ul style="list-style-type: none"> Chartered and mutual aid vessels. Suitable vessels would be secured from the Woodside support vessels, regional fleet of vessels operated by Woodside and other operators and the regional charter market. Vessel suitability will be guided by the need to be equipped to operate grab samplers, drop camera systems and water sampling equipment (the individual vessel requirements are outlined in the relevant SMP methodologies (refer to Table C-2, ANNEX C). Nearshore mainland waters may use the same approach as for open water. Smaller vessels may be used where available and appropriate. Suitable vehicles and machinery for onshore access to nearshore SMP locations would be provided by Woodside's transport services contract and sourced from the wider market. Dedicated survey equipment requirements for scientific monitoring range from remote towed video and drop camera systems to capture seabed images of benthic communities to intertidal/onshore surveying tools such as quadrats, theodolites and spades/trowels, cameras and binoculars (specific survey equipment requirements are outlined in the relevant SMP methodologies (refer to Table C-2, ANNEX C)). Equipment would be sourced through the existing SMP standby contract with SMP standby contractor for SMP resources and if additional surge capacity is required this would be available through the other Woodside Environmental Services Panel Contractors and specialist contractors. SMP standby contractor can also address equipment redundancy through either individual or multiple suppliers. MoUs are in place with one marine sampling equipment companies and one analytical laboratory (SMP resourcing report register). Availability of SMP equipment for offshore/onshore scientific monitoring team mobilisation is within one week to ten days of the commencement of a hydrocarbon release. This meets the SMP mobilisation lead time that will support meeting the response objective of 'acquire, where practicable, the environmental baseline data prior to hydrocarbon contact required to support the post-response SMP. 	27.1	<p>Woodside maintains standby SMP capability to mobilise equipment required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08):</p> <ul style="list-style-type: none"> Equipment is sourced through the existing standby contract with SMP standby contractor, as detailed within the SMP Implementation Plan. 	<ul style="list-style-type: none"> HSP Internal Control Environment tracks the quarterly review of the Oil Spill Contracts Master. SMP standby monthly resource reports of equipment availability provided by SMP contractor (SMP resourcing report register). SMP annual arrangement testing and reporting

28	<p>Woodside's SMP approach addresses the pre-PAP acquisition of baseline data for Pre-emptive Baseline Areas (PBAs) with ≤10 days if required following a baseline gap analysis process.</p> <p>Woodside maintains knowledge of Environmental Baseline data through:</p> <ul style="list-style-type: none"> documentation of annual reviews of the Woodside Baseline Environmental Studies Database, and specific activity baseline gap analyses accessing external databases such as the IMSA (refer to ANNEX C: Oil Spill Scientific Monitoring Program). 	28.1	<ul style="list-style-type: none"> Annual reviews of environmental baseline data PAP specific Pre-emptive Baseline Area baseline gap analysis 	<ul style="list-style-type: none"> Annual review/update of Woodside Baseline Environmental Studies Database Desktop review to assess the environmental baseline study gaps completed prior to EP submission Accessing baseline knowledge via the SMP annual arrangement testing
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Environmental Performance Outcome		SMP plan to acquire response phase monitoring targeting pre-emptive baseline data achieved		
Control measure		Performance Standard		Measurement Criteria
29	<p>Woodside's SMP approach addresses:</p> <ul style="list-style-type: none"> scientific data acquisition for PBAs >10 days to hydrocarbon contact and activated in the response phase transition into post-response SMP monitoring. 	29.1	<p>Pre-emptive Baseline Area (PBA) baseline data acquisition in the response phase</p> <p>If baseline data gaps are identified for PBAs predicted to have hydrocarbon contact in >10 days, there will be a response phase effort to collect baseline data. Priority in implementing SMPs will be given to receptors where pre-emptive baseline data can be acquired or improved.</p> <p>SMP team (within the Environment Unit of the CIMT) contribute SMP component of the CIMT Planning Section in development of the IAP.</p>	<ul style="list-style-type: none"> Response SMP plan Woodside's online Incident Management System Records SMP component of the IAP .
		29.2	<p>Post Spill contact</p> <p>For the receptors contacted by the spill where baseline data are available, SMPs to assess and monitor receptor condition will be implemented post spill (i.e. after the response phase):</p>	<ul style="list-style-type: none"> SMP planning document SMP Decision Log IAPs
Environmental Performance Outcome		Implementation of the SMP (response and post-response phases)		
Control measure		Performance Standard		Measurement Criteria
30	<ul style="list-style-type: none"> Scientific monitoring will address quantitative assessment of environmental impacts of a level 2 or 3 spill or any release event with the potential to contact sensitive environmental receptors. The SMP comprises ten targeted environmental monitoring programs as listed in Section 5.8. SMP supporting documentation: 1. Oil Spill Scientific Monitoring Operational Plan; (2) SMP Implementation Plan and (3) SMP Process and Methodologies Guideline. The Oil Spill Scientific Monitoring Operational Plan details the process of SMP selection, input to the IAP to trigger operational logistic support services. Methodology documents for each of the ten SMPs are accessible detailing equipment, data collection techniques and the specifications required for the survey platform support. The SMP standby contractor holds a Woodside SMP implementation plan which details activation processes, linkage with the Woodside SMP team and the general principles for the planning and mobilisation of SMPs to deliver the individual SMPs activated. Monthly resourcing reports are issued by the SMP standby contractor via the SMP resourcing report. All SMP documents and their status are tracked via SMP document register. 	30.1	<p>Implementation of SM01</p> <p>SM01 will be implemented to assess the presence, quantity and character of hydrocarbons in marine waters during the spill event in nearshore areas</p>	<p>Evidence SM01 has been triggered:</p> <ul style="list-style-type: none"> Documentation as per requirements of the SMP Operational Plan Woodside's online Incident Management System Records. SMP component of the IAP SMP data records from field
		30.2	<p>Implementation of SM02-SM10</p> <p>SM02-SM10 will be implemented in accordance with the objectives and activation triggers as per Table C-2 of Annex C.</p>	<p>Evidence SMPs have been triggered:</p> <ul style="list-style-type: none"> Documentation as per requirements of the SMP Operational Plan Woodside's online Incident Management System Records. SMP component of the IAP SMP Data records from field
		30.3	<p>Termination of SMP plans</p> <p>The Scientific Monitoring Program will be terminated in accordance with termination triggers for the SMP's detailed in Table C-2 of Annex C, and the Termination Criteria Decision-tree for Oil Spill Environmental Monitoring (Figure C-3 of Annex C):</p>	<p>Evidence of Termination Criteria triggered:</p> <ul style="list-style-type: none"> Documentation and approval by relevant persons/ organisations to end SMPs for specific receptor types.

5.9 Incident Management System

The Incident Management System (IMS) is both a control measure and a measurement criterion. As a control measure, the function of the IMS is to prompt, facilitate and record the completion of three key response planning processes detailed below. As a measurement criterion, the IMS records the evidence of the timeliness of all response actions included in the environmental performance standards and the plans used for the PAP.

As the IMS does not directly remove hydrocarbons spilt into the marine environment, there is no direct relationship to the response planning need.

5.9.1 Incident action planning

The CIMT will be required to collect and interpret information from the scene of the incident to determine support requirements to the site-based IMT, develop an IAP and assist the IMT with the execution of that plan. The site-based Incident Commander (IC) may request the CIMT to complete notifications internally within Woodside, to relevant persons/ organisations and government agencies as required. Depending on the type and scale of the incident, the CIMT IC will be responsible for ensuring the development of the IAP. Incident Action Planning is an ongoing process that involves continual review to confirm the appropriateness of techniques to control the incident for the situation at the time.

5.9.2 Operational NEBA process

In the event of a response, Woodside will confirm that the response techniques adopted at the time of Environment Plan/Oil Pollution Emergency Plan (EP/OPEP) acceptance remain appropriate to reduce the consequences of the spill. This process verifies that there is a continuing net environmental benefit associated with continuing the response technique through the operational NEBA process. This process manages the environmental risks and impacts of response techniques during the spill response. An operational NEBA will be undertaken throughout the response, for each operational period.

The operational NEBA will consider the risks and benefits of conducting and response activity. For example, if vessels are required for access to nearshore or onshore areas, anchoring locations will be selected to minimise disturbance to benthic habitats. Vessel cleanliness would be commensurate with the receiving environment. The operational NEBA will consider the risks and benefits of conducting other response techniques.

The operational NEBA process is also used to terminate a response. Using data from operational and scientific monitoring activities, the response to a hydrocarbon spill will be terminated in accordance with the termination process outlined in the Oil Pollution Emergency Arrangements (Australia). In effect, the operational NEBA will determine whether there is net environmental benefit to continue response operations.

5.9.3 Consultation process

Woodside will consult relevant persons/organisations during the spill response in accordance with internal standards. This process requires that Woodside will:

- Undertake all required notifications (including government notifications) for relevant persons/ organisations in the region (identified in the First Strike Plan). This includes notification to mariners to communicate navigational hazards introduced through response equipment and personnel.
- In the event of a response, identify and engage with relevant persons/ organisations and continually assess and review.

5.9.4 Environmental performance based on need

Table 5-16: Environmental Performance – Incident Management System

Environmental Performance Outcome	To support the effectiveness of all other control measures and monitor/record the performance levels achieved.		
Control measure	Performance Standard		Measurement Criteria (Section 5.10)
31 Operational SIMA	31.1	Confirm that the response techniques adopted at the time of acceptance remain appropriate to reduce the consequences of the spill within 24 hours.	1, 3A
	31.2	Record the evidence and justification for any deviation from the planned response activities.	
	31.3	Record the information and data from operational and scientific monitoring activities used to inform the SIMA.	
32 Stakeholder engagement	32.1	Prompt and record all notifications (including government notifications) for relevant persons/ organisations in the region	
	32.2	In the event of a response, identification of relevant persons/ organisations will be re-assessed throughout the response period.	
	32.3	Undertake communications in accordance with: <ul style="list-style-type: none"> • External Communication and Continuous Disclosure Procedure • External Stakeholder Engagement Procedure 	
33 Personnel required to support any response	33.1	Action planning is an ongoing process that involves continual review to confirm the appropriateness of techniques to control the incident for the situation at the time.	1, 3B
	33.2	A duty roster of trained and competent people will be maintained to confirm minimum manning requirements are met all year round.	3C
	33.3	Immediately activate the CIMT with personnel filling one or more of the following roles: <ul style="list-style-type: none"> • CIMT Incident Commander • CIMT Deputy Incident Commander • Operations Section Chief • Planning Section Chief • Logistics Section Chief • Documentation Unit Leader • Safety Officer • Environment Unit Leader • Human Resources Officer • Public Information Officer • Situation Unit Leader • Finance Section Chief • Source Control Section Chief. 	1, 2, 3B, 3C, 4
	33.4	Collect and interpret information from the scene of the incident to determine support requirements to the site-based IMT, develop an IAP and assist with the execution of that plan.	
	33.5	Security and Emergency Management advisors will be integrated into CIMT to monitor performance of all functional roles.	
	33.6	Continually communicate the status of the spill and support Woodside to determine the most appropriate response by delivering on the responsibilities of their role.	
	33.7	Follow the OPEA, Operational Plans, FSPs, support plans and the IAPs developed.	
	33.8	Contribute to Woodside’s response in accordance with the aims and objectives set by the Incident Commander.	1, 2, 3A, 4

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5.10 Measurement criteria for all response techniques

Woodside measures compliance with environmental performance outcomes and standards through four primary mechanisms. The performance tables in the previous sections identify which of these four mechanisms monitors the readiness and records the effectiveness and performance of the control measures adopted.

1. The Incident Management System

The Incident Management System (IMS) supports the implementation of the Emergency and Crisis Management Procedure. The IMS provides a near real-time, single source of information for monitoring and recording an incident and measuring the performance of those control measures.

The Emergency and Crisis Management Procedure defines the management framework, including roles and responsibilities, to be applied to any size incident (including hydrocarbon spills). The organisational structure required to manage an incident is developed in a modular fashion and is based on the specific requirements of each incident. The structure can be scaled up or down.

The Incident Action Plan (IAP) process formally documents and communicates the:

- incident objectives
- status of assets
- operational period objectives
- response techniques (defined during response planning)
- the effectiveness of response techniques.

The information captured in the IMS (including information from personal logs and assigned tasks/close outs) confirms the response techniques implemented remain appropriate to reduce the consequences of the spill. The system also records all information and data that can be used to support the site-based IMT, and development and execution of the IAP.

2. The Security and Emergency Management Competency Dashboard

The Security and Emergency Management Competency Dashboard (the Dashboard) records the number of trained and competent responders that are available across Woodside, and some external providers, to participate in a response.

This number varies dependent on expiry of competency certificates, staff attrition, internal rotations, leave and other absences. As such, the Dashboard is designed to identify the minimum manning requirements and to identify sufficient redundancy to cater for the variances listed above.

Figure 5-2 shows the minimum manning numbers for the different hydrocarbon spill response roles and the number of qualified persons against those roles.

Woodside's pool of trained responders is composed of, but not limited to, personnel from the following organisations:

- Woodside
- Australian Marine Oil Spill Centre (AMOSC) Core Group
- AMOSC
- Oil Spill Response Limited (OSRL)
- Marine Spill Response Corporation (MSRC)
- AMSA
- Woodside contracted workforce.

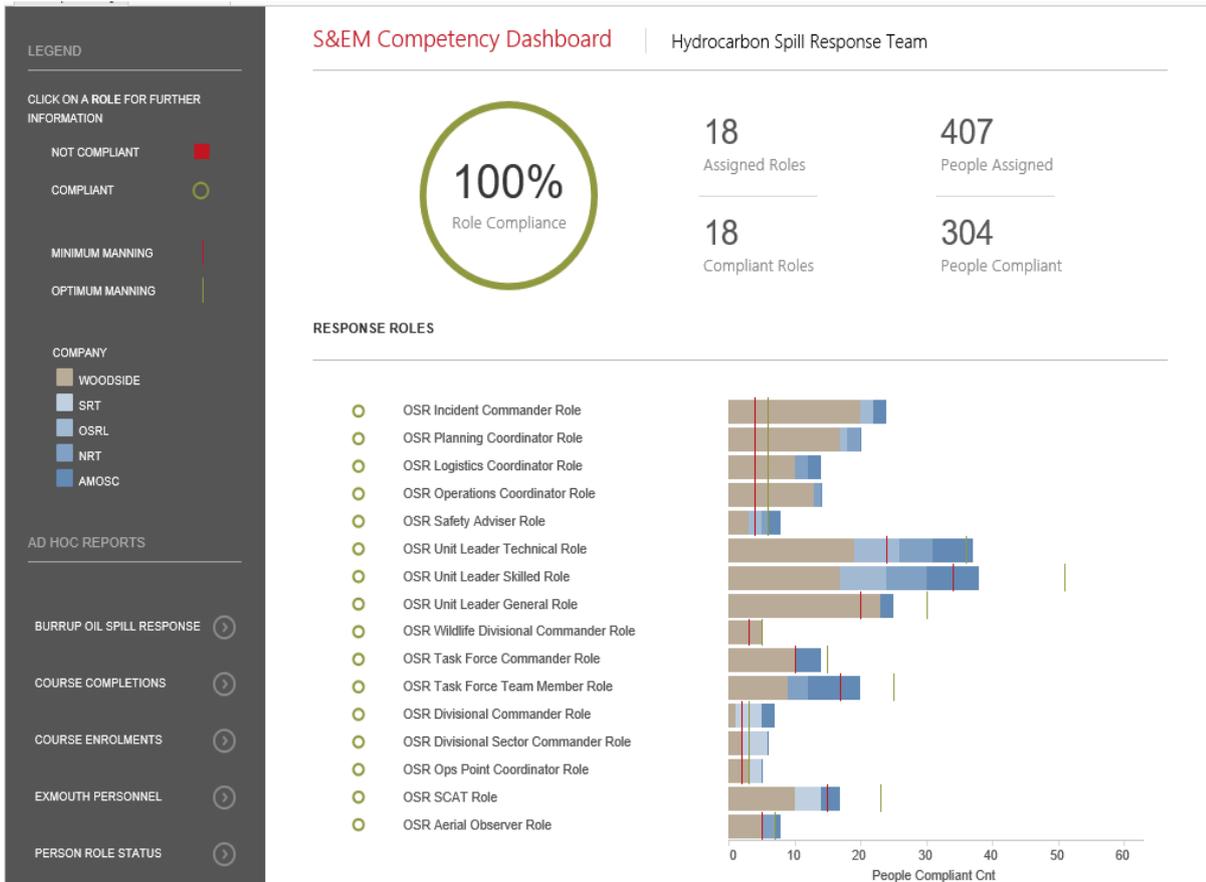


Figure 5-2: Example screenshot of the HSP competency dashboard

The Dashboard is one of Woodside’s key means of monitoring its readiness to respond. It also demonstrates Woodside’s ability to meet the requirements of the environmental performance standards that relate to certain response roles.

Figure 5-3 shows deeper dive into the Operations Point Coordinator role and the training modules required to show competence.

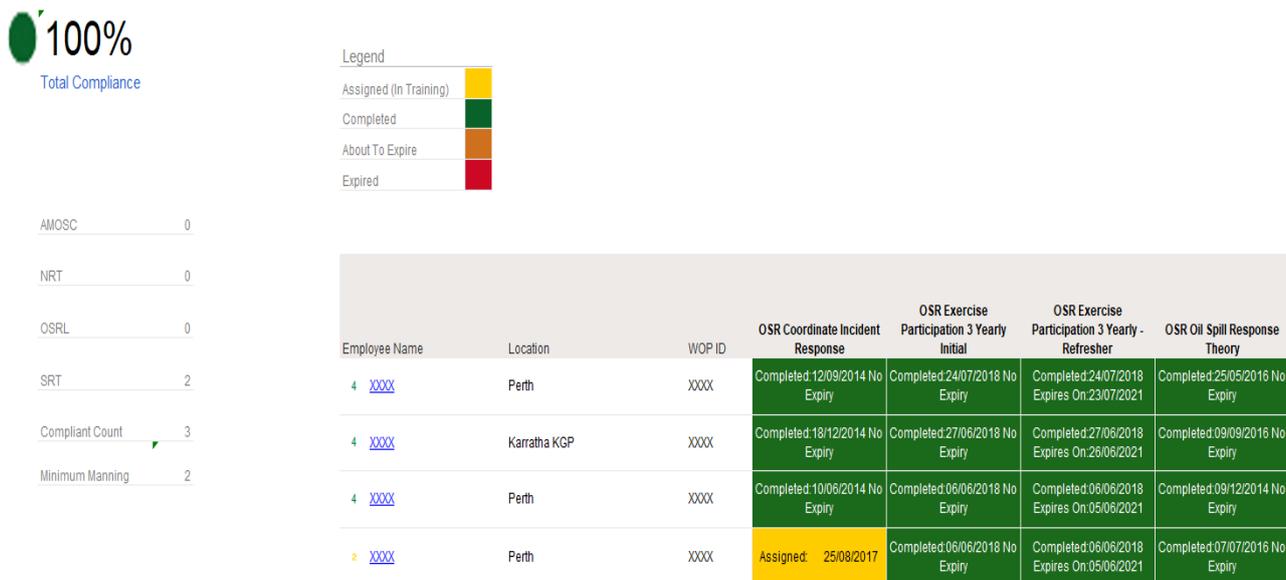


Figure 5-3: Example screenshot for the Operation Point Coordinator role

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3. The Hydrocarbon Spill Preparedness ICE Assurance Process

The Hydrocarbon Spill Response Team has developed a Hydrocarbon Spill Preparedness Internal Control Environment (ICE) process to align and feed into the Woodside Management System Assurance process for a hydrocarbon spill. The process tracks compliance over four key control areas:

- a) Plans – confirms all plans (including Oil Pollution Emergency Arrangements, first strike plans, operational plans, support plans and tactical response plans) are current and in line with regulatory and internal requirements.
- b) Competency – confirms the competency dashboard is up to date and minimum numbers of required personnel are maintained across CIMT, CMT and hydrocarbon spill response roles. The hydrocarbon spill training plan and exercise schedule, including testing of arrangements, is also tracked. The Testing of Arrangements (ToA) register tracks the testing of all hydrocarbon spill response arrangements, key contracts and agreements in place with internal and external parties to meet compliance requirements.
- c) Capability – tracks and monitors the capability that could be required in a hydrocarbon incident, including integrated fleet¹² vessel schedule, dispersant availability, rig/vessels monitoring, equipment stockpiles, tracking buoy locations and the CIMT duty roster.
- d) Compliance and Assurance – confirms all regulator inspection outcomes are actioned and closed out, the global legislation register is up to date and that the key assurance components are tracked and managed. Assurance activities (including audits) conducted on memberships with key Oil Spill Response Organisations (OSROs), including AMOSC and OSRL, are also tracked and recorded in the ICE.

The ICE assurance process records how each commitment listed in the performance tables above is managed for ongoing compliance monitoring. The level of compliance can be reviewed in real time and is reported monthly through the S&EM Business Group.

The completion of the assurance checks (over and above the ICE process) is also applied via the Woodside Integrated Risk and Compliance System (WiRCs) and subject to the requirements of Woodside's Provide Assurance Procedure.

4. The Hydrocarbon Spill Preparedness and Response Procedure

This procedure sets out how to plan and prepare for a liquid hydrocarbon spill to the marine environment.

This procedure details the:

- requirement for an Oil Pollution Emergency Plan (OPEP) to be developed, maintained, reviewed, and approved by appropriate regulators (where applicable) including:
 - defining how spill scenarios are developed on an activity specific basis
 - developing and maintaining all hydrocarbon spill related plans
 - ensuring the ongoing maintenance of training and competency for personnel
 - developing the testing of spill response arrangements
 - maintaining access to identified equipment and personnel
- planning for hydrocarbon spill response preparedness
- accountabilities for hydrocarbon spill response preparedness
- spill training requirements
- requirements for spill exercising / testing of spill response arrangements
- spill equipment and services requirements.

The procedure also details the roles and responsibilities of the dedicated Woodside Hydrocarbon Spill Preparedness team. This team is responsible for:

- assuring that Woodside hydrocarbon spill responders meet competency requirements
- establishing the competency requirements, annual training schedule and a training register of trained personnel

¹² The Integrated fleet consists of vessels from multiple operators that have been contracted to Woodside to undertake a number of duties including hydrocarbon spill response

- establishing and maintaining the total numbers of trained personnel required to provide an effective response to any hydrocarbon spill incident
- ensuring equipment and services contracts are maintained
- establishing OPEPs
- establishing OPEAs
- determining priority response receptor
- determining ALARP
- ensuring compliance and assurance is undertaken in accordance with external and internal requirements.

6 ALARP EVALUATION

This Section should be read in conjunction with Section 5 which is the capability planned for this activity.

6.1 Operational Monitoring – ALARP Assessment

Alternative, additional and improved control measure options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation are highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.1.1 Operational Monitoring – Control Measure Options Analysis

6.1.1.1 Alternative Control Measures

Alternative Control Measures considered <i>Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Aerostat (or similar inflatable observation platform) for localised aerial surveillance.	Lead time to Aerostat surveillance is disproportionate to the environmental benefit. The system also provides a very limited field of visibility around the vessel it is deployed from.	Long lead time to access (>10 days). Each system would require an operator to interpret data and direct vessels accordingly. Requires multiple systems for shoreline use.	Purchase cost per system is approximately A\$300,000.	This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation.	No

6.1.1.2 Additional Control Measures

Additional Control Measures considered <i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Additional personnel trained to use systems.	Current arrangement provides an environmental benefit in the availability of trained personnel facilitating access to operational monitoring data used to inform all other response techniques. No improvement required.	Woodside considers no improvement can be made, all personnel in technical roles e.g. intelligence unit are trained and competent on the software systems. Personnel are trained and exercised regularly. Use of the software and systems forms part of regular work assignments and projects.	Cost for training in-house staff would be approximately A\$25,000.	This option is not adopted as the current capability meets the need.	No
Additional satellite tracking buoys to enable greater area coverage.	Increased capability does not provide an environmental benefit compared to the disproportionate cost in having an additional contract in place.	Tracking buoy on location at manned facility and additional needs are met from Woodside-owned stocks in King Bay Support Facility (KBSF) and Exmouth or can be provided by service provider.	Cost for an additional satellite tracking buoy would be A\$200 per day or A\$6000 to purchase.	This option is not adopted as the current capability meets the need, but additional units are available if required.	No
Additional trained aerial observers.	Current capability meets need. Woodside has access to a pool of trained, competent observers at strategic locations to allow timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL.	Aviation standards and guidelines confirm all aircraft crews are competent for their roles. Woodside maintains a pool of trained and competent aerial observers with various home base locations to be called upon at the time of an incident. Regular audits of oil spill response organisations maintain training and competency.	Cost for additional trained aerial observers would be A\$2000 per person per day.	This option is not adopted as the current capability meets the need, but additional observers are available via response contractors if required.	No

6.1.1.3 Improved Control Measures

Improved Control Measures considered <i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented

Faster turnaround time from modelling contractor.	Improved control measure does not provide an environmental benefit compared to the disproportionate cost in having an additional contract in place.	External contractor on CIMT roster to be called as soon as required. However initial information needs to be gathered by CIMT team to request an accurate model. External contractor has person on call to respond from their own location.	Modelling service with a faster activation time would be achieved via membership of an alternative modelling service at an annual cost of A\$50,000 for 24hr access plus an initial A\$5,000 per modelling run.	This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation.	No
Nighttime aerial surveillance.	The risk of undertaking the aerial observations at night is disproportionate to the limited environmental benefit. The images would be of low quality and as such the variable is not adopted.	Flights will only occur when deemed safe by the pilot. The risk of night operations is disproportionate to the benefit gained, as images from sensors (IR, UV, etc). will be low quality. Flight time limitations will be adhered to.	No improvement can be made without risk to personnel health and safety and breaching Woodside's Golden Safety Rules.	This option is not adopted as the safety considerations outweigh any environmental benefit gained.	No
Faster mobilisation time (for water quality monitoring).	Due to the restriction on accessing the spill location on day one, there is no environmental benefit in having vessels available from day one. The cost of having dedicated equipment and personnel is disproportionate to the environmental benefit. The availability of vessels and personnel meets the response need. Shortening the timeframes for vessel availability would require dedicated response vessels on standby in KBSF.	Operations are not feasible on day one as the hydrocarbon will take time to surface, and volatility has potential to cause health concerns within the first 24 hours of the response.	The cost and organisational complexity of employing two dedicated response vessels (approximately A\$15m per year per vessel) is considered disproportionate to the potential environmental benefit to be realised by adopting this delivery options. Cost for purchase of equipment is approximately A\$200,000. Ongoing costs per annum for cost of hire and pre-positioning for life of asset/activity would be larger than the purchase cost. Dedicated equipment and personnel, living locally and on short notice to mobilise. The cost would be approximately A\$1 m per annum, which is disproportionate to the incremental benefit this would provide, assets are already available on day one. two integrated fleet vessels are available from day one, however these could be tasked with other operations.	This option is not adopted as the area could not be accessed earlier due to safety considerations. Additionally, the cost and complexity of implementation outweighs the benefits.	No

6.1.2 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP:

- alternative
 - none selected
- additional
 - none selected
- improved
 - none selected.

6.2 Source Control via Vessel SOPEP – ALARP Assessment

Alternative, additional and improved control measure options have been assessed against the base capability described in Section 5. Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.2.1 Source Control via Vessel SOPEP – Control Measure Options Analysis

6.2.1.1 Alternative Control Measures

Alternative Control Measures considered					
<i>Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical alternative control measures identified					

6.2.1.2 Additional Control Measures

Additional Control Measures considered					
<i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical additional control measures identified					

6.2.1.3 Improved Control Measures

Improved Control Measures considered					
<i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical improved control measures identified					

6.2.2 Selected control measures

Following review of alternative, additional and improved control measures, the following controls were selected for implementation for the PAP:

- alternative
 - none selected
- additional
 - none selected
- improved
 - none selected.

6.3 Source Control – ALARP Assessment

Woodside has based its response planning on the worst-case scenario (as described in Section 2.2). This includes the following selection of source control and well intervention techniques:

- direct remotely operated vehicle (ROV) intervention on Xmas tree
- debris clearance and/or removal
- capping stack
- relief well drilling.

6.3.1 ROV Intervention

Following confirmation of an emergency event, Woodside would mobilise inspection class ROVs to assess the status of the wellhead and Xmas tree. Work class ROVs for well intervention are available through the existing frame agreements.

As Woodside holds frame agreements for vessels along with contracts for ROV providers and pilots, inspection activities using ROVs are expected to commence within seven days of an emergency event.

A hydraulic accumulator contained as part of the SFRT can be mobilised and deployed with well intervention attempted within 11 days.

Table 6-1: ROV timings

	Estimate ROV inspection duration for Scarborough wells(days)
Source and mobilise vessel with work class ROV	2 days
Liaise with Regulator regarding risks and impacts*	4 days
Undertake ROV Inspection	1 day
TOTAL	7 days*

* Based on timings from the Report into the Montara Commission of Enquiry, submission and discussion of revised documentation for limited activities inside the Petroleum Safety Zone (water deluge operations) to manage personnel risks and impacts was up to 20 days.

6.3.1.1 Safety Case considerations

Woodside has assessed against the NOPSEMA Safety Case guidance (NOPSEMA N-09000-GN1661), confirming that vessels conducting subsea intervention operations are not classified as an “associated offshore place” but as a facility and therefore require the appropriate Safety Case arrangements to be in place. In the event of an emergency, Woodside has access to suitable installation support vessels (ISVs) for well intervention through existing frame agreements. The frame agreements for ISV vessels require the vessels to maintain in-force Safety Case approval covering a range of subsea activities. This would cover the requirement for intervention operations such as subsea manifold installation, maintenance and repair, commissioning, cargo transfer (including bulk liquids) and ROV operations. With frame agreements in place, the credible Safety Case scenario from those presented in Figure 6-3 for implementing this response would be “no Safety Case revision required”. Timeframes for well intervention are detailed in Figure 6-2 and would be implemented concurrently to the actions required by the “no Safety Case” revision scenario detailed in Figure 6-3, therefore, the Safety Case scenario will have no impact on the delivery of the strategy.

6.3.2 Debris clearance and/or removal

The Woodside Source Control Response Procedure details the mobilisation and resource requirements for implementing this strategy. Debris clearance may be required as a prerequisite to deployment of the capping stack. The AMOSC SFRT would be mobilised from Fremantle. The mobilisation of the SFRT would

take place in parallel with mobilisation of the capping stack to allow initial ROV surveys and debris clearance to have commenced before the arrival of the capping stack. The SFRT comprises ROV-deployed cutters and tools that are used to remove damaged or redundant items from the wellhead and allow improved access to the well. The SFRT can be mobilised and deployed with well intervention attempted within 11 days.

6.3.2.1 Safety Case considerations

Woodside has assessed against the NOPSEMA Safety Case guidance (NOPSEMA N-09000-GN1661) and can confirm that vessels conducting debris clearance and removal operations are not classified as an “associated offshore place” but as a facility and therefore require the appropriate Safety Case arrangements in place. In the event of an emergency, Woodside has access to suitable ISVs for these operations through existing frame agreements. The frame agreements for ISVs require the vessels to maintain in-force Safety Case approval covering a range of subsea activities. This would cover the requirement for debris clearance and removal operations such as subsea manifold installation, commissioning, cargo transfer (including bulk liquids) and ROV operations. With frame agreements in place, the credible Safety Case Scenario, from those presented in Figure 6-3 for implementing this response would be “no Safety Case revision required”. Timeframes for debris clearance and removal equipment deployment are detailed in Figure 6-2 and would be implemented concurrently to the actions required by the “No Safety Case” revision scenario detailed in Figure 6-3, therefore, the Safety Case scenario will have no impact on the delivery of the strategy.

6.3.3 Capping stack

The Woodside Source Control Emergency Response Planning Guideline details the mobilisation and resource requirements for implementing capping stack deployment. A capping stack is designed to be installed on a subsea well and provides a temporary means of sealing the well, until a permanent well kill can be performed through either a relief well or well re-entry.

In the event of a loss of well containment, the use of a subsea deployment method such as a heavy lift vessel, which is more commonly used in industry, is a more reliable and, in turn, an ALARP approach. If environmental conditions permit (wind speed, wave height, current and plume radius), deployment of a capping stack with a heavy lift vessel with a 150 T crane capacity in shallower waters or 250 T crane in deeper waters could be feasible.

Woodside assumes that sourcing conventional capping stack deployment vessels would be per the Woodside Source Control Emergency Response Guideline. This has pre-identified vessel specifications for the capping stack deployment. Woodside maintains several frame agreements with various vessel service providers and maintains the ability to call off services with a capping stack and debris clearance agreement.

A capping stack can be mobilised to site within 16 days. Woodside will monitor the conditions around the wellsite and deployment for a well intervention attempt will be undertaken once plume size is acceptable and safety and metocean conditions are suitable.

6.3.3.1 Safety Case considerations

Woodside has assessed against the NOPSEMA Safety Case guidance (NOPSEMA N-09000-GN1661) and can confirm that vessels conducting deployment of the capping stack are not classified as an “associated offshore place” but as a facility and therefore require the appropriate Safety Case arrangements in place.

The 16-day timeframe to mobilise the vessel is based on the following assumptions:

- An existing frame agreement vessel is located outside the region with approved Australian Safety Case.
- A Safety Case revision and scope of validation is required.
- The vessel meets the technical requirements for deploying capping stack as per the Source Control Emergency Response Planning Guideline.

- The vessel has an active heave compensated crane, rated to at least 150 T for shallow waters or 250 T in deeper waters and at least 90 m in length and a deck capacity to hold at least 110 T of capping stack.

Timeframes for capping stack deployment detailed in Figure 6-2 and Figure 6-3 would be implemented concurrently with the actions required for the Safety Case revision development scenarios detailed in Figure 6-3 and Table 6-3. To reduce uncertainty in the regulatory approval timeframe, Woodside is collaborating with the AEP Drilling Industry Steering Committee (DISC) and a contracted ISV vessel operator to develop a generic Safety Case revision that contemplates a capping stack deployment. This Safety Case revision will be used to reduce uncertainty in permissioning timeframes in the event a capping stack deployment is required. Woodside will execute a capping stack response within the timeframes detailed in Figure 6-2, dependent upon presence of required safety and metocean conditions. Woodside has considered a broad range of alternate, additional, and improved options as outlined later in Section 6.3.5.

6.3.4 Relief Well drilling

The options analysis detailed in this section considers options to source, contract and mobilise a MODU and obtain necessary regulatory approvals to meet timelines for relief well drilling. The screening for relief well drilling MODUs is based on the following three approaches and is illustrated in Figure 6-1:

- Primary – review internal Woodside drilling programs and MODU availability to source an appropriate MODU operating within Australia with an approved Safety Case
- Alternate – source and contract a MODU through AEP MOU that is operating within Australia with an approved Safety Case
- Contingency – source and contract a MODU outside Australia with an approved Australian Safety Case.

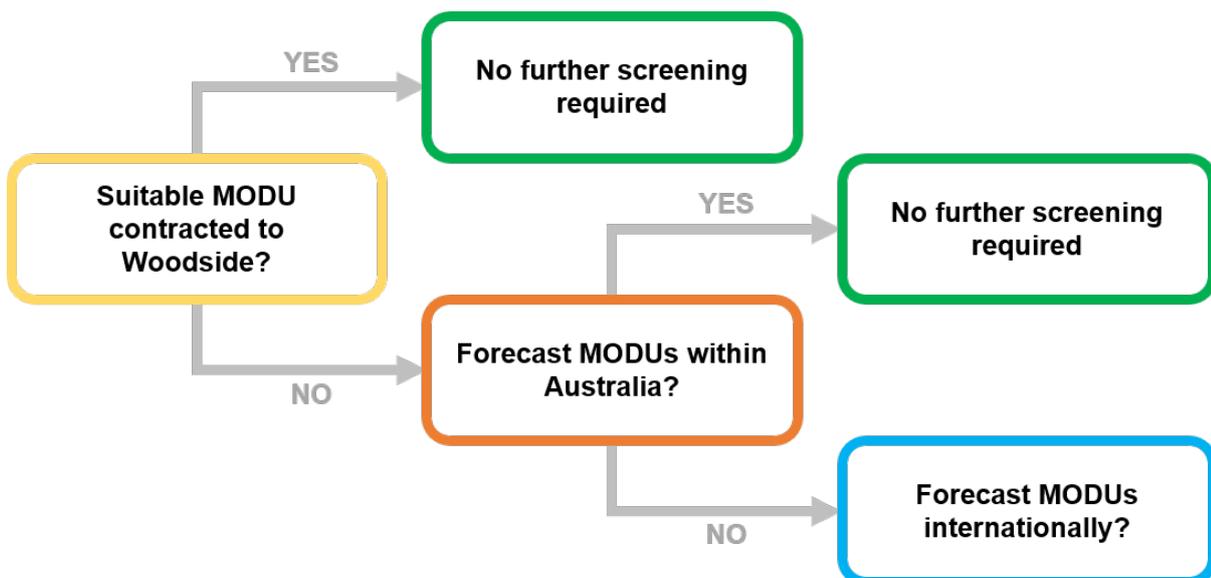


Figure 6-1: Scarborough Operations process for sourcing relief well MODU

Screening of a relief well MODU from international waters is undertaken only if required, i.e. there is low confidence in local (Australian) availability. The capability, location and Australian Safety Case status is assessed for each Woodside contracted MODU. In the event the Woodside contracted MODUs are unsuitable, screening is extended to all MODUs operating in Australian Waters.

Based on the detail provided, the primary and alternate approaches are expected to be achieved within the 21-day period.

The internal and external availability of MODUs, plus MODU activities of registered operators and MODUs with approved Safety Cases, are tracked by Woodside on a monthly basis to allow the best available options to be sourced and utilised in the event of the worst-case scenario.

If the above forecast indicates a gap in availability of a suitable MODU for relief well drilling within Australia, screening would be extended to MODUs with a valid Safety Case outside Australia. If an international

MODU with an Australian Safety Case is not identified, an internal review will be undertaken, NOPSEMA notified, and the issue tabled at the AEP DISC. A review of the significance of the change in risk will be undertaken in accordance with Woodside’s environment management of change requirements and relevant regulatory triggers. The aforementioned lookahead process would allow two years’ warning of any potential gap. Woodside will seek to execute relief well drilling in the fastest possible timeframe.

The detail of these arrangements demonstrates that the risks have been reduced to ALARP and an acceptable level through the control measures and performance standards outlined in Section 5.3.

6.3.4.1 Relief Well drilling timings

The duration of a blowout (from initiation to a successful kill) is assessed as 65.3 days for the Scarborough Operations PAP. Relief wells for other wells within the field are expected to be similar duration.

Details on the steps and time required to drill a relief well is shown in Table 6-2. DP and moored MODUs are suitable for the Scarborough Operations PAP. A moored MODU has been used as the basis for the time estimate below.

To validate the effectiveness of the relief MODU supply arrangements through the AEP MoU, an exercise to test the 21-day mobilisation period forms part of Woodside’s three-yearly Hydrocarbon Spill Arrangements Testing Schedule. Testing of these arrangements are facilitated by an external party and includes suspension of the assisting operator’s activities, contracting the MODU, vessel Safety Case revision and transit to location.

Table 6-2: Relief well drilling timings

Estimate Relief Well duration for Scarborough wells (days) – moored	
Source and contract MODU comprising the following stages:	21 days total:
<i>Activate MOU. Secure and suspend well. Complete relief well design. Secure relief well materials.</i>	8 days
<i>Transit to location based on mobilisation from North West Shelf region.</i>	2 days
<i>Backload and loadout bulks and equipment, complete internal assurance of relief well design.</i>	2 days
<i>Contingency for unforeseen event (e.g. longer transit from another area, problems in securing well, cyclone event)</i>	9 days
Pre-spud survey	Already included
Relief well construction:	24.8 days
Intersect and well kill comprising the following stages:	19.5 days total:
<i>Drill out shoe, conduct formation integrity test and drill towards intersection point</i>	1.5 days
<i>Execute well-specific ranging plan to intersect blowout well bore in minimum timeframe, with highest possible accuracy.</i>	15 days
<i>Pump kill weight drilling fluid per the relief well plan. Confirm the well is static with no further flow.</i>	0.5 days
<i>Contingency for unforeseen technical issues (e.g. more ranging runs required to make intersect, additional mud circulations required to execute kill)</i>	2.5 days
	65.3 days

Woodside has considered a broad range of alternate, additional, and improved options as outlined in Section 6.3.5.

Intersect and kill duration is estimated at 19.5 days. This is a moderately conservative estimate. During the intersect process, the relief well will be incrementally drilled and logged to accurately approach and locate the existing well bore. This will result in the highest probability of intersecting the well on the first attempt and thus will reduce the overall time to kill the well.

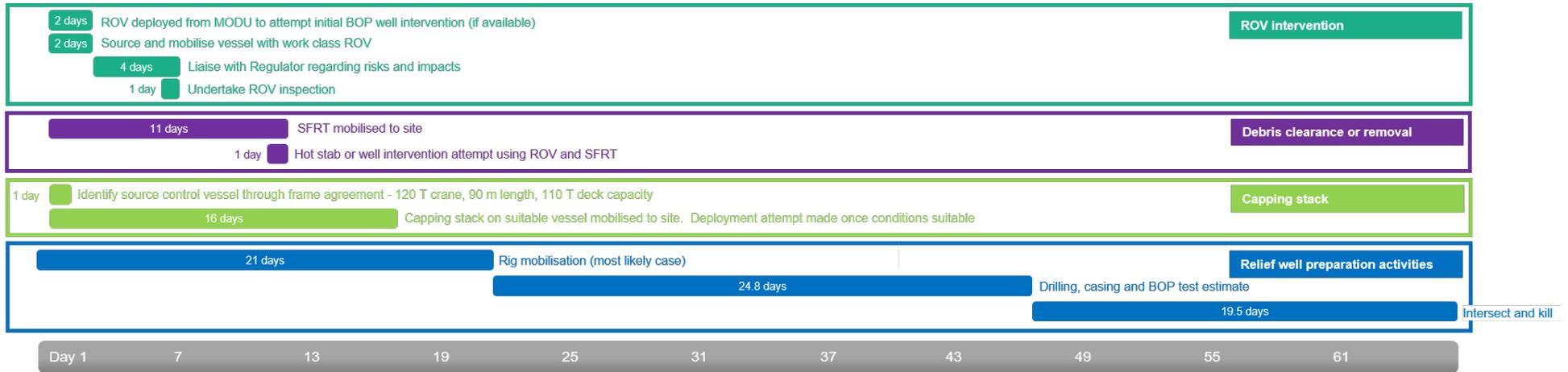


Figure 6-2: Source control and well intervention response strategy deployment timeframes for Scarborough wells.

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6.3.4.2 Safety Case considerations

Woodside recognises that it will not be the Operator or holder of the Safety Case for the MODU and/or vessels involved in relief well activities. If a revision to the Operator's Safety Case is required for relief well drilling, Woodside has identified measures to enable timely response and optimise preparedness as far as practicable that can be undertaken to expedite a straightforward Safety Case revision for a MODU/vessel to commence drilling a relief well. Performance standards associated with these measures have been included in **Section 5.3**.

These include:

- access to Safety and Risk discipline personnel with specialist knowledge
- monthly monitoring internal and external MODUs and vessel availability in the region and extended area through contracted arrangements, with a two-year lookahead
- prioritisation of MODUs/vessels with current or historical contracting arrangements with Woodside maintaining records of previous contracting arrangements and companies, and all current contracts for vessels and MODUs that are required to support Woodside in the event of an emergency
- leverage mutual aid arrangements such as the AEP MOU for vessel and MODU support
- Woodside Planning and Logistics, and Safety Officers (on-Roster/Call 24/7) who can articulate need for, and deliver Woodside support, in key delivery tasks including those sitting with potential outside operators
- ongoing strategic industry engagement and collaboration with NOPSEMA to work toward time reductions in regulatory approvals for emergency events.

Woodside has identified three Safety Case revision development and submission scenarios for a MODU and plotted these alongside the relief well preparation activities in Figure 6-3. The assumptions for each of the cases are detailed in subsequent Table 6-3.

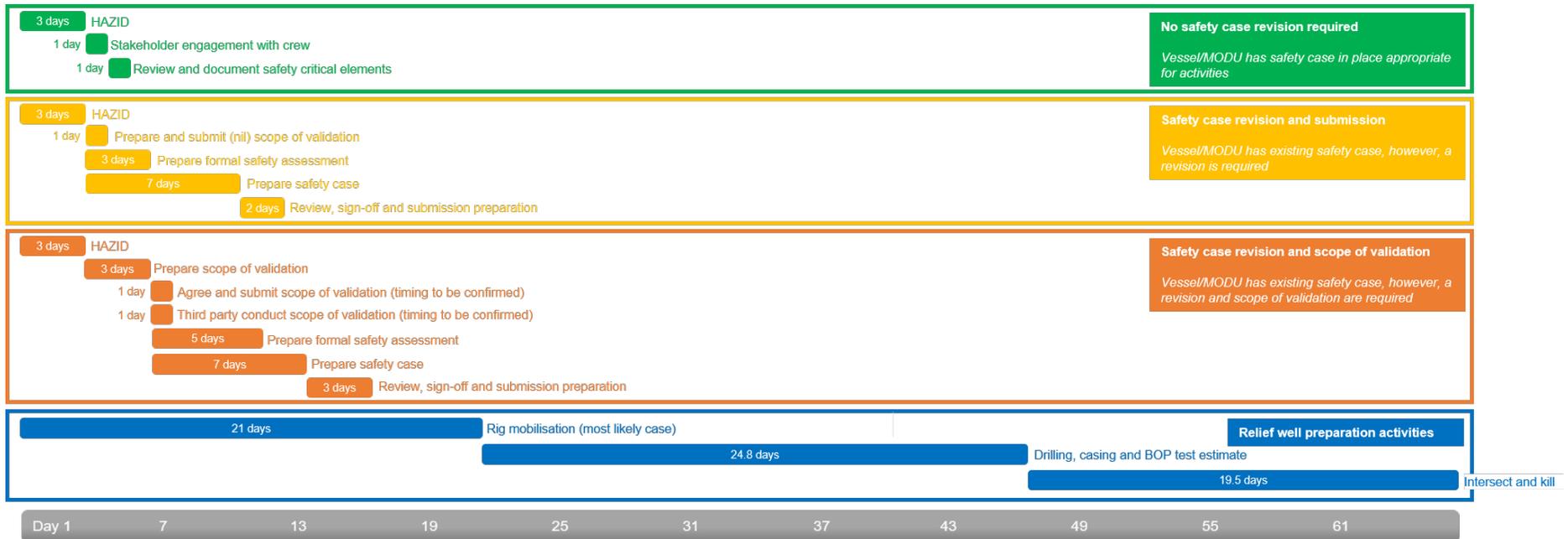


Figure 6-3: Timeline showing Safety Case revision timings alongside other relief well preparation activity timings for Scarborough Wells

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Table 6-3: Safety Case revision conditions and assumptions

Case	No Safety Case revision required	Safety Case revision and submission	Safety Case revision and scope of validation
Description	Vessel/MODU has a Safety Case in place appropriate for activities.	Vessel/MODU has an existing Safety Case, however, a revision is required.	Vessel/MODU has an existing Safety Case, however, a revision is required plus scope of validation.
Conditions/assumptions	Assumes that existing vessel/MODU Safety Case covers working under the same conditions or the loss of containment is not severe enough to result in any risk on the sea surface.	Safety Case timing assumes vessel/MODU selected and crew are available for workshops and Safety Case studies.	Safety case timing assumes vessel/ MODU selected and crew are available for workshops and Safety Case studies.
		Assumes nil scope of validation. This assumes that the vessel for source control allows for working in a hydrocarbon environment and control measures are already in place in the existing Safety Case. For MODU, it assumes that the relief well equipment is already part of the MODU facility and MODU Safety Case.	Validation will be required for new facilities only. The time needed for the validator to complete the review (from the last document received) and prepare validation statement is undetermined. This is not accounted for here as the Safety Case submission is not dependent on the validation statement, however the Safety Case acceptance is.
		Assumes Safety Case preparation is undertaken 24/7.	Assumes Safety Case preparation is undertaken 24/7.

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6.3.5 Source Control – Control Measure Options Analysis

The assessment described in Section 6.3.1, 6.3.2, 6.3.3 and 6.3.4 outline the primary, alternate and contingency approaches respectively that Woodside would implement for relief well drilling.

Woodside has outlined the options considered against the activation, mobilisation (improved options), deployment (alternate and additional options) process described in Section 2.1.1 that provides an evaluation of:

- predicted cost associated with adopting the option
- predicted change/environmental benefit
- predicted effectiveness/feasibility of the option.

Alternative, additional and improved control measure options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation are highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. The control measure options are defined as:

- Alternative control measures are potentially more effective and/or novel control measures that are evaluated as replacements for an adopted control
- Additional control measures are evaluated in terms of their ability to reduce an impact or risk when added to the existing suite of control measures
- Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility.

Options where there is not a clear justification for their inclusion or exclusion may be subject to a detailed assessment.

6.3.6 Activation/Mobilisation – Control Measure Options Analysis

This section details the assessment of alternative, additional or improved control measures that were considered to meet the selected level of performance in Section 5.3 and reduce the risk to ALARP. The alternative, additional and improved control measures that have been assessed and selected are highlighted in green and the relevant performance of the selected control is cross referenced. Items highlighted in red have been considered and rejected on the basis that they are not feasible or the costs are disproportionate compared to the environmental benefit.

6.3.6.1 Alternative Control Measures

Alternative Control Measures considered <i>Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Standby MODU shared for all Woodside activities	A standby MODU shared across all Woodside activities is likely to provide a moderate environmental benefit as it may reduce the 21-day sourcing, contracting and mobilisation time by up to 10 days (to 11 days). This would reduce the volume and duration of release and may reduce impacts on receptors and sensitivities.	This option is not considered feasible for all Woodside activities as there are a large range of well depths, complexities, geologies and geophysical properties across all Woodside's operations. The large geographic area of Woodside activities also means that the MODU is unlikely to be in the correct location at the right time when required.	Even with costs shared across Woodside operations, the costs (approximately A\$219 m per annum, A\$1,095 bn over the five years) of maintaining a shared MODU are considered disproportionate to the environmental benefit potentially achieved by reducing mobilisation times by up to 10 days.	The costs and complexity of having a MODU and maintaining this arrangement for the duration of the PAP are disproportionate to the environmental benefit gained above finding a MODU through the MoU agreement for all spill scenarios.	No
Standby MODU shared across AEP MOU Titleholders	A standby MODU shared across all titleholders who are signatories to the AEP MoU is likely to provide a minor environmental benefit as it may reduce the 21-day sourcing, contracting and mobilisation time by up to seven days (to 14 days). This would reduce the volume and duration of release and may reduce impacts on receptors and sensitivities.	This option is not considered feasible for many titleholders due to the remote distances in Australia as well as a substantial range of well depths, types, complexities, geologies and geophysical properties across a range of Titleholders.	As the environmental benefit is only considered minor and the reduction in timing would only be for the mobilisation period (reduction from 21 days to 14 days) the costs are considered disproportionate to the minor benefit gained.	The costs and complexity of having a MODU and maintaining a shared arrangement for the duration of the PAP are disproportionate to the environmental benefit gained above finding a MODU through the MoU agreement for all spill scenarios.	No

6.3.6.2 Additional Control Measures

Additional Control Measures considered <i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Implement and maintain minimum standards for Safety Case development	Woodside's contingency planning consideration would be to source a rig from outside Australia with an existing Safety Case. This would require development and approval of a Safety Case revision for the rig and activities prior to commencing well kill operations.	This option is considered feasible and would require Woodside to develop minimum standards for safe operations for relevant Safety Case input along with maintaining key resources to support review of Safety Cases. Woodside would not be the operator for relief well drilling and would therefore not develop or submit the Safety Case revision. Woodside's role as Titleholder would be to provide minimum standard for safe operations that MODU operators would be required to meet and/or exceed.	Woodside has outlined control measures and performance standards regarding template Safety Case documentation and maintenance of resources and capability for expedited Safety Case review.	This option has been selected based on its feasibility, low cost and the potential environmental benefits it would provide.	Yes

6.3.6.3 Improved Control Measures

Improved Control Measures considered					
<i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Monitor internal drilling programs for rig availability	Woodside may be conducting other campaigns that overlap with the PAP, potentially providing availability of a relief well drilling rig within Woodside. The environmental benefit of monitoring other drilling programs internally is for Woodside to understand what other rigs may be rapidly available for relief well operations if required, potentially reducing the time to drill the relief well, resulting in less hydrocarbon to the environment.	Woodside monitors MODU availability through market intelligence services. Woodside will continually monitor other drilling and exploration activities within Australia and as available throughout the region to track rigs and explore rig availability during well intervention operations.	Associated cost of implementation is minimal to the environmental benefit gained. Related control measures and performance standards are included in Section 5.	This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment.	Yes
Monitor external activity for rig availability	The environmental benefit achieved by monitoring drilling programs and rig movements across industry provides the potential for increased availability of suitable rigs for relief well drilling. Additional discussions with other titleholders may be undertaken to potentially gain faster access to a rig and reduce the time taken to kill the well and, therefore, the volume of hydrocarbons released.	Woodside will source a relief well drilling rig in accordance with the AEP MOU on rig sharing in the unlikely event this is required. Woodside will continually engage with other Titleholders and Operators regarding activities within Australia and as available throughout the region to track rigs and explore rig availability during well intervention operations. Commercial and operational provisions do not allow Woodside to discuss current and potential drilling programs in detail with other titleholders.	Associated cost of implementation is moderate to the environmental benefit gained.	This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment.	Yes
Monitor status of Registered Operators/ Approved Safety cases for rigs	Woodside can monitor the status of Registered Operators for rigs operating within Australia (and therefore Safety Case status). Woodside can monitor monthly the status of Registered Operators for rigs operating within Australia (and therefore Safety Case status). This allows for a prioritised selection of rigs in the event of a response with priority given to those with an existing Safety Case.	The environmental benefit of monitoring rigs is for Woodside to understand what other rigs may be rapidly available for relief well operations if required, potentially reducing the time to drill the relief well, resulting in less hydrocarbons released to the environment.	The cost is minimal.	This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment.	Yes

6.3.7 Deployment Options Analysis

6.3.7.1 Alternative Control Measures

Alternative Control Measures considered					
Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical alternative control measures identified					

6.3.7.2 Additional Control Measures

Additional Control Measures considered					
Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Offset capping alternative to conventional capping stack deployment	While the use of an offset capping system could reduce the quantity of hydrocarbon entering the marine environment, the mobilisation lead times for both a capping system and required vessels/ support equipment, would minimise any environmental benefit gained over conventional capping.	<p>The base case considerations for offset installation equipment (OIE) requires a coordinated response by four to seven vessels working simultaneously outside of the 500m exclusion zone, introducing complex SIMOPS issues. Due to the OIE's scale, fabrication of equipment (e.g. mooring anchors) outside of the contractor's scope of supply is likely to require engagement of international suppliers, further increasing complexity and uncertainty in associated time frames.</p> <p>Screening indicates that mobilising some components of the OIE (which are based in Italy) can only be done by sea and is likely to erode any time savings realised through killing the well via a relief well.</p> <p>The March 2019 OSRL exercise in Europe tested deployment of the OIE. It highlighted that a >600 T crane vessel would be required for deployment to allow for a useable hook-height for the crane to conduct the lift of the carrier. Vessels with such capability and a current Australian vessel Safety Case are not locally or readily available.</p>	Due to risks, uncertainty and complexity of this option, and the inability to realise any environmental gains, any cost would be disproportionate to the benefits gained.	<p>Woodside has confidence in availability of suitable relief well MODUs across the required drilling time frame thus the OIE would provide no advantage.</p> <p>Implementation of OIE has been assessed as a complex and unfeasible SIMOPs operation, precluded by a combination of the site-specific metocean and worst-case discharge conditions at the Scarborough location.</p> <p>Implementation of a novel technology such as OIE culminates in low certainty of success while at the same time increasing associated health and safety risks.</p> <p>As such, the primary source control response and ALARP position remains drilling a relief well.</p>	No
Dual vessel capping stack deployment	While the use of dual vessel to deploy the capping system could reduce the quantity of hydrocarbon entering the marine environment, this is an unproven technology. Additionally, the feasibility issues surrounding a dual vessel capping deployment together with mobilisation lead times for both a capping system and required vessels and support equipment, would minimise any environmental benefit gained over conventional capping.	A dual vessel deployment is somewhat feasible provided a large enough deck barge can be located. Deck barges of 120m are not, however, very common and will present a logistical challenge to identify and relocate to the region. Further, the longer length barges may need mooring assist to remain centred over the well. The capping stack would be handed off from a crane vessel to the anchor handler vessel (AHV) work wire outside of the exclusion zone. The AHV would then manoeuvre the barge into the plume to get the capping stack over the well. In this method, the barge would be in the plume, but the AHV and all personnel would be able to maintain a safe position outside of the gas zone. The capping stack would be lowered on the AHV work wire so a crane would not be required on the barge.	Due to there being minimal environmental benefits gained by the prolonged lead times needed to execute this technique, plus a potential increase in safety issues, any cost would be disproportionate to the benefits gained.	Given there is minimal environmental benefit and an increase in safety issues surrounding SIMOPS and deployment in shallow waters, this option would not provide an environmental or safety benefit.	No
Subsea Containment System alternative to capping stack deployment	While the use of a subsea containment system could reduce the quantity of hydrocarbon entering the marine environment, this is an unproven technology. Additionally, the system is unlikely to be feasibly deployed and activated for at least 90 days	The timing for mobilisation, deployment and activation of the subsea containment system is likely to be >90 days which is longer than the expected 65.3 days relief well drilling operations based on the location, size and scale of the equipment required,	Woodside has investigated the logistics of reducing this timeframe by pre-positioning equipment but the costs of purchasing dedicated equipment by Woodside for this PAP are not considered reasonably practical and are considered	This option would not provide an environmental benefit.	No

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	following a blowout due to equipment requirements and logistics. No environmental benefit is therefore predicted given the release duration is 65.3 days before drilling of a relief well under the adopted control measure.	including seabed piles that can only be transported by vessel.	disproportionate to the environmental benefit gained.		
Contract in place with Wild Well Control Inc and Oceaneering	Woodside has an agreement in place with Wild Well Control Inc and Oceaneering to provide trained personnel in the event of an incident. This will make competent personnel available in the shortest possible timeframe.	Having contracts in place to access trained, competent personnel in the event of an incident would reduce mobilization times. This option is considered reasonably practicable.	Minimal cost implications – Woodside has standing contract in place to provide assistance across all activities.	This control measure is adopted as the costs and complexity are not considered disproportionate to any environmental benefit that might be realised.	Yes

6.3.7.3 Improved Control Measures

Improved Control Measures considered					
<i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Maintaining relief well drilling supplies	There is not predicted to be any reduction in relief well timing or spill duration from Woodside maintaining stocks of drilling supplies (mud, casing, cement, etc.)	It would be feasible to source some relief well drilling supplies such as casing but the actual composition of the cement and mud required will need to be specific to the well. This option is also not deemed necessary as the lead time for sourcing and mobilising these supplies is included in the 21 days for sourcing and mobilising a rig.	The capital cost of Woodside purchasing relevant drilling supplies is expected to be approximately A\$600,000 with additional costs for storage and ongoing costs for replenishment. These costs are considered disproportionate to the environmental benefit gained.	This option would not provide an environmental benefit.	No

6.3.8 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP:

- alternative
 - none selected
- additional
 - implement and maintain minimum standards for Safety Case development
 - contract in place with Wild Well Control Inc and Oceaneering to supply trained, competent personnel
- improved
 - monitor internal drilling programs for MODU availability
 - monitor external activity for MODU availability
 - monitor status of Registered Operators / Approved Safety cases for MODUs.

6.4 Shoreline Protection and Deflection – ALARP Assessment

Alternative, additional and improved control measure options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation are highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are clearly disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.4.1 Existing Capability – Shoreline Protection and Deflection

Woodside’s existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside’s direct control.

6.4.2 Response Planning: Scarborough Project Offshore Facility and Trunkline Operations activity – Shoreline Protection and Deflection

Planning for shoreline protection is based upon identification of RPAs from deterministic modelling and the logistics associated with deploying protection at these locations. The response planning scenarios indicate that this would require effective mobilisation to priority shorelines and maintenance of protection until operational monitoring confirms that the locations are no longer at risk. Woodside has identified the RPAs from deterministic modelling results provided from specific scenarios.

The control measures selected provide capability to mobilise shoreline protection equipment within 24 hours (if required). Stochastic modelling scenarios indicate that first shoreline impact at Dampier Archipelago and Keast Island within 0.75 days for CS-01. No shoreline contact is expected at 100 g/m² threshold from CS-02 and CS-03. The existing capability is considered sufficient to mobilise and deploy protection at RPAs within 72 hours, guided by the ongoing operational monitoring. The full list of RPAs predicted to be contacted by oil above response thresholds are detailed in Table 3-1.

Tactical response plans exist for many of the RPAs identified. The plans identify values and sensitivities that would be protected at location. To allow for the best use of available shoreline protection and deflection resources, operational monitoring (OM01 and OM02) will inform the response, targeting RPAs where contact is predicted above response threshold levels.

Table 6-4 below outlines the capability required (number of RPAs predicted to be impacted) against the capability available (number of shoreline protection and deflection operations that can be mobilised and deployed). As can be seen from the table below, Woodside’s capability meets the response planning need identified for shoreline protection and deflection operations at identified RPAs within 72 hours.

Table 6-4: Response Planning – Shoreline Protection and Deflection

Scarborough Project Offshore Facility and Trunkline Operations activity		Day	Week	Week	Week	Month	Month						
		1	2	3	4	5	6	7	2	3	4	2	3
	Oil on shoreline (from deterministic modelling of CS-01) m ³	90	86	3	0	0	0	0	0	0	0	0	0
A Capability Required													
A1	Number of RPAs contacted (> 100 g/m ²) – CS-01	3	4	1	0	0	0	0	0	0	0	0	0
B Capability Available (operations per day)													
B1	SPD operations available – per day (lower)	0	1	1	2	2	4	6	70	70	70	330	330
B2	SPD operations available – per day (upper)	1	2	3	4	6	8	10	84	84	848	336	336
C Capability Gap (operations per day)													
C1	SPD operations gap – per day (lower)	3	3	0	-2	-2	-4	-6	-70	-70	-70	-330	-330
C2	SPD operations gap – per day (upper)	4	2	-2	-4	-6	-8	-10	-84	-84	-848	-336	-336

A1 – the number of Response Protection Areas contacted by surface hydrocarbons above 100 g/m²

B1 and B2 – the upper and lower number of shoreline protection and deflection operations available (based on response planning assumptions in Section 5.3),

C1 and C2 – the gap between the upper and lower number of shoreline protection and deflection operations required in A1 compared to the operations available in B1 and B2

Table 6-5: Indicative Tactical response plan, aims and methods for identified RPAs

Tactical Response Plan	Response aims and methods
Legendre Island – Dampier	<p>First Response objective: Ongoing operational monitoring and evaluation of hydrocarbon spill to adapt aims and response tactics to evolving nature of the incident and to assist in locating relevant booming areas.</p> <p>Second Response objective: Protection of sensitive shorelines (mangrove) at Legendres Island through use of shoreline booms. Formation types to deploy will be dependent on the time available until the hydrocarbon impacts the shoreline and local geographical and tidal/ weather conditions</p> <p>Third Response objective: Clean-up impacted shoreline. Manual clean-up techniques, use of mechanical recovery methods and techniques where appropriate.</p> <p>Fourth response aim: Collection and specialist cleaning/ rehabilitation of oiled wildlife</p> <p>NOTES:</p> <ul style="list-style-type: none"> • Relevant permissions must be sought from DBCA to carry out any response operations within the limits of the area. • In the event that the existing Woodside equipment stockpile at the King Bay Supply Base becomes exhausted, Woodside has an MoU with AMSA and the DoT to provide surplus equipment from their stockpile. Additionally, Woodside is a member of both AMOSC and OSRL and has the ability to call upon their relevant technical advisory services and equipment stockpiles 24/7. • This TRP should be considered a draft until it has been verified and tested.
Rosemary Island – Dampier	<p>First response objective: Ongoing operational monitoring and evaluation of the hydrocarbon spill to adapt aims and response tactics to the evolving nature of the incident and to assist in locating relevant booming areas.</p> <p>Second response objective: Recovery of floating oil at sea where possible through the use of skimming systems and other appropriate recovery devices to reduce shoreline impact.</p> <p>Third response objective: Protection of sensitive shorelines at Rosemary Island through use of shoreline booms. Formation types to deploy will be dependent on the time available until the hydrocarbon impacts the shoreline and local geographical and tidal/weather conditions.</p> <p>Fourth response objective: Clean-up of the shoreline. Manual clean up techniques, use of mechanical recovery methods and techniques where appropriate.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • Relevant permissions must be sought from DBCA to carry out any response operations within the limits of the area. • In the event that the existing Woodside equipment stockpile at the King Bay Supply Base becomes exhausted, Woodside has an MOU with AMSA and the DoT to provide surplus equipment from their stockpile. Additionally, Woodside is a member of both AMOSC and OSRL and has the ability to call upon their relevant technical advisory services and equipment stockpiles 24/7. • This TRP should be considered a draft until it has been verified and tested. <p>For additional reference:</p> <ul style="list-style-type: none"> • see Port of Dampier MOPP page 113 for Rosemary Island response plan

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	<ul style="list-style-type: none"> dependent on seasonality presence of sensitive receptors, the strategies to either protect or clean-up the shorelines will be decided through NEBA.
<p>Dampier Archipelago – Inshore Waters of Mermaid Sound/ Dampier Archipelago (applicable to RPAs including; Gidley Island, Keast Island, Cape Bruquieres, Angel Island and Cohen Island)</p>	<p>First response objective: Ongoing operational monitoring and evaluation of the hydrocarbon spill to adapt aims and response tactics to the evolving nature of the incident and to assist in locating relevant booming areas.</p> <p>Second response objective: Recovery of floating oil at sea where possible through the use of skimming systems and other appropriate recovery devices to reduce shoreline impact.</p> <p>Third response objective: Protection of sensitive shorelines within Dampier Archipelago through use of shoreline booms. Formation types to deploy will be dependent on the time available until the hydrocarbon impacts the shoreline and local geographical and tidal/weather conditions.</p> <p>Fourth response objective: Clean-up of the shoreline. Manual clean up techniques, use of mechanical recovery methods and techniques where appropriate.</p> <p>NOTES:</p> <ul style="list-style-type: none"> Relevant permissions must be sought from DBCA to carry out any response operations within the limits of the area. In the event that the existing Woodside equipment stockpile at the King Bay Supply Base becomes exhausted, Woodside has an MoU with AMSA and the DoT to provide surplus equipment from their stockpile. Additionally, Woodside is a member of both AMOSC and OSRL and has the ability to call upon their relevant technical advisory services and equipment stockpiles 24/7. This TRP should be considered a draft until it has been verified and tested.

Pre-emptive mobilisation of equipment and personnel would commence as soon as practicable prior to oil contact. Additional resources would be mobilised depending on the scale of the event to increase the length or number of shorelines being protected.

A shoreline protection and deflection response would be launched only when operational monitoring operations identify a spill heading towards RPA(s) and there is sufficient time for deployment prior to shoreline contact.

6.4.3 Shoreline Protection and Deflection – Control Measure Options Analysis

6.4.3.1 Alternative Control Measures

Alternative Control Measures considered <i>Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Pre-position equipment at Response Protection Areas (RPAs)	<p>Additional environmental benefit of having equipment prepositioned is considered minor as the RPAs predicted to be contacted are based on modelling outputs and thus may differ under the prevailing conditions of a real event making it impractical to preposition equipment in advance.</p> <p>Equipment is currently available to protect RPAs, however, deployment may be constrained by levels of volatile hydrocarbons arising from an MDO spill.</p>	<p>The incremental environmental benefit associated with these delivery options is unlikely to reduce the environmental consequence of a significant hydrocarbon release beyond the adopted delivery options.</p> <p>Considering the highly unlikely nature of a significant hydrocarbon release, the costs and organisational complexity associated with prepositioning and maintenance of equipment, the sacrifice is considered disproportionate to the environmental benefit that might be realised.</p> <p>Furthermore, these options would conflict with the mutual aid philosophy being adopted under the selected delivery options.</p> <p>The selected delivery options for shoreline protection and deflection meet the relevant objectives of this control measure and do not require prepositioned or additional equipment.</p>	Total cost to preposition protection/ deflection packages at each site of potential impact would be approximately A\$6100 per package per day.	This option is not adopted as pre-positioning shoreline protection and deflection capability is not considered practicable due to uncertainty of the sites that may be contacted during a real spill event and the predicted time frames prior to contact. Safety factors have also been considered, including the potential for personnel to be exposed to volatile hydrocarbons in the early stage of the response. Given the rapid natural weathering rate of MDO, mobilising additional capability is not expected to provide a material net environmental benefit, therefore the current capability is considered to reduce the risk to ALARP.	No

6.4.3.2 Additional Control Measures

Additional Control Measures considered <i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Supplemented stockpiles of equipment to protect additional shorelines	<p>Additional equipment would increase the number of receptor areas that could be protected from hydrocarbon contact. However, current availability of personnel and equipment is capable of protecting up to 30 km of shoreline, commensurate with the scale and progressive nature of shoreline impact. Additional stocks would be made available from international sources if long term up scaling were necessary.</p> <p>A reduction in environmental consequence from a 'B' rating is unlikely to be realised as a result of having more equipment available locally.</p>	<p>The incremental environmental benefit associated with these delivery options is considered minor and unlikely to reduce the environmental consequence of a significant hydrocarbon release beyond the adopted delivery options. Considering the highly unlikely nature of a significant hydrocarbon release and the costs and organisational complexity associated with prepositioning and maintenance of equipment, the sacrifice is considered disproportionate to the limited environmental benefit that might be realised.</p> <p>Furthermore, these options would conflict with the mutual aid philosophy being adopted under the selected delivery options.</p> <p>The selected delivery options for shoreline protection and deflection meet the relevant objectives of this control measure and do not require prepositioned or additional equipment.</p>	Total cost for purchase supplemental protection and deflection equipment would be approximately A\$455,000 per package.	This option is not adopted as addition shoreline protection and deflection capability is not considered practicable in the time frame prior to contact. Whilst modelling for this activity predicts contact at 8 RPAs within 24-48 hours, it should be noted that this is based upon 200 stochastic model runs thus it is unfeasible for this to all occur from a single release. Safety factors have also been considered, including the potential for personnel to be exposed to volatile hydrocarbons in the early stage of the response. Given the rapid natural weathering rate of MDO, mobilising additional capability is not expected to provide a material net environmental benefit, therefore the current capability is considered to reduce the risk to ALARP.	No
Additional trained personnel	The level of training and competency of the response personnel allows the shoreline protection and deflection operation to be delivered with minimum secondary impact to the environment. Training additional personnel does not provide an increased environmental benefit.	<p>Additional personnel required to sustain an extended response can be sourced through the <i>Woodside People & Global Capability Surge Labour Requirement Plan</i>. Additional personnel sourced from contracted OSROs (OSRL/AMOSC) to manage other responders.</p> <p>Response personnel are trained and exercised regularly in shoreline response techniques and</p>	Additional specialist personnel would cost A\$2000 per person per day.	This option is not adopted as the existing capability meets the need. Safety factors have also been considered, including the potential for personnel to be exposed to volatile hydrocarbons in the early stage of the response. Given the rapid natural weathering rate of MDO, mobilising additional capability is not expected to provide a material net environmental benefit, therefore the current	No

		methods. All personnel involved in a response will receive a full operational/safety briefing prior to commencing operations.		capability is considered to reduce the risk to ALARP.	
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6.4.3.3 Improved Control Measures

Improved Control Measures considered					
Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Faster response/mobilisation time	Modelling predicts floating or shoreline accumulation at threshold at day 0.75 at Dampier Archipelago and Keast Island (CS-01), thus faster response times are not practicable.	Response teams, trained personnel, contracted oil spill response service providers, government agencies and the associated mitigation equipment required to enact an initial protection and deflection response will be available for mobilisation within 24-48 hrs of activation. Additional equipment from existing stockpiles and oil spill response service providers can be on scene within days.	The cost of establishing a local stockpile of new mitigation equipment (including protection and deflection boom) closer to the expected hydrocarbon stranding areas is not commensurate with the need.	This option is not adopted as addition shoreline protection and deflection capability is not considered practicable in the time frames prior to contact. Safety factors have also been considered, including the potential for personnel to be exposed to hydrocarbon gas vapours in the early stage of the response. Given the rapid natural weathering rate of MDO, faster mobilisation is not expected to provide a material net environmental benefit, therefore the current capability is considered to reduce the risk to ALARP.	No

6.4.4 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP:

- alternative
 - none selected
- additional
 - none selected
- improved
 - none selected.

6.5 Shoreline Clean-up – ALARP Assessment

Alternative, additional and improved control measure options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation are highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.5.1 Existing Capability – Shoreline Clean-up

Woodside’s existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside’s direct control.

6.5.2 Response planning: Scarborough Project Offshore Facility and Trunkline Operations activity – Shoreline Clean-up

Woodside has assessed existing capability against the WCCS and has identified that the range of techniques provide an ongoing approach to shoreline clean-up at identified RPAs. Woodside’s capability can cover all required shoreline clean-up operations for the PAP.

Modelling predicts shoreline contact from day 0.75 at Dampier Archipelago (55 m³) and Keast Island (20 m³) for the CS-01. No shoreline contact is expected at 100 g/m² threshold from CS-02 and CS-03. The largest volumes ashore are Dampier Archipelago with approximately 55 m³ predicted on day 0.75. These volumes assume no treatment of floating surface oil by containment and recovery or shoreline protection and deflection prior to contact so are considered very conservative. The full list of RPAs predicted to be contacted by oil above response thresholds are detailed in Table 3-1.

These figures have been combined into a single response planning need scenario that provides a worst-case scenario for planning purposes as outlined below. It should be noted that whilst modelling for this activity predicts contact at eight RPAs within 24-48 hours, this is based upon 200 stochastic model runs thus it is unfeasible for this to all occur from a single release. Given all other shoreline contact scenarios identified from modelling are longer time frames and lesser volumes, demonstration of capability against this need will enable Woodside to meet requirements for any other outcome.

The potential scale and remoteness of a response coupled with the uncertainty of which locations will be affected precludes the stockpiling or prepositioning of equipment specific to shorelines. The most significant constraint is accommodation and transport of personnel in Dampier to undertake clean-up operations and to manage wastes generated during the response effort. From previous assessment of facilities in Dampier, Woodside estimates that current accommodation can cater for a range of 500-700 personnel per day.

Woodside has identified several options which could be mobilised to achieve defined response objectives. Evaluation considers the benefit in terms of the time to respond and the scale of response made possible by each option. The evaluation of possible control measures is summarised in Section 6.5.3.

Table 6-6: Response Planning – Shoreline Clean-up

Shoreline Clean-up (Phase 2)	Day	Week	Week	Week	Month	Month	Month							
	1	2	3	4	5	6	7	2	3	4	2	3	4	
Oil on shoreline (from deterministic modelling) m ³														
Shoreline accumulation (above 100 g/m ²) – m ³	90	86	3	0	0	0	0	0	0	0	0	0	0	0
Oil remaining following response operations – m ³	90	26	35	15	6	2	1	0	0	0	0	0	0	0
A Capability Required (number of operations)														
A1 SCU operations required (lower)	11	3	4	2	1	0	0	0	0	0	0	0	0	0
A2 SCU operations required (upper)	13	4	5	2	1	0	0	0	0	0	0	0	0	0
B Capability Available (number of operations)														
B1 SCU operations available – Stage 2 – Manual (lower)	0	1	3	5	8	12	15	105	105	105	560	560	560	560
B2 SCU operations available – Stage 2 – Manual (upper)	0	2	5	8	10	15	20	140	140	140	560	560	560	560
C Capability Gap														
C1 SHC operations gap (lower)	11	2	1	-3	-7	-12	-15	-105	-105	-105	-560	-560	-560	-560
C2 SHC operations gap (upper)	13	2	0	-6	-9	-15	-20	-140	-140	-140	-560	-560	-560	-560

A1 and A2 – the number of Shoreline Clean-up operations required based on the hydrocarbon volumes ashore above 100 g/m²

B1 and B2 – the upper and lower number of shoreline clean-up operations available (based on response planning assumptions in Section 5.5),

C1 and C2 – the gap between the upper and lower number of shoreline clean-up operations required in A1 and A2 compared to the operations available in B1 and B2

6.5.3 Shoreline Clean-up – Control measure options analysis

6.5.3.1 Alternative Control Measures

Alternative Control Measures considered <i>Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical alternative control measures identified.					

6.5.3.2 Additional Control Measures

Additional Control Measures considered <i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Additional trained personnel available	The level of training and competency of the response personnel allows the shoreline clean-up operation to be delivered with minimum secondary impact to the environment. Training additional personnel does not provide an increased environmental benefit.	Additional personnel required to sustain an extended response can be sourced through the Woodside <i>People & Global Capability Surge Labour Requirement Plan</i> . Additional personnel sourced from contracted OSROs (OSRL/AMOSC) to manage other responders. Response personnel are trained and exercised regularly in shoreline response techniques and methods. All personnel involved in a response will receive a full operational/safety briefing prior to commencing operations.	Additional specialist personnel would cost A\$2000 per person per day.	Whilst modelling for this activity predicts contact at 8 RPAs within 24-48 hours, it should be noted that this is based upon 200 stochastic model runs thus it is unfeasible for this to all occur from a single release. Larger numbers of additional personnel may also be detrimental to sensitive shoreline areas. Safety factors have also been considered, including the potential for personnel to be exposed to volatile hydrocarbons in the early stage of the response. Given the rapid natural weathering rate of MDO, mobilising additional capability is not expected to provide a material net environmental benefit, therefore the current capability is considered to reduce the risk to ALARP.	No
Additional trained personnel deployed	Maintaining a span of control of 200 competent personnel is deemed manageable and appropriate for this activity. Additional personnel conducting clean-up activities may be able to complete the clean-up in a shorter timeframe, but modelling predicts ongoing stranding of hydrocarbons over a period of weeks. Managing a smaller, targeted response is expected to achieve an environmental benefit through ensuring the shoreline clean-up response is suitable and scalable for the shoreline substrate and sensitivity type. This will reduce the risk of increased impact from the shoreline clean-up through the presence of unnecessary personnel and equipment.	The figure of 200 personnel is broken down to include on 1-2 trained supervisors managing 8-10 personnel/labour hire responders. This allows for multiple operational teams to operate along the extended shoreline at different locations. Typically, an additional 30-50% of the tactical workforce is required to support ongoing operations including on-scene control, logistics, safety/medical/welfare and transport. Personnel on site will include members with the appropriate specialties to efficiently clean-up the shoreline. Additional personnel are available through existing contracts with oil spill response organisations, labour hire organisations and environmental panel contractors.	Additional specialist personnel would cost A\$2000 per person per day.	Whilst modelling for this activity predicts contact at 8 RPAs within 24-48 hours, it should be noted that this is based upon 200 stochastic model runs thus it is unfeasible for this to all occur from a single release. Larger numbers of additional personnel may also be detrimental to sensitive shoreline areas. Safety factors have also been considered, including the potential for personnel to be exposed to volatile hydrocarbons in the early stage of the response. Given the rapid natural weathering rate of MDO, mobilising additional capability is not expected to provide a material net environmental benefit, therefore the current capability is considered to reduce the risk to ALARP.	No

6.5.3.3 Improved Control Measures

Improved Control Measures considered <i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Faster response/mobilisation time	Modelling predicts floating or shoreline accumulation at threshold at day 0.75 at Dampier	Response teams, trained personnel, contracted oil spill response service providers, government agencies and the associated mitigation equipment	The cost of establishing a local stockpile of new shoreline clean-up equipment closer to the expected	This option is not adopted as additional shoreline clean-up capability is not considered practicable in the time frames prior to contact. Safety factors have	No

	Archipelago and Keast Island (CS-01), thus faster response times are not practicable.	required to enact an initial protection and deflection response will be available for mobilisation within 24-48 hrs of activation. Additional equipment from existing stockpiles and oil spill response service providers can be on scene within days.	hydrocarbon stranding areas is not commensurate with the need.	also been considered, including the potential for personnel to be exposed to hydrocarbon gas vapours in the early stage of the response. Given the rapid natural weathering rate of MDO, faster mobilisation is not expected to provide a material net environmental benefit, therefore the current capability is considered to reduce the risk to ALARP.	
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6.5.4 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP:

- alternative
 - none selected
- additional
 - none selected
- improved
 - none selected.

6.6 Oiled Wildlife Response – ALARP Assessment

Alternative, additional and improved control measure options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation are highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.6.1 Existing Capability – Oiled Wildlife Response

Woodside’s existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside’s direct control.

6.6.2 Oiled Wildlife Response – Control Measure Options Analysis

6.6.2.1 Alternative Control Measures

Alternative Control Measures considered					
<i>Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Direct contracts with service providers	This option duplicates the capability accessed through AMOSC and OSRL and would compete for the same resources. Does not provide a significant increase in environmental benefit.	These delivery options provide increased effectiveness through more direct communication and control of specialists. However, no significant net benefit is anticipated.	Duplication of capability – already subscribed to through contracts with AMOSC and OSRL	This option is not adopted as the existing capability meets the need.	No

6.6.2.2 Additional Control Measures

Additional Control Measures considered					
<i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Additional wildlife treatment systems	<p>The selected delivery options provide access to call-off contracts with selected specialist providers. The agreements allow these resources to be mobilised to meet the required response objectives, commensurate with the progressive nature of environmental impact and the time available to monitor hydrocarbon plume trajectories.</p> <p>Provides response equipment and personnel by day 2. The additional cost in having a dedicated oiled wildlife response (equipment and personnel) in place is disproportionate to environmental benefit.</p> <p>These selected delivery options provide capacity to carry out an oiled wildlife response if contact is predicted, and to scale up the response if required to treat widespread contamination.</p> <p>Current capability meets the needs required within 48 hours of the spill and there is no additional environmental benefit in adopting the improvements.</p>	<p>Although hydrocarbon contact above wildlife response threshold concentrations (>100 g/m²) with shoreline is expected from day 1 (CS-01), given the low likelihood of such an event occurring and that the current capability meets the need within 48 hours of the spill, the cost of implementing measures to reduce the mobilisation time is considered disproportionate to the benefit.</p> <p>Oiled wildlife response capacity would be addressed for open Commonwealth waters through the AMOSC arrangements, as informed by operational monitoring, and under the direction of DBCA in nearshore areas.</p> <p>The cost and organisational complexity of this approach is moderate, and the overall delivery effectiveness is high.</p>	Additional wildlife response resources could total A\$1700 per operational site per day.	This option is not adopted as the existing capability meets the need from day 2.	No
Additional trained wildlife responders	<p>Numbers of oiled wildlife are expected to be low in the remote offshore setting of the oiled wildlife response, given the distance from known aggregation areas.</p> <p>The potential environmental benefit of training additional personnel is expected to be low.</p>	<p>Current numbers meet the needs required (within 48 hours of the spill) and additional personnel are available through existing contracts with oil spill response organisations and environmental panel contractors.</p> <p>Additional equipment and facilities would be required to support ongoing response, depending on the scale of the event and the impact to wildlife and may be sourced via existing contracts with OSROs. Materials for holding facilities, portable</p>	Additional wildlife response personnel cost A\$2000 per person per day	This option is not adopted as the existing capability meets the need from day 2.	No

		pools, enclosures and rehabilitation areas would be sourced as required.			
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6.6.2.3 Improved Control Measures

Improved Control Measures considered <i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Faster mobilisation time for wildlife response	This control measure provides increased effectiveness through faster mobilisation of specialists. Some net environmental benefit is expected if teams could be mobilised by day 1, however, the volatile nature of a spill of MDO may preclude access on day 1 for response personnel.	Pre-positioning vessels or equipment would reduce mobilisation time for oiled wildlife response activities. However, RPAs predicted to be contacted are based on modelling outputs and thus may differ under the prevailing conditions of a real event.	Wildlife response packages to preposition at vulnerable sites identified through the deterministic modelling cost A\$700 per package per day. The cost of having dedicated equipment and personnel available to respond faster is considered disproportionate to the environmental benefit.	This option is not adopted as the existing capability meets the need from day 2.	No

6.6.3 Selected control measures

Following review of alternative, additional and improved control measures, the following controls were selected for implementation for the PAP:

- alternative
 - none selected
- additional
 - none selected
- improved
 - none selected

6.7 Waste Management – ALARP Assessment

Alternative, additional and improved control measure options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation are highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.7.1 Existing Capability – Waste Management

Woodside’s existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside’s direct control.

6.7.2 Waste Management – Control Measure Options Analysis

6.7.2.1 Alternative Control Measures

Alternative Control Measures considered <i>Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical alternative control measures identified.					

6.7.2.2 Additional Control Measures

Additional Control Measures considered <i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Increased waste storage capability	The procurement of waste storage equipment options on the day of the event will allow immediate response and storage of collected waste. The environmental benefit of immediate waste storage is to reduce ecological consequence by safely securing waste, allowing continuous response operations to occur.	Access to Woodside’s waste service provider’s storage options provides the resources required to store and transport sufficient waste to meet the need. Access to waste contractors existing facilities enables waste to be stockpiled and gradually processed within the regional waste handling facilities. Additional temporary storage equipment is available through existing contract and arrangements with AMOSC/ OSRL. Existing arrangements meet identified need for the PAP from day 4 onwards.	Cost for increased waste disposal capability would be approximately A\$1300 per m ³ . Cost for increased onshore temporary waste storage capability would be approximately A\$40 per unit per day.	This option is not adopted as the existing capability meets the need.	No

6.7.2.3 Improved Control Measures

Improved Control Measures considered <i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Faster response time	The access to Veolia waste storage options provides the resources to store and transport waste, permitting the wastes to be stockpiled and gradually processed within the regional waste handling facilities. Bulk transport to Veolia’s licensed waste management facilities would be undertaken via controlled-waste-licensed vehicles and in accordance with Environmental Protection (Controlled Waste) Regulations 2004. The environmental benefit from successful waste storage will reduce pressure on the treatment and disposal facilities reducing ecological consequences by safely securing waste. In addition, waste storage	Woodside already maintains an equipment stockpile in Exmouth to enable shorter response times to incidents. This stockpile includes temporary waste storage equipment. Woodside has access to stockpiles of waste storage and equipment in Dampier and Exmouth through existing contracts and arrangements.	The incremental benefit of having a dedicated local Woodside owned stockpile of waste equipment and transport is considered minor and cost is considered disproportionate to the benefit gained given predicted shoreline contact times.	This option is not adopted.	No

	<p>and transport will allow continuous response operations to occur.</p> <p>This delivery option would increase known available storage, eliminating the risk of additional resources not being available at the time of the event. However, the environmental benefit of Woodside procuring additional waste storage is considered minor as the risk of additional storage not being available at the time of the event is considered low and existing arrangements provide adequate storage to support the response.</p>				
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6.7.3 Selected control measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP:

- alternative
 - none selected
- additional
 - none selected
- improved
 - none selected.

6.8 Scientific Monitoring – ALARP Assessment

Alternative, additional and improved control measure options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation are highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.8.1 Existing Capability – Scientific Monitoring

Woodside’s existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/ vessel/ aircraft/ vehicle location and duties, survey or classification society inspection requirements, overflight/ port/ quarantine permits and inspections, crew/ pilot duty and fatigue hours, refuelling/ re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside’s direct control.

6.8.2 Scientific Monitoring – Control Measure Options Analysis

6.8.2.1 Alternative Control Measures

Alternative Control Measures considered					
<i>Alternative control measures, including potentially more effective and/or novel control measures, are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Analytical laboratory facilities closer to the likely spill affected area	The environmental consideration of having access to suitable laboratory facilities in Karratha to carry out the hydrocarbon analysis would provide faster turnaround in reporting of results only by a matter of days (as per the time to transport samples to laboratories).	SM01 water quality monitoring requires water samples to be transported to NATA-rated laboratories in Perth or over to the East coast. Consider the benefit of laboratory access and transportation times to deliver water samples and complete lab analysis. There is a time lag from collection of water samples to being in receipt of results and confirming hydrocarbon contact to sensitive receptors.	Laboratory facilities and staff available at locations closer to the spill affected area can reduce reporting times only to a moderate degree (days) with associated high costs of maintaining capability do not improve the environmental benefit.	This control measure is not adopted as the costs and complexity are considered disproportionate to any environmental benefit that might be realised.	No
Dedicated contracted SMP vessel (exclusive to Woodside)	Would provide faster mobilisation time of scientific monitoring resources, however, the environmental benefit associated with faster mobilisation time would be minor compared to selected options.	Chartering and equipping additional vessels on standby for scientific monitoring has been considered. The option is reasonably practicable, but the sacrifice (charter costs and organisational complexity) is significant, particularly when compared with the anticipated availability of vessels and resources within in the required timeframes. The selected delivery provides capability to meet the scientific monitoring objectives, including collection of pre-emptive data where baseline knowledge gaps are identified for receptor locations where spill predictions of time to contact are >10 days.	The cost and organisational complexity of employing a dedicated response vessel is considered disproportionate to the potential environmental benefit by adopting these delivery options.	This control measure is not adopted as the costs and complexity are considered disproportionate to any environmental benefit that might be realised.	No

6.8.2.2 Additional control measures

Additional Control Measures considered					
<i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Determine baseline data needs and provide implementation plan in the event of an unplanned hydrocarbon release	Address resourcing needs to collect post spill (pre-contact) baseline data as spill expands in the event of a loss of containment from a vessel collision from the PAP activities.	As part of Woodside’s Scientific Monitoring Program, the following are considered and incorporated into the spill response approach and the SMP Standby Service contract: <ul style="list-style-type: none"> Woodside relies on existing environmental baseline for receptors which have predicted hydrocarbon contact (above environment threshold) <10 days and acquiring pre-emptive data in the event of a loss of well control from the PAP activities based on receptors predicted to have hydrocarbon contact >10 days. It provide appropriate baseline for key receptors for all geographic locations that are potentially impacted <10 days of spill event. 	No cost associated with baseline for SM01.	This control measure is adopted as the costs and complexity are not disproportionate to any environmental benefit that might be realised.	Yes

		<ul style="list-style-type: none"> It addresses resourcing needs to collect pre-emptive baseline as spill expands in the event of a spill of MDO from the PAP activities. For SM01, pre-emptive baseline is not required as marine water quality is assumed to be pristine. 			
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6.8.2.3 Improved Control Measures considered

Improved Control Measures considered					
<i>Improved, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical improved control measures identified					

6.8.3 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP:

- alternative
 - none selected
- additional
 - determine baseline data needs and provide implementation plan in the event of an unplanned hydrocarbon release
- improved
 - none selected.

6.8.4 Operational Plan

Key actions from the Scientific Monitoring Program Operational Plan for implementing the response are outlined in **Table 6-7**.

Table 6-7: Scientific monitoring program operational plan actions

Responsibility	Action
Activation	
CIMT Planning (CIMT Planning – Environment Unit)	Mobilises SMP Lead/Manager and SMP Coordinator to the CIMT Planning Section.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager and SMP Coordinator)	Constantly assesses all outputs from OM01, OM02 and OM03 (Annex B) to determine receptor locations and receptors at risk. Confirm sensitive receptors likely to be exposed to hydrocarbons, timeframes to specific receptor locations and which SMPs are triggered. Review baseline data for receptors at risk.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager and SMP Coordinator)	SMP co-ordinator stands up SMP Standby contractor. Stands up subject matter experts, if required.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP Standby contractor)	Establish if, and where, pre-contact baseline data acquisition is required. Determines practicable baseline acquisition program based on predicted timescales to contact and anticipated SMP mobilisation times. Determines scope for preliminary post-contact surveys during the Response Phase. Determines which SMP activities are required at each location based on the identified receptor sensitivities.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP Standby contractor)	If response phase data acquisition is required, stand up the contractor SMP teams for data acquisition and instruct them to standby awaiting further details for mobilisation from the CIMT.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP Standby contractor)	SMP standby contractor, to prepare the Field Implementation Plan. Prepare and obtain sign-off of the Response Phase SMP work plan and Field Implementation Plan. Update the IAP.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP Standby contractor)	Liaise with CIMT Logistics, and determine the status and availability of aircraft, vessels and road transportation available to transport survey personnel and equipment to point of departure. Engage with SMP standby contractor, SMP Manager and CIMT Logistics Section to establish mobilisation plan, secure logistics resources and establish ongoing logistical support operations, including: <ul style="list-style-type: none"> • vessels, vehicles and other logistics resources • vessel fit-out specifications (as detailed in the Scientific Monitoring Program Operational Plan) • equipment storage and pick-up locations • personnel pick-up/airport departure locations • ports of departure

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Responsibility	Action
	<ul style="list-style-type: none"> land based operational centres and forward operations bases, accommodation and food requirements.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP Standby contractor)	Confirm communications procedures between Woodside SMP team, SMP standby contractor, SMP Team Leads and Operations Point Coordinator.
Mobilisation	
CIMT Logistics	Engage vessels and vehicles and arrange fitting out as specified by the mobilisation plan. Confirm vessel departure windows and communicate with the Service Provider's SMP Manager. Agree SMP mobilisation timeline and induction procedures with the Division and Sector Command Point(s).
CIMT Logistics	Coordinate with SMP standby contractor to mobilise teams and equipment according to the logistics plan and Sector Induction procedures.
SMP Survey Team Leads	SMP Survey Team Leader(s) coordinate on-ground/on-vessel mobilisations and support services with the Sector Command point(s).

6.8.5 ALARP and Acceptability Summary

ALARP and Acceptability Summary		
Scientific Monitoring		
ALARP Summary	X	All known reasonably practicable control measures have been adopted.
		No additional, alternative and improved control measures would provide further benefit.
		No reasonably practical additional, alternative, and/or improved control measure exists.
<p>The resulting scientific monitoring capability has been assessed against the credible spill scenarios. The range of techniques provide an ongoing approach to monitoring operations to assess and evaluate the scale and extent of impacts.</p> <p>All known reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be moderate and the overall delivery effectiveness considered medium. The SMP's main objectives can be met, with the addition of one alternative control measures to provide further benefit.</p>		
Acceptability Summary		<ul style="list-style-type: none"> • The control measures selected for implementation manage the potential impacts and risks to ALARP. • In the event of a hydrocarbon spill for the PAP, the control measures selected, meet or exceed the requirements of Woodside Management System and industry best-practice. • Scientific Monitoring control and activities are compliant with relevant environmental legislation and regulations, including the EPBC Act. • Throughout the PAP, relevant Australian standards and codes of practice will be followed to evaluate the impacts from a loss of well control. • Consultation undertaken for the PAP did not receive feedback regarding concerns for Scientific Monitoring activities in response to a hydrocarbon spill. • The level of impact and risk to the environment has been considered with regards to the principles of ESD and risks and impacts from a range of identified scenarios were assessed in detail. The control measures described consider the conservation of biological and ecological diversity, through both the selection of control measures and the management of their performance. The control measures have been developed to account for credible case scenarios, and uncertainty has not been used as a reason for postponing control measures.
<p>On the basis from the impact assessment above and in Section 6.8 of the EP, Woodside considers the adopted controls discussed manage the impacts and risks associated with implementing scientific monitoring activities to a level that is ALARP and acceptable.</p>		

7 ENVIRONMENTAL RISK ASSESSMENT OF SELECTED RESPONSE TECHNIQUES

The implementation of response techniques may modify the impacts and risks identified in the EP and response activities can introduce additional impacts and risks from response operations themselves. Therefore, it is necessary to complete an assessment so these impacts and risks have been considered and specific measures are put in place to continually review and manage further impacts and risks to ALARP and an acceptable level. A simplified assessment process has been used to complete this task which covers the identification, analysis, evaluation and treatment of impacts and risks introduced by responding to the event.

7.1 Identification of impacts and risks from implementing response techniques

Each of the control measures can modify the impacts and risks identified in the EP. These impacts and risks have been previously assessed within the scope of the EP. Please refer to the EP for details regarding how these risks are being managed as they are not discussed further in this document. These risks include:

- atmospheric emissions
- routine and non-routine discharges
- physical presence, proximity to other vessels (shipping and fisheries)
- routine acoustic emissions vessels
- lighting for night work/navigational safety
- invasive marine species
- collision with marine fauna
- disturbance to seabed.

Additional impacts and risks associated with the control measures not included within the scope of the EP include:

- drill cuttings and drilling fluids environmental impact assessment for relief well drilling
- vessel operations and anchoring
- presence of personnel on the shoreline
- Human presence (manual cleaning)
- vegetation cutting
- additional stress or injury caused to wildlife
- secondary contamination from the management of waste

7.2 Analysis of impacts and risks from implementing response techniques

The table below compares the adopted control measures for this activity against the environmental values that can be affected when they are implemented.

Table 7-1: Analysis of risks and impacts

	Environmental Value						
	Soil and Groundwater	Marine Sediment Quality	Water Quality	Air Quality	Ecosystems/Habitat	Species	Socio-Economic
Operational monitoring		✓	✓		✓	✓	
Source control		✓	✓	✓	✓	✓	✓
Shoreline protection and deflection	✓	✓	✓		✓	✓	✓
Shoreline clean-up	✓	✓	✓		✓	✓	✓
Oiled wildlife					✓	✓	
Scientific monitoring		✓	✓		✓	✓	✓
Waste management	✓			✓	✓	✓	✓

7.3 Evaluation of impacts and risks from implementing response techniques

Drill cuttings and drilling fluids environmental impact assessment for relief well drilling

The identified potential impacts associated with the discharge of drill cuttings and fluids during a relief well drilling activity include a localised reduction in water and seabed sediment quality, and potential localised changes to benthic biota (habitats and communities).

Direct and indirect ecological impact pathways are identified for drill cuttings and drilling fluids as follows:

- temporary increase in total suspended solids (TSS) in the water column
- attenuation of light penetration as an indirect consequence of the elevation of TSS and the rate of sedimentation
- sediment deposition to the seabed leading to the alteration of the physio-chemical composition of sediments, and burial and potential smothering effects to sessile benthic biota
- potential contamination and toxicity effects to benthic and in-water biota from drilling fluids.

Potential impacts from the discharge of cuttings range from the complete burial of benthic biota in the immediate vicinity of the well site due to sediment deposition, smothering effects from raised sedimentation concentrations as a result of elevated TSS, changes to the physico-chemical properties of the seabed sediments (particle size distribution and potential for reduction in oxygen levels within the surface sediments due to organic matter degradation by aerobic bacteria) and subsequent changes to the composition of infauna communities to minor sediment loading above background and no associated ecological effects. Predicted impacts are generally confined to within a few hundred metres of the discharge point (International Association of Oil and Gas Producers 2016) (i.e. within the EMBA for a hydrocarbon spill event).

The discharge of drill cuttings and unrecoverable fluids from relief well drilling is expected to increase turbidity and TSS levels in the water column, leading to an increased sedimentation rate above ambient levels associated with the settlement of suspended sediment particles near to the seabed or below sea surface, depending on location of discharge. Cuttings with retained (unrecoverable) drilling fluids are discharged below the water line at the MODU location, resulting in drill cuttings and drilling fluids rapidly diluting, as they disperse and settle through the water column. The dispersion and fate of the cuttings is determined by particle size and density of the retained (unrecoverable) drilling fluids, therefore, the sediment particles will primarily settle in proximity to the well locations with potential for localised spread downstream (depending on the speed of currents throughout the water column and seabed) (IOGP 2016). The finer particles will remain in suspension and will be transported further before settling on the seabed.

These conclusions were supported by discharge modelling which was undertaken by Woodside in support of the Greater Enfield Development EP. Modelling results indicating that the TSS plume of suspended cuttings will typically disperse to the south-west while oscillating with the tide and diminish rapidly with increasing distance from the well locations. Maximum TSS concentrations predicted for 100 m, 250 m and 1 km distances from the wellsite were 7, 5 and 1 mg/L, respectively. Furthermore, water column concentrations below 10 mg/L remain within 235 m of the discharge location for each modelled well. For all well discharge locations (outside of direct discharge sites), TSS concentration did not exceed 10 mg/l. Nelson et al. (2016) identified <10 mg/L as a no effect or sub-lethal minimal effect concentration.

The low sensitivity of the deep-water benthic communities/habitats within and in the vicinity of relief well locations, combined with the relatively low toxicity of water based muds (WBM) and non-water based muds (NWBMs), there being no bulk discharges of NWBM and the highly localised nature and scale of predicted physical impacts to seabed biota, indicate that any localised impact would likely be of a slight magnitude (especially when considering the broader consequence of the loss of well containment event that a relief well drilling activity would be responding too).

Vessel operations and anchoring

Typical booms used in shoreline protection operations are designed to float, meaning that fauna capable of diving, such as cetaceans, marine turtles and sea snakes can readily avoid contact with the boom. Impacts to species that inhabit the water column such as sharks, rays and fish are not expected. Additionally, some fauna, such as cetaceans, are likely to detect and avoid the spill area, and are not expected to be present in the proximity of containment and recovery operations.

During the implementation of response techniques, where water depths allow, it is possible that response vessels will be required to anchor (e.g. during shoreline protection and surveys). The use of vessel anchoring will be minimal and likely to occur when the impacted shoreline is inaccessible via road. Anchoring in the nearshore environment of sensitive receptor locations will have the potential to impact coral reef, seagrass beds and other benthic communities in these areas. Recovery of benthic communities from anchor damage depends on the size of anchor and frequency of anchoring. Impacts would be highly localised (restricted to the footprint of the vessel anchor and chain) and temporary, with full recovery expected.

Presence of personnel on the shoreline

Presence of personnel on the shoreline during shoreline operations could potentially result in disturbance to wildlife and habitats. During the implementation of response techniques, it is possible that personnel may have minimal, localised impacts on habitats, wildlife and coastlines. The impacts associated with human presence on shorelines during shoreline surveys may include:

- damage to vegetation/habitat to gain access to areas of shoreline oiling
- damage or disturbance to wildlife during shoreline surveys
- removal of surface layers of intertidal sediments (potential habitat depletion)
- excessive removal of substrate causing erosion and instability of localised areas of the shoreline.

Human presence

Human presence for manual clean-up operations may lead to the compaction of sediments and damage to the existing environment especially in sensitive locations such as mangroves and turtle nesting beaches. However, any impacts are expected to be localised with full recovery expected.

Waste generation

Implementing the selected response techniques will result in the generation of the following waste streams that will require management and disposal:

- liquids (recovered oil/water mixture), collected during shoreline clean-up and oiled wildlife response operations
- semi-solids/solids (oily solids), collected during shoreline clean-up and oiled wildlife response operations
- debris (e.g. seaweed, sand, woods, plastics), collected during shoreline clean-up and oiled wildlife response operations.

If not managed and disposed of correctly, wastes generated during the response have the potential for secondary contamination of previously uncontaminated areas and/ or impacts to wildlife through contact with or ingestion of waste materials.

Cutting back vegetation could allow additional oil to penetrate the substrate and may also lead to localised habitat loss. However, any loss is expected to be localised in nature and lead to an overall net environmental benefit associated with the response by reducing exposure of wildlife to oiling.

Additional stress or injury caused to wildlife

Additional stress or injury to wildlife could be caused through the following phases of a response:

- capturing wildlife
- transporting wildlife
- stabilisation of wildlife
- cleaning and rinsing of oiled wildlife
- rehabilitation (e.g. diet, cage size, housing density)
- release of treated wildlife

Inefficient capture techniques have the potential to cause undue stress, exhaustion or injury to wildlife, additionally pre-emptive capture could cause undue stress and impacts to wildlife when there are uncertainties in the forecast trajectory of the spill. During the transportation and stabilisation phases, there is the potential for additional thermoregulation stress on captured wildlife. Additionally, during the cleaning process, it is important personnel undertaking the tasks are familiar with the relevant techniques to manage and mitigate further injury and the removal of water proofing feathers. Finally, during the release phase it is important that wildlife is not released back into a contaminated environment.

7.4 Treatment of impacts and risks from implementing response techniques

In respect of the impacts and risks assessed, the following treatment measures have been adopted. It must be recognised that this environmental assessment is seeking to identify how to maintain the level of impact and risks at levels that are ALARP and of an acceptable level rather than exploring further impact and risk reduction. It is for this reason that the treatment measures identified in this assessment will be captured in Operational Plans, Tactical Response Plans, and/or First Strike Plans.

Vessel operations and access in the nearshore environment

- If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified (Performance Standard (PS) 14.1, PS 17.1).
- Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines (PS 14.2, PS 17.2).

Presence of personnel on the shoreline

- Oversight by trained personnel who are aware of the risks (PS 17.6).
- Trained unit leaders will brief personnel prior to operations of the environmental risks of presence of personnel on the shoreline (PS 17.7).

Human Presence

- Shoreline access routes with the least environmental impact identified will be selected by a specialist in SCAT operations (PS 7.3, PS 17.5).
- Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves (PS 17.3).

Waste generation

- All shoreline clean-up sites will be zoned and marked before clean-up operations commence to prevent secondary contamination and minimise the mixing of clean and oiled sediment and shoreline substrates (PS 15.4).
- Removal of vegetation will be limited to moderately or heavily oiled vegetation (PS 17.4).
- Teams will segregate liquid and solid wastes at the earliest opportunity (PS 23.1).

Additional stress or injury caused to wildlife

- Oiled wildlife operations (including hazing) would be implemented with advice and assistance from the Oiled Wildlife Advisor from the DBCA, and in accordance with the processes and methodologies described in the WA OWRP and the relevant regional plan (PS 21.1).

8 ALARP CONCLUSION

An analysis of alternative, additional and improved control measures has been undertaken to determine their reasonableness and practicability. The tables in Section 6 document the considerations made in this evaluation. Where the costs of an alternative, additional, or improved control measure have been determined to be disproportionate to the environmental benefit gained from its adoption, it has been rejected. Where this is not considered to be the case, the control measure has been adopted.

The risks from a hydrocarbon spill have been reduced to ALARP because:

- Woodside has a significant hydrocarbon spill response capability to respond to the WCCS through the control measures identified.
- New and modified impacts and risks associated with implementing response techniques have been considered and will not increase the risks associated with the activity.
- A consideration of alternative, additional, and improved control measures identified any other control measures that delivered proportionate environmental benefit compared to the cost of adoption for this activity ensuring that:
 - All known, reasonably practicable control measures have been adopted.
 - No additional, reasonably practicable alternative and/or improved control measures would provide further environmental benefit.
 - No reasonably practical additional, alternative, and/or improved control measure exists.
- A structured process for considering alternative, additional, and improved control measures was completed for each control measure.
- The evaluation was undertaken based on the outputs of the WCCS so that the capability in place is sufficient for all other scenario from this activity.
- The likelihood of the WCCS spill has been ignored in evaluating what was reasonably practicable.

9 ACCEPTABILITY CONCLUSION

Following the ALARP evaluation process, Woodside deems the hydrocarbon spill risks and impacts have been reduced to an acceptable level by meeting the following criteria:

- Techniques are consistent with Woodside's processes and relevant internal requirements including policies, culture, processes, standards, structures and systems.
- Levels of risk/impact are deemed acceptable by relevant persons/organisations and are aligned with the uniqueness of, and/or the level of protection assigned to the environment, its sensitivity to pressures introduced by the activity, and the proximity of activities to sensitive receptors, and have been aligned with Part 3 of the EPBC Act.
- Selected control measures meet requirements of legislation and conventions to which Australia is a signatory (e.g. MARPOL, the World Heritage Convention, the Ramsar Convention, and the Biodiversity Convention etc.). In addition to these, other non-legislative requirements met include:
 - Australian IUCN reserve management principles for Commonwealth marine protected areas and bioregional marine plans
 - National Water Quality Management Strategy and supporting guidelines for marine water quality)
 - conditions of approval set under other legislation
 - national and international requirements for managing pollution from ships
 - national biosecurity requirements.
- Industry standards, best practices and widely adopted standards and other published materials have been used and referenced when defining acceptable levels. Where these are inconsistent with mandatory/legislative regulations, explanation has been provided for the proposed deviation. Any deviation produces the same or a better level of environmental performance (or outcome).

10 GLOSSARY AND ABBREVIATIONS

10.1 Glossary

Term	Description / Definition
ALARP	Demonstration through reasoned and supported arguments that there are no other practicable options that could reasonably be adopted to reduce risks further.
Availability	The availability of a control measure is the percentage of time that can perform its function (operating time plus standby time) divided by the total period (whether in service or not). In other words, it is the probability that the control has not failed or is undergoing a maintenance or repair function when it needs to be used.
Control	The means by which risk from events is eliminated or minimised.
Control effectiveness	A measure of how well the control measures perform its required function.
Control measure (risk control measure)	The features that eliminate, prevent, reduce or mitigate the risk to environment associated with PAP.
Credible spill scenario	A spill considered by Woodside as representative of maximum volume and characteristics of a spill that could occur as part of the PAP.
Dependency	The degree of reliance on other systems for the control measure to be able to perform its intended function.
Environment that may be affected	The summary of quantitative modelling where the marine environment could be exposed to hydrocarbons levels exceeding hydrocarbon threshold concentrations.
Incident	An event where a release of energy resulted in or had (with) the potential to cause injury, ill health, damage to the environment, damage to equipment or assets or company reputation.
Major Environment Event	The events with potential environment, reputation, social or cultural consequences of category C or higher (as per Woodside's operational risk matrix) which are evaluated against credible worst-case scenarios which may occur when all controls are absent or have failed.
Performance outcome	A statement of the overall goal or outcome to be achieved by a control measure
Performance standard	The parameters against which [risk] controls are assessed so they reduce risk to ALARP. A statement of the key requirements (indicators) that the control measure must achieve to perform as intended in relation to its functionality, availability, reliability, survivability and dependencies.
Preparedness	Measures taken before an incident to improve the effectiveness of a response
Reasonably practicable	... a computation ... made by the owner, in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) [showing whether or not] that there is a gross disproportion between them ... made by the owner at a point of time anterior to the accident. (Judgement: Edwards v National Coal Board [1949])
Receptors at risk	Physical, biological and social resources identified as at risk from hydrocarbon contact using oil spill modelling predictions.
Receptor areas	Geographically referenced areas such as bays, islands, coastlines and/or protected area (WHA, Commonwealth or State marine reserve or park) containing one or more receptor type.

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Term	Description / Definition
Receptor Sensitivities	This is a classification scheme to categorise receptor sensitivity to an oil spill. The Environmental Sensitivity Index (ESI) is a numerical classification of the relative sensitivity of a particular environment (particularly different shoreline types) to an oil spill. Refer to the Woodside Oil Pollution Emergency Arrangements (Australia) for more details.
Regulator	NOPSEMA are the Environment Regulator under the Environment Regulations.
Reliability	The probability that at any point in time a control measure will operate correctly for a further specified length of time.
Response technique	The key priorities and objectives to be achieved by the response plan Measures taken in response to an event to reduce or prevent adverse consequences.
Survivability	Whether or not a control measure is able to survive a potentially damaging event is relevant for all control measures that are required to function after an incident has occurred.
Threshold	Hydrocarbon threshold concentrations applied to the risk assessment to evaluate hydrocarbon spills. These are defined as: surface hydrocarbon concentration – ≥ 10 g/m ² , dissolved – ≥ 50 ppb and entrained hydrocarbon concentrations – ≥ 100 ppb.
Zone of Application	The zone in which Woodside may elect to apply dispersant. The zone is determined based on a range of considerations, such as hydrocarbon characteristics, weathering and metocean conditions. The zone is a key consideration in the Net Environmental Benefit Analysis for dispersant use.

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10.2 Abbreviations

Abbreviation	Meaning
ADIOS	Automated Data Inquiry for Oil Spills
AEP	Australian Energy Producers (formerly APPEA)
ALARP	As low as reasonably practicable
AMOSOC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
AUV	Autonomous Underwater Vehicle
BAOAC	Bonn Agreement Oil Appearance Code
BOP	Blowout Preventer
cST	Centistokes
CIMT	Corporate Incident Management Team
DM	Duty Manager
DoT	Western Australia Department of Transport
DBCA	Western Australia Department of Biodiversity, Conservation and Attractions (former Western Australian Department of Parks and Wildlife)
DWER	Western Australia Department of Water and Environmental Regulation
EMBA	Environment that May Be Affected
EMSA	European Maritime Safety Agency
EP	Environment Plan
Environment Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023
ESI	Environmental Sensitivity Index
ESD	Emergency Shut Down
ESP	Environmental Services Panel
FPSO	Floating Production Storage Offloading
FSP	First Strike Plan
GIS	Geographic Information System
GPS	Global Positioning System
HSP	Hydrocarbon Spill Preparedness
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IMS	Incident Management System
IMT	Incident Management Team
IPIECA	International Petroleum Industry Environment Conservation Association
ITOPF	International Tanker Owners Pollution Federation
IUCN	International Union for Conservation of Nature
KBSF	King Bay Supply Facility
KSAT	Kongsberg Satellite

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Abbreviation	Meaning
LOWC	Loss of Well Containment
MODU	Mobile Offshore Drilling Unit
MoU	Memorandum of Understanding
NEBA	Net Environmental Benefit Analysis
NOAA	National Oceanic and Atmospheric Administration
NRT	National Response Team
OILMAP	Oil Spill Model and Response System
OMP	Operational Monitoring Program
OPEA	Oil Pollution Emergency Arrangements
OPEP	Oil Pollution Emergency Plan
OPGGSA	Offshore Petroleum and Greenhouse Gas Storage Act
OSRL	Oil Spill Response Limited
OSTM	Oil Spill Trajectory Modelling
OWR	Oiled Wildlife Response
OWRP	Oiled Wildlife Response Plan
PAP	Petroleum Activities Program
PEARL	People, Environment, Asset, Reputation, and Livelihood
PBA	Pre-emptive Baseline Areas
PPA	Priority Protection Area
PPB	Parts per billion
PPM	Parts per million
ROV	Remotely Operated Vehicle(s)
RPA	Response Protection Area
SCAT	Shoreline Contamination Assessment Techniques
S&EM	Security and Emergency Management
SIMA	Spill Impact Mitigation Assessment
SIMAP	Integrated Oil Spill Impact Model System
SSDI	Subsea Dispersant Injection
SFRT	Subsea First Response Toolkit
SMP	Scientific monitoring program
SOP	Standard Operating Procedure
TRP	Tactical Response Plan
UAS	Unmanned Aerial Systems
UAV	Unmanned Aerial Vehicles
VOC	Volatile Organic Compound
WHA	World Heritage Area
Woodside	Woodside Energy Limited
WCC	Woodside Communication Centre
WWCI	Wild Well Control Inc

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Abbreviation	Meaning
WCCS	Worst Case Credible Scenario
ZoA	Zone of Application

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ANNEX A: NET ENVIRONMENTAL BENEFIT ANALYSIS DETAILED OUTCOMES

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Controlled Ref No: SA0005AF1401801230

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Page 131 of 163

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A NEBA has been conducted to assess the net environmental benefit of different response techniques to selected receptors in the event of an oil spill from the PAP for CS-01, CS-02 and CS-03. The complete list of potential receptor locations within the EMBA within the PAP is included in Section 4 of the EP.

The locations utilised for the NEBA were limited to the identified RPAs of the PAP identified from modelling (see Section 3 for outline of selection). These include receptors which have potential for the following:

- Surface contact (>50 g/m²)
- Shoreline accumulation (>100 g/m²) at any time
- Entrained contact (>100 ppb) within 14 days

The detailed NEBA assessment outcomes are shown below. The Scarborough Project Offshore Facility and Trunkline Operations preoperational NEBAs contain the full assessments.

Table A-1: NEBA assessment technique recommendations for MDO oil – CS-01, CS-02, CS-03 (combined NEBA)

Receptor	Operational Monitoring	Containment and recovery	Dispersant application: > 20 m water depth and > 10 km from shore/reefs	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response	In situ burning	Mechanical dispersion	Source Control (Vessel)
Gidley Islands	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
Keast Island	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
Legendre Island	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
Cape Bruguieres	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
Dampier Archipelago	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
Angel Island	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
Rosemary Island	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
Cohen Island	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
Montebello MP*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Dampier MP*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Ningaloo MP*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Gascoyne MP*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Karratha-Port Hedland*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Delambre Island*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Flat Island*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Goodwyn Island*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Hermite Island*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Kendrew Island*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Lowendal Islands*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Malus Island*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Montebello Islands*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Muiron Islands*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Barrow Island MMA*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Montebello Islands MP*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Ningaloo Coast WHA*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Ningaloo MP (State)*	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Cod Bank*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Courtenay Shoal*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Hammersley Shoal*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes

Madeleine Shoal*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Montebello Shoals*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Rankin Bank*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes
Tryal Rocks*§	Yes	No	No	No	No	No	No	Potentially	No	No	Yes

* Entrained contact only

§ Floating oil will not accumulate on submerged features and at open ocean locations.

Overall assessment

Sensitive receptor (sites identified in EP)	Operational Monitoring	Containment and recovery	Dispersant application: > 20 m water depth and > 10 km from shore/reefs	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response	In situ burning	Mechanical dispersion	Source Control (Vessel)
Is this response Practicable?	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes
NEBA identifies response potentially of net environmental benefit?	Yes	No	No	Potentially	Potentially	Potentially	No	Yes	No	No	Yes

NEBA Impact Ranking Classification Guidance

To reduce variability between assessments, the following ranking descriptions have been devised to guide the workshop process:

		Degree of impact ¹³		Potential duration of impact	Equivalent Woodside Corporate Risk Matrix Consequence Level
Positive	3P	Major	Likely to prevent: <ul style="list-style-type: none"> behavioural impact to biological receptors behavioural impact to socio-economic receptors e.g. changes to day-to-day business operations, public opinion/behaviours (e.g. avoidance of amenities such as beaches) or regulatory designations. 	Decrease in duration of impact by > 5 years	N/A
	2P	Moderate	Likely to prevent: <ul style="list-style-type: none"> significant impact to a single phase of reproductive cycle of biological receptors detectable financial impact, either directly (e.g. loss of income) or indirectly (e.g. via public perception), for socio-economic receptors. 	Decrease in duration of impact by 1–5 years	N/A
	1P	Minor	Likely to prevent impacts on: <ul style="list-style-type: none"> significant proportion of population or breeding stages of biological receptors socio-economic receptors such as: <ul style="list-style-type: none"> significant impact to the sensitivity of protective designation; or significant and long-term impact to business/industry. 	Decrease in duration of impact by several seasons (< 1 year)	N/A
	0	Non-mitigated spill impact	No detectable difference to unmitigated spill scenario.		
Negative	1N	Minor	Likely to result in: <ul style="list-style-type: none"> behavioural impact to biological receptors behavioural impact to socio-economic receptors e.g. changes to day-to-day business operations, public opinion/behaviours (e.g. avoidance of amenities such as beaches), or regulatory designations. 	Increase in duration of impact by several seasons (< 1 year)	Increase in risk by one sub-category, without changing category (e.g. Minor (E) to Minor (D))
	2N	Moderate	Likely to result in: <ul style="list-style-type: none"> significant impact to a single phase of reproductive cycle for biological receptors; or detectable financial impact, either directly (e.g. loss of income) or indirectly (e.g. via public perception), for socio-economic receptors. This level of negative impact is recoverable and unlikely to result in closure of business/industry in the region. 	Increase in duration of impact by 1–5 years	Increase in risk by one category (e.g. Minor (D) to Moderate (C or B))
	3N	Major	Likely to result in impacts on: <ul style="list-style-type: none"> significant proportion of population or breeding stages of biological receptors socio-economic receptors resulting in either: <ul style="list-style-type: none"> significant impact to the sensitivity of protective designation; or significant and long-term impact to business/industry. 	Increase in duration of impact by > 5 years or unrecoverable	Increase in risk by two categories (e.g. Minor (E) to Major (A))

¹³ NOTE: the maximum likely impact should be considered; for example, if a spill were to directly impact the behaviour that results in an impact to reproduction and/or the breeding population (such as fish failing to aggregate to spawn), then the score should be a 2 or 3 rather than a 1. Similarly, if a change in behaviour resulted in an increased risk of mortality of a population, then it should be scored as a 2 or 3

ANNEX B: OPERATIONAL MONITORING ACTIVATION AND TERMINATION CRITERIA

Table B-1: Operational monitoring objectives, triggers and termination criteria

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
<p>Operational Monitoring Operational Plan – 01 (OM01)</p> <p>Predictive Modelling of Hydrocarbons to Assess Resources at Risk</p>	<p>OM01 focuses on the conditions that have prevailed since a spill commenced, as well as those that are forecasted in the short term (1–3 days ahead) and longer term. OM01 utilises computer-based forecasting methods to predict hydrocarbon spill movement and guide the management and execution of spill response operations to maximise the protection of environmental resources at risk.</p> <p>The objectives of OM01 are to:</p> <ul style="list-style-type: none"> • Provide forecasting of the movement and weathering of spilled hydrocarbons • Identify resources that are potentially at risk of contamination • Provide simulations showing the outcome of alternative response options (booming patterns etc.) to inform on-going Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options to reduce risks to ALARP 	<p>OM01 will be triggered immediately following a level 2/3 hydrocarbon spill.</p>	<p>The criteria for the termination of OM01 are:</p> <ul style="list-style-type: none"> • The hydrocarbon discharge has ceased and no further surface oil is visible • Response activities have ceased • Hydrocarbon spill modelling (as verified by OM02 surveillance observations) predicts no additional natural resources will be impacted

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Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
<p>Operational Monitoring Operational Plan – 02 (OM02)</p> <p>Surveillance and reconnaissance to detect hydrocarbons and resources at risk</p>	<p>OM02 aims to provide regular, on-going hydrocarbon spill surveillance throughout a broad region, in the event of a spill.</p> <p>The objectives of OM02 are:</p> <ul style="list-style-type: none"> • Verify spill modelling results and recalibrate spill trajectory models (OM01). • Understand the behaviour, weathering and fate of surface hydrocarbons. • Identify environmental receptors and locations at risk or contaminated by hydrocarbons. • Inform ongoing Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options to reduce risks to ALARP. • To aid in the subsequent assessment of the short- to long-term impacts and/or recovery of natural resources (assessed in SMPs) by ensuring that the visible cause and effect relationships between the hydrocarbon spill and its impacts to natural resources have been observed and recorded during the operational phase. 	<p>OM02 will be triggered immediately following a level 2/3 hydrocarbon spill.</p>	<p>The termination triggers for the OM02 are:</p> <ul style="list-style-type: none"> • 72 hours has elapsed since the last confirmed observation of surface hydrocarbons. • Latest hydrocarbon spill modelling results (OM01) do not predict surface exposures at visible levels.
<p>Operational Monitoring Operational Plan – 03 (OM03)</p> <p>Monitoring of hydrocarbon presence, properties, behaviour and weathering in water</p>	<p>OM03 will measure surface, entrained and dissolved hydrocarbons in the water column to inform decision-making for spill response activities.</p> <p>The specific objectives of OM03 are as follows:</p> <ul style="list-style-type: none"> • Detect and monitor for the presence, quantity, properties, behaviour and weathering of surface, entrained and dissolved hydrocarbons. • Verify predictions made by OM01 and observations made by OM02 about the presence and extent of hydrocarbon contamination. <p>Data collected in OM03 will also be used for the purpose of longer-term water quality monitoring during SM01.</p>	<p>OM03 will be triggered immediately following a level 2/3 hydrocarbon spill.</p>	<p>The criteria for the termination of OM03 are as follows:</p> <ul style="list-style-type: none"> • The hydrocarbon release has ceased. • Response activities have ceased. • Concentrations of hydrocarbons in the water are below available ANZECC/ ARMCANZ (2018) trigger values for 99% species protection.

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Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
<p>Operational Monitoring Operational Plan – 04 (OM04)</p> <p>Pre-emptive assessment of sensitive receptors at risk</p>	<p>OM04 aims to undertake a rapid assessment of the presence, extent and current status of shoreline sensitive receptors prior to contact from the hydrocarbon spill, by providing categorical or semi-quantitative information on the characteristics of resources at risk.</p> <p>The primary objective of OM04 is to confirm understanding of the status and characteristics of environmental resources predicted by OM01 and OM02 to be at risk, to further assist in making decisions on the selection of appropriate response actions and prioritisation of resources.</p> <p>Indirectly, qualitative/semi-quantitative pre-contact information collected by OM04 on the status of environmental resources may also aid in the verification of environmental baseline data and provide context for the assessment of environmental impacts, as determined through subsequent SMPs.</p> <p>OM04 would be undertaken in liaison with WA DoT as the control agency once the oil is in State Waters (if a Level 2/3 incident).</p>	<p>Triggers for commencing OM04 include:</p> <ul style="list-style-type: none"> • Contact of a sensitive habitat or shoreline is predicted by OM01, OM02 and/or OM03. • The pre-emptive assessment methods can be implemented before contact from hydrocarbons (once a receptor has been contacted by hydrocarbons it will be assessed under OM05). 	<p>The criteria for the termination of OM04 at any given location are:</p> <ul style="list-style-type: none"> • Locations predicted to be contacted by hydrocarbons have been contacted. • The location has not been contacted by hydrocarbons and is no longer predicted to be contacted by hydrocarbons (resources should be reallocated as appropriate).
<p>Operational monitoring operational plan – 05 (OM05)</p> <p>Monitoring of contaminated resources</p>	<p>OM05 aims to implement surveys to assess the condition of wildlife and habitats contacted by hydrocarbons at sensitive habitat and shoreline locations.</p> <p>The primary objectives of OM05 are:</p> <ul style="list-style-type: none"> • Record evidence of oiled wildlife (mortalities, sub-lethal impacts, number, extent, location) and habitats (mortalities, sub-lethal impacts, type, extent of cover, area, hydrocarbon character, thickness, mass and content) throughout the response and clean-up at locations contacted by hydrocarbons to inform and prioritise clean-up efforts and resources, while minimising the potential impacts of these activities. <p>Indirectly, the information collected by OM05 may also support the assessment of environmental impacts, as determined through subsequent SMPs.</p> <p>OM05 would be undertaken in liaison with WA DoT as the control agency once the oil is in State Waters (if a Level 2/3 incident).</p>	<p>OM05 will be triggered when a sensitive habitat or shoreline is predicted to be contacted by hydrocarbons by OM01, OM02 and/or OM03.</p>	<p>The criteria for the termination of OM05 at any given location are:</p> <ul style="list-style-type: none"> • No additional response or clean-up of wildlife or habitats is predicted. • Spill response and clean-up activities have ceased. <p>OM05 survey sites established at sensitive habitat and shoreline locations will continue to be monitored during SM02.</p> <p>The formal transition from OM05 to SM02 will begin on cessation of spill response and clean-up activities.</p>

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ANNEX C: OIL SPILL SCIENTIFIC MONITORING PROGRAM

Oil spill environmental monitoring

The following provides some further detail on Woodside's oil spill scientific monitoring Program and includes the following:

- The organisation, roles and responsibilities of the Woodside oil spill scientific monitoring team and external resourcing.
- A summary table of the ten scientific monitoring programs as per the specific focus receptor, objectives, activation triggers and termination criteria.
- Details on the oil spill environmental monitoring activation and termination decision-making processes.
- Baseline knowledge and environmental studies knowledge access via geo-spatial metadata databases.
- An outline of the reporting requirements for oil spill scientific monitoring programs.

Oil Spill Scientific Monitoring – Delivery Team Roles and Responsibilities

Woodside Oil Spill Scientific Monitoring Delivery Team

The Woodside science team are responsible for the delivery of the oil spill scientific monitoring. The roles and responsibilities of the Woodside scientific monitoring delivery team are presented in Table C-1 and the organisational structure and Corporate Incident Management Team (CIMT) linkage provided in Figure C-1.

Woodside Oil Spill Scientific monitoring program – External Resourcing

In the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors, scientific monitoring personnel and scientific equipment to implement the appropriate SMPs will be provided by SMP Standby contractor who hold a standby contract for SMP via the Woodside Environmental Services Panel (ESP). If additional resources are required other consultancy capacity within the Woodside ESP will be utilised (as needed and may extend to specialist contractors such as research agencies engaged in long-term marine monitoring programs). In consultation with the SMP Standby Contractor and/or specialist contractors, the selection, field sampling and approach of the SMPs will be determined by the nature and scale of the spill.

Table C-1: Woodside and Environmental Service Provider – Oil Spill Scientific Monitoring Program Delivery Team Key Roles and Responsibilities

Role	Location	Responsibility
Woodside Roles		
SMP Lead/Manager	Onshore	<ul style="list-style-type: none"> Approves the SMPs activated based on operational monitoring data provided by the Planning Section Provides advice to the CIMT in relation to scientific monitoring Provides technical advice regarding the implementation of scientific monitoring Approves detailed sampling plans prepared for SMPs Directs liaison between statutory authorities, advisors and government agencies in relation to SMPs.
SMP Co-Ordinator	Onshore	<ul style="list-style-type: none"> Activates the SMPs based on operational monitoring data provided by the Planning Section Sits in the Planning Section of the CIMT. Liaises with other CIMT Sections to deliver required logistics, resources and operational support from Woodside to support the Environmental Service Provider in delivering on the SMPs. Acts as the conduit for advice from the SMP Lead/Manager to the Environmental Service Provider Manages the Environmental Service Provider's implementation of the SMPs Liaises with the Environmental Service Provider on delivery of the SMPs Arranges all contractual matters, on behalf of Woodside, associated with the Environmental Service Provider's delivery of the SMPs.
Environmental Service Provider Roles		
SMP Standby Contractor – SMP Duty Manager/Project Manager (SMP Liaison Officer)	Onshore	<ul style="list-style-type: none"> Coordinates the delivery of the SMPs Provides costings, schedule and progress updates for delivery of SMPs Determines the structure of the Environmental Service Provider's team to necessitate delivery of the SMPs Verifies that HSE Plans, detailed sampling plans and other relevant deliverables are developed and implemented for delivery of the SMPs Directs field teams to deliver SMPs Arranges all contractual matters, on behalf of Environmental Service Provider, associated with the delivery of the SMPs to Woodside Manages sub-consultant delivery to Woodside Provides required personnel and equipment to deliver the SMPs.
SMP Field Teams	Offshore – Monitoring Locations	<ul style="list-style-type: none"> Delivers the SMPs in the field consistent with the detailed sampling plans and HSE requirements, within time and budget. Early communication of time, budget, HSE risks associated with delivery of the SMPs to the Environmental Service Provider – Project Manager Provides start up, progress and termination updates to the Environmental Service Provider – Project Manager (will be led in-field by a party chief).

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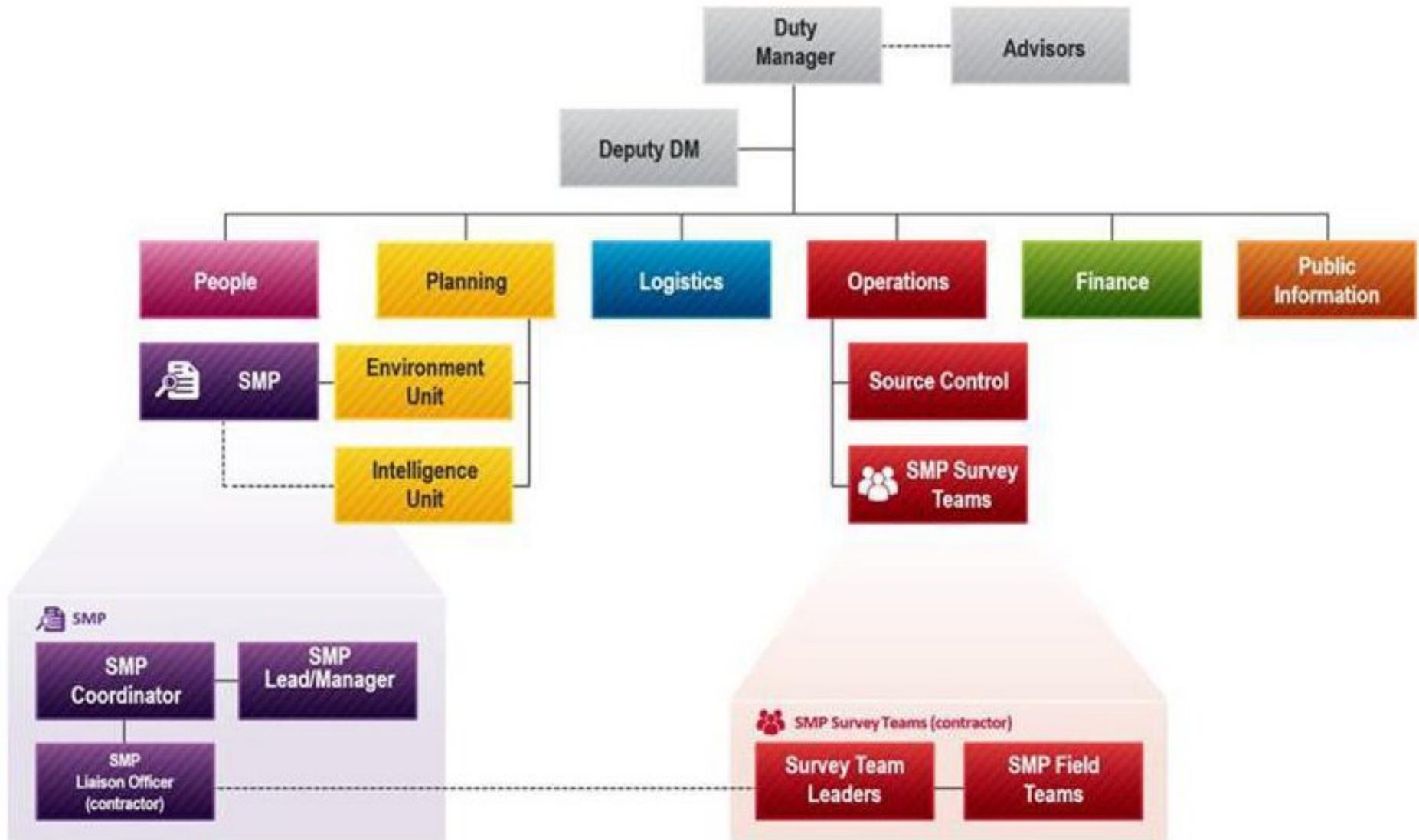


Figure C-1: Woodside Oil Spill Scientific Monitoring Program Delivery Team and Linkage to Corporate Incident Management Team (CIMT) organisational structure

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Table C-2: Oil Spill Environmental Monitoring: Scientific Monitoring Program – Objectives, Activation Triggers and Termination Criteria

Scientific monitoring Program (SMP)	Objectives	Activation Triggers	Termination Criteria
Scientific monitoring program 1 (SM01) Assessment of Hydrocarbons in Marine Waters	SM01 will detect and monitor the presence, extent, persistence and properties of hydrocarbons in marine waters following the spill and the response. The specific objectives of SM01 are as follows: <ul style="list-style-type: none"> Assess and document the extent, severity and persistence of hydrocarbon contamination with reference to observations made during surveillance activities and / or in-water measurements made during operational monitoring; and Provide information that may be used to interpret potential cause and effect drivers for environmental impacts recorded for sensitive receptors monitored under other SMPs. 	SM01 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors	SM01 will be terminated when: <ul style="list-style-type: none"> Operational monitoring data relating to observations and / or measurements of hydrocarbons on and in water have been compiled, analysed and reported; and The report provides details of the extent, severity and persistence of hydrocarbons which can be used for analysis of impacts recorded for sensitive receptors monitored under other SMPs. SMP monitoring of sensitive receptor sites: <ul style="list-style-type: none"> Concentrations of hydrocarbons in water samples are below NOPSEMA guidance note (201914) concentrations of 1 g/m² for floating, 10 ppb for entrained and dissolved; and Details of the extent, severity and persistence of hydrocarbons from concentrations recorded in water have been documented at sensitive receptor sites monitored under other SMPs.
Scientific monitoring program 2 (SM02) Assessment of the Presence, Quantity and Character of Hydrocarbons in Marine Sediments	SM02 will detect and monitor the presence, extent, persistence and properties of hydrocarbons in marine sediments following the spill and the response. The specific objectives of SM02 are as follows: <ul style="list-style-type: none"> Determine the extent, severity and persistence of hydrocarbons in marine sediments across selected sites where hydrocarbons were observed or recorded during operational monitoring; and Provide information that may be used to interpret potential cause and effect drivers for environmental impacts recorded for sensitive receptors monitored under other SMPs. 	SM02 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows: <ul style="list-style-type: none"> Response activities have ceased; and Operational monitoring results made during the response phase indicate that shoreline, intertidal or sub-tidal sediments have been exposed to surface, entrained or dissolved hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation). 	SM02 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of: <ul style="list-style-type: none"> Concentrations of hydrocarbons in sediment samples are below ANZECC/ ARMCANZ (201315) sediment quality guideline values (SQGVs) for biological disturbance; and Details of the extent, severity and persistence of hydrocarbons from concentrations recorded in sediments have been documented.
Scientific monitoring program 3 (SM03) Assessment of Impacts and Recovery of Subtidal and Intertidal Benthos	The objectives of SM03 are: <ul style="list-style-type: none"> Characterize the status of intertidal and subtidal benthic habitats and quantify any impacts to functional groups, abundance and density that may be a result of the spill; and Determine the impact of the hydrocarbon spill and subsequent recovery (including impacts associated with the implementation of response options). Categories of intertidal and subtidal habitats that may be monitored include: <ul style="list-style-type: none"> Coral reefs Seagrass Macro-algae Filter-feeders SM03 will be supported by sediment contamination records (SM02) and characteristics of the spill derived from OMPs.	SM03 will be activated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows: <ul style="list-style-type: none"> As part of a pre-emptive assessment of PBAs of receptor locations identified by time to hydrocarbon contact >10 days, to target receptors and sites where it is possible to acquire pre-hydrocarbon contact baseline; and Operational monitoring identified shoreline potential contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) for subtidal and intertidal benthic habitat. 	SM03 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of: <ul style="list-style-type: none"> Overall impacts to benthic habitats from hydrocarbon exposure have been quantified. Recovery of impacted benthic habitats has been evaluated. Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 4 (SM04) Assessment of Impacts and Recovery of Mangroves / Saltmarsh	The objectives of SM04 are: <ul style="list-style-type: none"> Characterize the status of mangroves (and associated salt marsh habitat) at shorelines exposed/contacted by spilled hydrocarbons; Quantify any impacts to species (abundance and density) and mangrove/saltmarsh community structure; and 	SM04 will be activated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows: <ul style="list-style-type: none"> As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; and 	SM04 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of: <ul style="list-style-type: none"> Impacts to mangrove and saltmarsh habitat from hydrocarbon exposure have been quantified. Recovery of impacted mangrove/saltmarsh habitat has been evaluated.

¹⁴ NOPSEMA (2019) Bulletin #1 – Oil spill modelling – April 2019, <https://www.nopsema.gov.au/assets/Bulletins/A652993.pdf>

¹⁵ Simpson SL, Batley GB and Chariton AA (2013). Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines. CSIRO and Water Science Report 08/07. Land and Water, pp. 132.

Scientific monitoring Program (SMP)	Objectives	Activation Triggers	Termination Criteria
	<ul style="list-style-type: none"> Determine and monitor the impact of the hydrocarbon spill and potential subsequent recovery (including impacts associated with the implementation of response options). <p>SM03 will be supported by sediment sampling undertaken in SM02 and characteristics of the spill derived from OMPs.</p>	<ul style="list-style-type: none"> Operational monitoring identified shoreline potential contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) for mangrove/saltmarsh habitat. 	<ul style="list-style-type: none"> Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 5 (SM05) Assessment of Impacts and Recovery of Seabird and Shorebird Populations	<p>The Objectives of SM05 are to:</p> <ul style="list-style-type: none"> Collate and quantify impacts to avian wildlife from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population level; and Undertake monitoring to quantify and assess impacts of hydrocarbon exposure to seabirds and shorebird populations at targeted breeding colonies / staging sites / important coastal wetlands where hydrocarbon contact was recorded. 	<p>SM05 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows:</p> <ul style="list-style-type: none"> As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; Operational monitoring predicts shoreline contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at important bird colonies / staging sites / important coastal wetland locations; or Records of dead, oiled or injured bird species made during the hydrocarbon spill or response. 	<p>SM05 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:</p> <ul style="list-style-type: none"> Impacts to seabird and shorebird populations from hydrocarbon exposure have been quantified. Recovery of impacted seabird and shorebird populations has been evaluated. Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 6 (SM06) Assessment of Impacts and Recovery of Nesting Marine Turtle Populations	<p>The objectives of SM06 are to:</p> <ul style="list-style-type: none"> To quantify impacts of hydrocarbon exposure or contact on marine turtle nesting populations (including impacts associated with the implementation of response options); Collate and quantify impacts to adult and hatchling marine turtles from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population levels (including impacts associated with the implementation of response options); and Undertake monitoring to quantify and assess impacts of hydrocarbon exposure to nesting marine turtle populations at known rookeries (including impacts associated with the implementation of response options). 	<p>SM06 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring has:</p> <ul style="list-style-type: none"> As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; Predicted shoreline contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at known marine turtle rookery locations; or Records of dead, oiled or injured marine turtle species made during the hydrocarbon spill or response. 	<p>SM06 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:</p> <ul style="list-style-type: none"> Impacts to nesting marine turtle populations from hydrocarbon exposure have been quantified. Recovery of impacted nesting marine turtle populations has been evaluated. Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 7 (SM07) Assessment of Impacts to Pinniped Colonies including Haul-out Site Populations	<p>The objectives of SM07 are to:</p> <ul style="list-style-type: none"> Quantify impacts on pinniped colonies and haul-out sites as a result of hydrocarbon exposure/contact. Collate and quantify impacts to pinniped populations from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population levels. 	<p>SM07 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring has:</p> <ul style="list-style-type: none"> As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; Identified shoreline contact of hydrocarbons ((at or above 0.5 g/m² surface, ≥5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at known pinniped colony or haul-out site(s) (i.e. most northern site is the Houtman Abrolhos Islands); or Records of dead, oiled or injured pinniped species made during the hydrocarbon spill or response. 	<p>SM07 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:</p> <ul style="list-style-type: none"> Impacts to pinniped populations from hydrocarbon exposure have been quantified. Recovery of pinniped populations has been evaluated. Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 8 (SM08) Desk-Based Assessment of Impacts to Other Non-Avian Marine Megafauna	<p>The objective of SM08 is to provide a desk-based assessment which collates the results of OM02 and OM05 where observations relate to the mortality, stranding or oiling of mobile marine megafauna species not addressed in SM06 or SM07, including:</p> <ul style="list-style-type: none"> Cetaceans; Dugongs; 	<p>SM08 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring reports records of dead, oiled or injured non-avian marine megafauna during the spill/ response phase.</p>	<p>SM08 will be terminated when the results of the post-spill monitoring have quantified impacts to non-avian megafauna.</p>

Scientific monitoring Program (SMP)	Objectives	Activation Triggers	Termination Criteria
	<ul style="list-style-type: none"> Whale sharks and other shark and ray populations; Sea snakes; and Crocodiles. <p>The desk-based assessment will include population analysis to infer potential impacts to marine megafauna species populations.</p>		<ul style="list-style-type: none"> Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 9 (SM09) Assessment of Impacts and Recovery of Marine Fish associated with SM03 habitats	<p>The objectives of SM09 are:</p> <ul style="list-style-type: none"> Characterise the status of resident fish populations associated with habitats monitored in SM03 exposed/contacted by spilled hydrocarbons; Quantify any impacts to species (abundance, richness and density) and resident fish population structure (representative functional trophic groups); and Determine and monitor the impact of the hydrocarbon spill and potential subsequent recovery (including impacts associated with the implementation of response options). 	<p>SM09 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented with SM03.</p>	<p>SM09 will be undertaken and terminated concurrent with monitoring undertaken for SM03, as per the SMP termination criteria process</p> <ul style="list-style-type: none"> Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 10 (SM10) SM10 - Assessment of physiological impacts important fish and shellfish species (fish health and seafood quality/safety) and recovery	<p>SM10 aims to assess any physiological impacts to important commercial fish and shellfish species (assessment of fish health) and if applicable, seafood quality/safety. Monitoring will be designed to sample key commercial fish and shellfish species and analyse tissues to identify fish health indicators and biomarkers, for example:</p> <ul style="list-style-type: none"> Liver Detoxification Enzymes (ethoxyresorufin-O-deethylase (EROD) activity) PAH Biliary Metabolites Oxidative DNA Damage Serum SDH Other physiological parameters, such as condition factor (CF), liver somatic index (LSI), gonado-somatic index (GSI) and gonad histology, total weight, length, condition, parasites, egg development, testes development, abnormalities. Seafood tainting may be included (where appropriate) using applicable sensory tests to objectively assess targeted finfish and shellfish species for hydrocarbon contamination. <p>Results will be used to make inferences on the health of commercial fisheries and the potential magnitude of impacts to fishing industries.</p>	<p>SM10 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring (OM01, OM02 and OM05) indicates the following:</p> <ul style="list-style-type: none"> The hydrocarbon spill will or has intersected with active commercial fisheries or aquaculture activities. Commercially targeted finfish and/or shellfish mortality has been observed/recorded. Commercial fishing or aquaculture areas have been exposed to hydrocarbons (≥ 0.5 g/m² surface and ≥ 5 ppb for entrained/dissolved hydrocarbons); and Taste, odour or appearance of seafood presenting a potential human health risk is observed. 	<p>SM10 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:</p> <ul style="list-style-type: none"> Physiological impacts to important commercial fish and shellfish species from hydrocarbon exposure have been quantified. Recovery of important commercial fish and shellfish species from hydrocarbon exposure has been evaluated. Impacts to seafood quality/safety (if applicable) have been assessed and information provided to the relevant persons/ organisations and regulators for the management of any impacted fisheries. Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.

Activation Triggers and Termination Criteria

Scientific monitoring program – Activation

The Woodside oil spill scientific monitoring team will be stood up immediately with the occurrence of a hydrocarbon spill (actual or suspected) Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors via the first strike plan for the petroleum activity programme. The presence of any level of hydrocarbons in the marine environment triggers the activation of the oil spill scientific monitoring program (SMP). This is to consider the full range of eventualities relating to the environmental, socio-economic and health consequences of the spill in the planning and execution of the SMP. The activation process also takes into consideration the management objectives, species recovery plans, conservation advices and conservations plans for any World Heritage Area (WHA), CMRs, State Marine Parks, other protected area designations (e.g., State nature reserves) and Matters of National Environmental Significance (including listed species under part 3 of the EPBC Act) potentially exposed to hydrocarbons. With the first 24-48 hours of a spill event, such information will be sourced and evaluated as part of the SMP planning process guided by Appendix D (identified receptors vulnerable to hydrocarbon contact), the information presented in the Existing Environment section of the EP as well as other information sources such as the Woodside Baseline Environmental Studies Database.

The starting point for decision-making on what SMPs are activated and spatial extent of monitoring activities will be based on the predictive modelling results (OM01) in the first 24-48 hours until more information is made available from other operational monitoring activities such as aerial surveillance and shoreline surveys. Pre-emptive Baseline Areas (WHA, CMRs and State Marine Parks encompassing key ecological and socio-economic values) are a key focus of the SMP activation decision-making process, particularly, in the early spill event/response phase. As the operational monitoring progresses and further situational awareness information becomes available, it will be possible to understand the nature and scale of the spill. The SMP activation and implementation decision-making will be revisited daily to account for the updates on spill information. One of the priority focus areas in the early phase of the incident will be to identify and execute pre-emptive SMP assessments at key receptor locations, as required. The SMP activation and implementation decision tree is presented in Figure C-2.

Scientific monitoring Program – Termination

The basis of the termination process for the active SMPs (SMPs 1-10) will include quantification of impacts, evaluation of recovery for the receptor at risk and consultation with relevant authorities, persons and organisations. Termination of each SMP will not be considered until the results (as presented in annual SMP reports for the duration of each program) indicate that the target receptor has returned to pre-spill condition.

Once the SMP results indicate impacted receptor(s) have returned to pre-spill condition (as identified by Woodside) a termination decision-making process will be triggered and steps will be undertaken as follows:

- Woodside will engage expert opinion on whether the receptor has returned to pre-spill condition (based on monitoring data). Subject Matter Expert (SMEs) will be engaged (via the Woodside SME scientific monitoring terms of reference to review program outcomes, provide expert advice and recommendations for the duration of each SMP).
- Where expert opinion agrees that the receptor has returned to pre-spill condition, findings will then be presented to the relevant authorities, persons and organisations (as defined by the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulation 11A). Stakeholder identification, planning and engagement will be managed by Woodside's Reputation Functional Support Team (FST) and follow the Stakeholder Management FST. These guidelines outline the FST roles and responsibilities, competencies, communications and planning processes. An assessment of the merits of any objection to termination will be documented in the SMP final report.
- Woodside will decide on termination of SMP based on expert opinion and merits of any relevant persons'/ organisations' objections. The final report following termination will include: monitoring results, expert opinion and consultation, including merits of any objections.
- Termination of SMPs will also consider applicable management objectives, species recovery plans, conservation advices and conservations plans for any World Heritage Area (WHA), CMRs, State Marine Parks, other protected area designations (e.g., State nature reserves) and Matters of National Environmental Significance (including listed species under part 3 of the EPBC Act).

The SMP termination decision-making process will be applied to each active SMP and an iterative process of decision steps continued until each SMP has been terminated (refer to decision-tree diagram for SMP termination criteria, Figure C-3).

SMP ACTIVATION & IMPLEMENTATION DECISION PROCESS

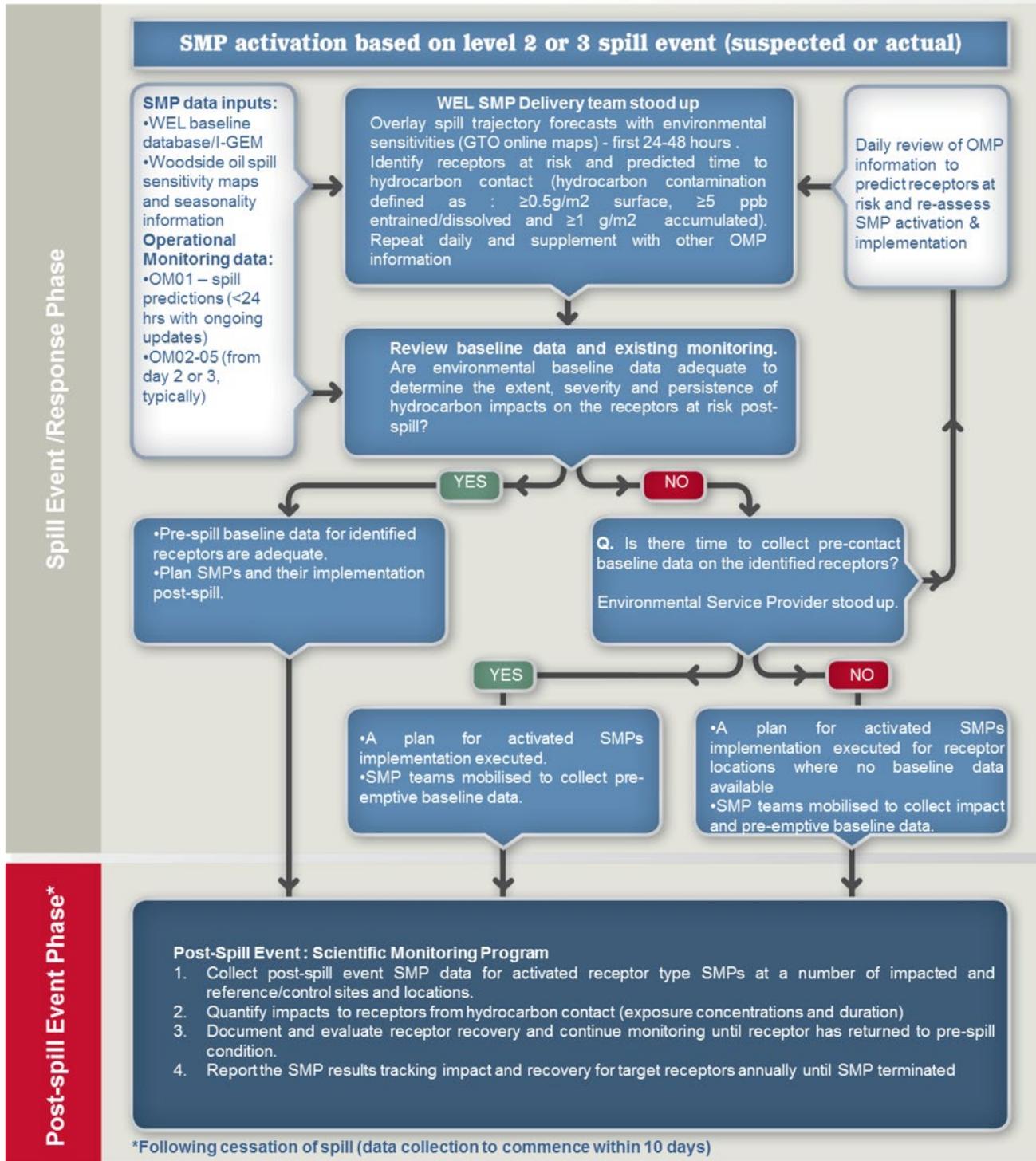


Figure C-2: Activation and implementation decision-tree for oil spill environmental monitoring

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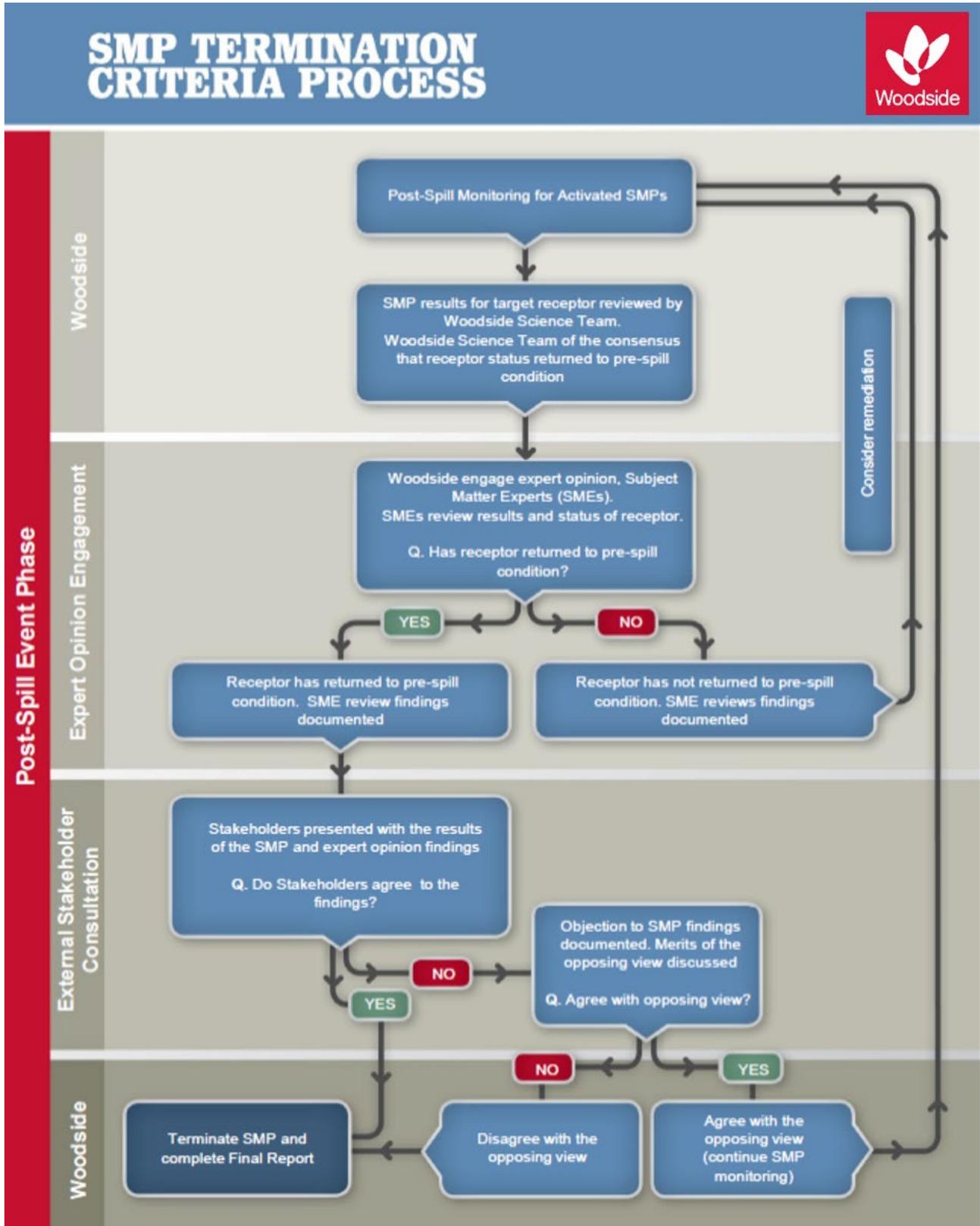


Figure C-3: Termination criteria decision-tree for oil spill environmental monitoring

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Receptors at Risk and Baseline Knowledge

To assess the baseline studies available and suitability for oil spill scientific monitoring, Woodside maintains knowledge of environmental baseline studies through the upkeep and use of its Environmental Knowledge Management System.

Woodside's Environmental Knowledge Management System is a centralised platform for scientific information on the existing environment, marine biodiversity, Woodside environmental studies, key environmental impact topics, key literature and web-based resources. The system comprises several data directories and an environmental baseline database, as well as folders within the 'Corporate Environment' server space. The environmental baseline database was set up to support Woodside's SMP preparedness and as a SMP resource in the event of an unplanned hydrocarbon spill. The environmental baseline database is subject to updates including annual reviews completed as part of SMP standby contract. This database is accessed pre-PAP to identify PBAs where hydrocarbon contact is predicted to occur <10 days.

In addition to Woodside's Environmental Knowledge Management System, many relevant baseline datasets are held by other organisations (e.g. other oil and gas operators, government agencies, state and federal research institutions and non-governmental organisations). To understand the present status of environmental baseline studies a spatial environmental metadata database for Western Australia (Industry-Government Environmental Metadata, IGEM) was established. IGEM is a collaboration comprising oil and gas operators (including Woodside), government and research agencies and other organisations. IGEM held data were integrated into the DWER IMSA¹⁶ in 2020. IMSA is an online portal for information about marine-based environmental surveys in Western Australia. IMSA is a project of DWER for the systematic capture and sharing of marine data created as part of an environmental impact assessment (EIA).

In the event of an unplanned hydrocarbon release, Woodside intends to interrogate the information on baseline studies status as held by the various databases (e.g. Woodside Environmental Knowledge Management System, IMSA and other sources of existing baseline data) to identify Pre-emptive Baseline Areas (PBAs), i.e., receptors at risk where hydrocarbon contact is predicted to be >10 days, and baseline data can be collected before hydrocarbon contact.

Reporting

For the scientific monitoring program relevant regulators will be provided with:

- Annual reports summarising the SMPs deployed and active, data collection activities and available findings; and
- Final reports for each SMP summarising the quantitative assessment of environmental impacts and recovery of the receptor once returned to pre-spill condition and termination of the monitoring program.

The reporting requirements of the scientific monitoring program will be specific to the individual SMPs deployed and terms of responsibilities, report templates, schedule, quality assurance/ quality control (QA/QC) and peer-review will be agreed with the contractors engaged to conduct the SMPs. Compliance and auditing mechanisms will be incorporated into the reporting terms.

¹⁶ <https://biocollect.ala.org.au/imsa#max%3D20%26sort%3DdateCreatedSort>

ANNEX D: MONITORING PROGRAM AND BASELINE STUDIES FOR THE PETROLEUM ACTIVITIES PROGRAM

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Page 149 of 163

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Table D-2: Baseline studies for the SMPs applicable to identified Pre-emptive Baseline Areas for the Petroleum Activities Program

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP	Pilbara Islands – Southern Island Group	Dampier Archipelago
Benthic Habitat (Coral Reef)	SM03 Quantitative assessment using image capture using either diver held camera or towed video. Post analysis into broad groups based on taxonomy and morphology.	Studies: 1. DBCA LTM Ningaloo Reef program: 1991-ongoing. 2. AIMS/DBCA 2014 Baseline Ningaloo and Muiron Islands Survey – repeat and expansion on the LTM (Co-funded survey: Woodside and AIMS). 3. Pilbara Marine Conservation Partnership. 4. WAMSI LTM Study: Ningaloo Research node: 2009 -10 over the length of Ningaloo reef system (with a focus on coral and fish recruitment). 5. Ningaloo Outlook (CSIRO) - Shallow and Deep Reefs Program (2015-ongoing). 6. Ningaloo Collaboration Cluster: Habitats of the Ningaloo Reef and adjacent coastal areas determined through hyperspectral imagery 7. Allen Coral Atlas 8. Gorgon Barrow Island Net Conservation Benefit Fund administered by DBCA: Characterisation of water quality and benthic communities across an environmental gradient – Ningaloo and Exmouth Gulf	1. Glomar Shoal and Rankin Bank Environmental Survey Report, 2013, quantitatively surveyed benthic habitats and communities. AIMS report to Woodside. Scientific Publication - Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems, 2018. 2. Rankin Bank Environmental Survey Extension, 2014, Habitat assessment of an area southeast of Rankin Bank. 3. Glomar Shoal and Rankin Bank surveys, 2017. GWF-2 Monitoring Programme. Quantitatively surveyed benthic habitats and communities. 4. Temporal Studies survey of Rankin Bank and Glomar Shoal, 2018.	Barrow Island: East and West Coast baseline and monitoring for soft sediment, limestone pavement and coral assemblages (Chevron) Barrow, Montebello and Lowendal Islands: 1. Benthic community monitoring as part of DBCA Western Australian Marine Monitoring Program (2015-ongoing). 2. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013).	Coral Reefs & Filter Feeders 1. Montebello Marine Park, 2019, Identification and qualitative descriptions of benthic habitat. 2. Montebello Australian Marine Parks – 2019 – Baseline survey on benthic habitats. 3. Pluto Trunkline within Montebello Marine Park – Monitoring marine communities.	1. Benthic habitat mapping of the subtidal and intertidal habitats of the islands and shoals. Coral communities in shallow subtidal habitat, intertidal pavement. 2. Coral monitoring at Varanus and Airlie Islands (2000 to present) to identify corals, growth from and percentage cover 3. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013; 2016)	1. Coral Monitoring, Mermaid Sound. URS on behalf of Chevron, 2004. 2. Scarborough Trunkline Marine Habitat Survey 2018. 5. Benthic community monitoring as part of DBCA's Dampier Archipelago Marine Monitoring Program (2007-ongoing). 6. WA Museum study on the Scleractinian corals collected in 1998. (Griffith 2004). 7. Regional Biodiversity — Pilbara Seabed Biodiversity Mapping & Characterisation (2016). 9. Distribution, patterns and key processes of major marine communities and large marine fauna – DBCA Pluto Offset Program D. 11. Study of the spatial and temporal distribution of coral assemblages at Dampier Archipelago (Cape Preston to Delambre Island), using 871 datasets dating back to the early 1970s. Sites surveyed in <u>May 2017</u> .
		Methods: 1. LTM transects, diver based (video) photo quadrats, specimen collection. 2. LTM sites, transects, diver-based video quadrat. 3. Diver video transects, still photography, video and in situ visual estimates from transects, quadrats, manta-tows, towed video and ROV. 4. Video point intercept transects recorded by towed video or diver hand-held video camera. 5. Video transects. 6. LTM transects, diver based (video) photo quadrat. 7. Combination of satellite imagery analysis and mapped/monitored areas. 8. CSIRO and DBCA [Doropolous et al. 2022]	1. Towed video transects, photo quadrats using towed video system. 2. Towed video transects, photo quadrats using towed video system. 3. Towed video transects, photo quadrats using towed video system. 4. Towed video transects, photo quadrats using towed video system.	Barrow Island: Coral habitat – mapping, rapid visual assessment, size-class frequency, photoquadrats – live coral cover and survival, tagged corals – growth and survival and coral recruitment Benthic macro-invertebrate surveys – video belt transects Barrow, Montebello and Lowendal Islands: 1. Fixed long-term monitoring sites. Diver video transect. 2. Towed video, benthic trawl and sled.	1.ROV Transects 2. Benthic habitat mapping, multibeam acoustic swathing. 3. ROV video.	1. ROV transects. 2. ROV transects and driver surveys 3. Towed video, benthic trawl and sled	1. Towed Video. 2. Towed video, 5. Diver swum – belt transects, photo quadrats. 6. Coral collection for taxonomic records. 7. Towed video, benthic trawl and sled. 9. Collection of fish, coral, mangrove and seagrass samples from reefs along the WA coast, including reefs within the proposed Dampier Archipelago Marine Park. Samples subject to genetic testing. 11. Photo quadrants and recruitment tiles
		References and Data:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP	Pilbara Islands – Southern Island Group	Dampier Archipelago	
		1. DBCA unpublished data. DATAHOLDER: DBCA 2. AIMS 2015. DATAHOLDER: AIMS. 3. Pilbara Marine Conservation Partnership DATAHOLDER: CSIRO 4. Depczynski et al. 2011 DATAHOLDER: AIMS, DBCA and WAMSI. 5. CSIRO 2019 – Ningaloo Outlook Program 6. Murdoch University – HyVista Corporation – April and May 2006 (Kobryn et al 2022) 7. https://allencoralatlas.org/atlas/#7.58/-21.5563/114.9133 (accessed 18/05/2022) 8. Doropolous et al. 2022 - https://www.researchgate.net/publication/358286498_Limitations_to_coral_recovery_along_an_environmental_stress_gradient	1. AIMS 2014a and Abdul Wahab et al., 2018. DATAHOLDER: AIMS. 2. AIMS 2014b. DATAHOLDER: AIMS. 3. Currey-Randall et. al., 2019. DATAHOLDER: AIMS 4. Currey-Randall et. al., 2019. DATAHOLDER: AIMS	Barrow Island: Chevron Australia (2015a and b) DATAHOLDER: Chevron Australia Barrow, Montebello and Lowendal Islands: 1. WA Department of Biodiversity, Conservation and Attractions (DBCA) DATAHOLDER: DBCA 2. Pitcher et al. 2016 DATAHOLDER: CSIRO	1. Advisian 2019 2. Keesing 2019 3. McLean et al. 2019	1. Chevron 2010. DATAHOLDER: Chevron. 2. Quadrant Energy/Santos 2016 DATAHOLDER: Santos 3. CSIRO (2013; 2016). Roland Pitcher. DATAHOLDER	1. URS Australia Pty Ltd. 2004. DATAHOLDER: Woodside. 2. MSCIENCE, 2019. DATAHOLDER: MSCIENCE. 5. DBCA. 6. Griffith (2004) Western Australian Museum. 7. Pitcher et al. (2016). DATAHOLDER: CSIRO 9. DBCA (2023) 11. Moustaka, et al. 2019 Dataholder: DBCA	
Benthic Habitat (Seagrass and Macro-algae)	SM03 Quantitative assessment using image capture using either diver held camera or towed video. Post analysis into broad groups based on taxonomy and morphology.	Studies:						
		1. Quantitative descriptions of Ningaloo sanctuary zones habitats types including lagoon and offshore areas – Cassata and Collins (2008). 2. CSIRO Ningaloo Outlook Program. 3. Ningaloo Collaboration Cluster: Habitats of the Ningaloo Reef and adjacent coastal areas determined through hyperspectral imagery. 4. Australian Institute of Marine Science – CReefs: Ningaloo Reef Biodiversity Expeditions (2008-2010).		Barrow Island: East Barrow Island – Chevron baseline and monitoring	N/A – see Table D-1	1. Benthic habitat mapping of the subtidal and intertidal habitats of the islands and shoals. Algae communities in shallow subtidal habitat, intertidal pavement. 3. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013; 2016)	1. West Australian Museum marine biodiversity collection. 2. Benthic community monitoring as part of DBCA's Dampier Archipelago Marine Monitoring Program (2007-ongoing). 3. Distribution, patterns and key processes of major marine communities and large marine fauna (Pluto Offset Program DBCA) 4. Establishment of long-term monitoring reference sites for the Pluto Offset Program – DBCA (in the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area).	
		Methods:						
		1. Video transects to ground truth aerial photographs and satellite imagery. 2. Diver video transects. 3. LTM transects, diver based (video) photo quadrat. 4. LTM transects, diver based (video) photo quadrats, specimen collection. 5. Satellite imagery, mapping and monitoring		East Barrow- seagrass photoquadrats (30 m transects) during spring/summer and winter periods Macroalgae photoquadrats, visual census and biomass and specimen sampling		1. ROV transects. 2. Towed video, benthic trawl and sled	1. Diving collection to establish diversity, distribution and abundance of biota. 2. Towed video, photoquadrats 3. Collection of fish, coral, mangrove and seagrass samples from reefs along the WA coast, including reefs within the proposed Dampier Archipelago Marine Park. Samples subject to genetic testing. 4. The major datasets collected in 2016/17 were for mangroves, seagrass, macroalgae, coral and fish communities. Several techniques were trialled for both seagrass and macroalgae monitoring; including benthic imagery, quadrat counts, line intercept measures, and laboratory analysed collections.	
References and Data:								

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muirou Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP	Pilbara Islands – Southern Island Group	Dampier Archipelago	
		<ol style="list-style-type: none"> 1. Cassata and Collins 2008. DATAHOLDER: Curtin University – Applied Geology. 2. CSIRO – Ningaloo Outlook Program https://research.csiro.au/ningaloo/outlook 3. AIMS - AIMS (2010) - http://www.aims.gov.au/creefs 4. Murdoch University - HyVista Corporation – April and May 2006 (Kobryn et al 2022) 5. https://allencoralatlas.org/atlas/#7.58/-21.5563/114.9133 (accessed 18/05/2022) 		<p>Barrow Island:</p> <p>Chevron Australia (2015a and b)</p> <p>DATAHOLDER: Chevron Australia</p>		<ol style="list-style-type: none"> 1. Chevron 2010. DATAHOLDER: Chevron 2. CSIRO (2013, 2016). Roland Pitcher. DATAHOLDER 	<ol style="list-style-type: none"> 1. West Australian Museum 2002. DATAHOLDER: WAM, Woodside. 2. DBCA. 3. DBCA (2017 and 2023) 4. DBCA (2017 and 2023) 	
Benthic Habitat (Deeper Water Filter Feeders)	SM03 Quantitative assessment using image capture using towed video. Post analysis into broad groups based on taxonomy and morphology.	Studies:						
		<ol style="list-style-type: none"> 1. WAMSI 2007 deep-water Ningaloo benthic communities' study, Colquhoun and Heyward (2008). 2. CSIRO Ningaloo Outlook Program - Deep reef themes 	As above (SM03 Coral Reefs)		As above (SM03 Coral Reefs)	N/A – See Table D-1	<ol style="list-style-type: none"> 1. Baseline Marine Habitat Survey for the Pluto LNG Project. A total of 315 km² of Mermaid Sound was mapped in high resolution to distinguish habitat location and extent and further verified with 389 km of towed video. 	
		Methods:						
		<ol style="list-style-type: none"> 1. Towed video and benthic sled (specimen sampling). 2. Side-scan sonar and AUV transects. 				N/A – See Table D-1	<ol style="list-style-type: none"> 1. Drop camera surveys of Deepwater sites (approx. 10 – 35 m depth). 	
		References and Data:						
		<ol style="list-style-type: none"> 1. Colquhoun and Heyward (eds) 2008. DATAHOLDER: WAMSI, AIMS. 2. CSIRO – Ningaloo Outlook https://research.csiro.au/ningaloo/outlook 				N/A – See Table D-1	<ol style="list-style-type: none"> 1. SKM 2008. DATAHOLDER: Woodside. 	
Mangroves and Saltmarsh	SM04 Aerial photography and satellite imagery will be used in conjunction with field surveys to map the range and distribution of mangrove communities.	Studies:						
		<ol style="list-style-type: none"> 1. Atmospheric corrected land cover classification, NW Cape. 2. Woodside hold Rapid Eye imagery of the Ningaloo Reef and coastal area. 3. Hyperspectral survey (2006) of Ningaloo Reef and coastal area (not yet analysed for Mangroves). 4. North West Cape sensitivity mapping 2012 included Mangrove Bay. 5. Global mangrove distribution as mapped by the USGS and located on UNEP's Ocean Data viewer. 	N/A – See Table D-1	<p>Barrow Island:</p> <p>East and West Coast baseline and monitoring – mapping (HR aerial imagery) and vegetation surveys</p>	N/A – see Table D-1	<ol style="list-style-type: none"> 1. Study conducted by URS (November 2008 to May 2009) to ground truth aerial photography taken between 2001 and 2009 and to identify mangrove species present in the area. 	<ol style="list-style-type: none"> 1. Lyburner et al. (2019) applies quantitative analysis to assess the extent and canopy density of mangroves for each year between 1987 and 2018 2. Mangrove baseline data 2017 - Woodside has acquired satellite imagery of coastal areas of mainland and offshore islands from Geraldton and the Abrolhos Islands (in the south) to Dampier Archipelago (out to the Montebello Islands in the north), land classification completed and mangrove habitats identified and mapped 	
		Methods:						

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP	Pilbara Islands – Southern Island Group	Dampier Archipelago
		<ol style="list-style-type: none"> 1. Modular Inversion Program. May 2017 2. Rapid Eye imagery – High resolution satellite imagery from October/November/December 2011 and 2017. 3. Remote sensing – acquisition of HyMap airborne hyperspectral imagery and ground truthing data collection. 4. Reconnaissance surveys of the shorelines of the North West Cape and Muiron Islands. 5. Remote sensing study of global mangrove coverage. 		<p>Barrow – Chevron (2015a and b) – HR mapping (aerial images) and vegetation surveys using belt transects – species composition, estimated total canopy cover, total number of trees, pneumatophore density and canopy density.</p>		<ol style="list-style-type: none"> 1. Aerial Photography and Satellite imagery Species identification and community composition. 	<ol style="list-style-type: none"> 1. PCC% for mangroves using optical and radar data (Landsat sensor spectral composite data (all spectral wavebands) and Advanced Land Observing Satellite (ALOS) Phased Arrayed L-band Synthetic Aperture Radar (SAR) data). for the entire Australian coastline. 2. Land cover classification was performed based on atmospherically corrected Sentinel-2 data
References and Data:							
		<ol style="list-style-type: none"> 1. EOMAP 2017 DATAHOLDER: Woodside. 2. AAM 2014. Dataholder: Woodside 3. Kobryn et al. 2013. DATAHOLDER: Murdoch University, AIMS; Woodside. 4. Joint Carnarvon Basin Operators, 2012. DATAHOLDER: Woodside and Apache Energy Ltd. 5. http://data.unep-wcmc.org/ 		<p>Barrow Island: Chevron Australia (2015a and b) DATAHOLDER: Chevron Australia</p>		<ol style="list-style-type: none"> 1. URS (2010) DATAHOLDER: Chevron Australia 	<ol style="list-style-type: none"> 1. Lymburner et al. 2019. DATAHOULDER: Geoscience Australia, Author ([16]) 2. SOURCE: EOMAP 2017 report to Woodside
Seabirds	SM05 Visual counts of breeding seabirds, nest counts, intertidal bird counts at high tide.	<p>Studies:</p> <ol style="list-style-type: none"> 1. LTM Study of marine and shoreline birds: 1970-2011. 2. LTM of shorebirds within the Ningaloo coastline (Shorebirds 2020). 3. Exmouth Sub-basin Marine Avifauna Monitoring Program (Quadrant Energy/Santos). 4. Seabird and Shorebird baseline studies, Ningaloo Region – Report on January 2018 bird surveys. 5. Wedge-tailed shearwater foraging behaviour in the Exmouth Region 2018 – satellite tracking <p>Methods:</p>	N/A – See Table D-1	<p>Barrow Island: Barrow Island Seabird Monitoring Program (Chevron) Barrow, Montebello and Lowendal Islands: 1. Johnston et al (2013) general inventory and distribution for the Pilbara region (WA Museum) 2. Santos – Integrated Shearwater Monitoring Program (1994-2016) 3. Santos – monitoring of seabird breeding colonies throughout the Lowendal Group of Islands.</p>	N/A – see Table D-1	<ol style="list-style-type: none"> 1. Migratory waterbirds relevant to the Wheatstone Project on behalf of URS in 2008 - 2009. 2. Quadrant Energy/Santos – Integrated Shearwater Monitoring Program (1994-2016). 3. Exmouth Sub-basin Avifauna Monitoring Program (2013-2014) 	<ol style="list-style-type: none"> 1. Baseline information in the Pilbara oiled wildlife response plan 2014. 2. Advisian (2021) NMWR Seabird and Shorebird baseline Desktop review (Woodside report)

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP	Pilbara Islands – Southern Island Group	Dampier Archipelago
		<p>1. Counts of nesting areas, counts of intertidal zone during high tide.</p> <p>2. The Shorebirds 2020 database comprises the most complete shorebird count data available in Australia. The data have been collected by volunteer counters and BirdLife Australia staff for approximately 150 roosting and feeding sites, mainly in coastal Australia. The data go back as far as 1981 for key areas.</p> <p>3. The Exmouth Sub-basin Marine Avifauna Monitoring Program undertook a detailed assessment of seabird and shorebird use in the Exmouth Sub-basin. Four aerial surveys and four island surveys were conducted between February 2013 and January 2015 for this Program, inclusive of the mainland coasts, of shore islands and a 2,500 km² area of ocean adjacent to the Exmouth Sub-basin.</p> <p>4. Shorebird counts, Shearwater Burrow Density.</p> <p>5. Telemetry (GPS & Satellite tags).</p>		<p>Barrow Island – 2008-ongoing annual surveys: abundance, nest density, presence/absence of egg or chick/fledgling</p> <p>Barrow, Montebello and Lowendal Islands:</p> <p>1. Desktop review (WA Museum)</p> <p>2. Nest burrow density, presence/absence of eggs or chicks in burrows</p> <p>3. The distribution and abundance of other nesting seabirds within the Lowendal Island group, including up to 45 islands and islets</p>		<p>1. Ground counts, aerial surveys of wetlands by helicopter.</p> <p>2. Burrow count and observation data, burrow density, colony stability, breeding participation, incubation effort and reproductive success has been determined. Tagging data</p> <p>3. Aerial surveys and onshore island surveys.</p>	<p>1. Species, total numbers, Distribution, presence/absence of eggs or chicks in burrows.</p> <p>2. Desktop literature review</p>
References and Data:							
		<p>1. Johnstone et al. 2013. DATAHOLDER: WA MUSEUM. AMOSC/DBCA (DPaW) 2014.</p> <p>2. BirdLife Australia DATAHOLDER: Woodside and BirdLife Australia</p> <p>3. Surman & Nicholson 2015.</p> <p>4. BirdLife Australia: DATAHOLDER: Woodside</p> <p>5. Cannel et al. 2019 DATAHOLDER: UWA and BirdLife Australia</p>		<p>Barrow – Chevron (2015c) DATAHOLDER: Chevron Australia</p> <p>Barrow, Montebello and Lowendal Islands:</p> <p>1. Johnstone et al (2013) DATAHOLDER: (WA Museum)</p> <p>2. Santos DATAHOLDER: Santos</p> <p>3. Surman and Nicholson (2012) DATAHOLDER: Santos</p>		<p>1. Bamford, MJ & AR. 2011. DATAHOLDER: Chevron.</p> <p>2. Quadrant Energy/Santos. Dataholders. Santos</p> <p>3. Quadrant Energy/Santos. Dataholders. Santos</p>	<p>1. AMOSC/DBCA 2014. DATAHOLDER: AMOSC/DBCA.</p> <p>2. Report to Woodside commissioned study – Advisian (2021)</p>
Turtles	SM06	Studies:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP	Pilbara Islands – Southern Island Group	Dampier Archipelago
	Beach surveys (recording species, nests, and false crawls).	<ol style="list-style-type: none"> 1. Exmouth Islands Turtle Monitoring Program. 2. Ningaloo Turtle Program 3. Turtle activity and nesting on the Muiron Islands and Ningaloo Coast (2018). 4. Spatial and temporal use of inter-nesting habitat by sea turtles along the Muiron Islands and Ningaloo Coast – 2018-2019 	N/A – See Table D-1	<p>Barrow Island:</p> <p>Chevron Australia: long term monitoring programs for flatback turtles</p> <p>Barrow, Montebello and Lowendal Islands:</p> <ol style="list-style-type: none"> 1. Marine turtle monitoring as part of DBCA long-term turtle monitoring program (ongoing). 2. LTM Study of Green, Flatback, Hawksbill turtles on beaches within the Barrow, Lowendal and Montebello Island Complex. 3. Santos 2013 turtle nesting survey on the Lowendal islands. 4. Varanus Island Turtle monitoring program (2005 – present). <p>North West Shelf Flatback Conservation Program – conserve North West Shelf stock – scope covers all summer nesting flatback turtles - https://flatbacks.dbca.wa.gov.au/about</p>	N/A – see Table D-1	<ol style="list-style-type: none"> 1. Baseline marine turtle surveys 2009 (included the islands of Serrurier, Bessieres and Thevenard), Pendoley (2009). 2. Exmouth Islands Turtle Monitoring Program (2013 and 2014) 3. North West Shelf Flatback Turtle Conservation Program's 4. Inter-nesting distribution of flatback turtles and industrial development in Western Australia (Thevenard Island) 	<ol style="list-style-type: none"> 1. DBCA Photogrammetry survey of marine turtle nesting beaches in Dampier Archipelago 2019-2020 2. Holden Beach sea turtle habitat. Pendoley Environmental (2006) on behalf of Woodside for the Pluto Development. 3. Marine turtle monitoring as part of DPAWs long-term turtle monitoring program within the Dampier Archipelago (ongoing) 4. Nesting ecology of flatback sea turtles <i>Natator depressus</i> from Delambre Island collected over 2–3 weeks each nesting season across six nesting seasons (2010-2016).
Methods:							
		<ol style="list-style-type: none"> 1. Astron (on behalf of Santos) to address a gap in the knowledge of turtle numbers at key locations (offshore islands within the region) that are not currently part of an existing monitoring programs (e.g. the NTP). Field surveys were conducted in October 2013 and January 2014. Surveys were conducted on 12 islands, with each island surveyed once (with the exception of Beach 8 at North Muiron Island) and all tracks counted. 2. Long term trends in marine turtle populations, beach surveys, track counts, best location, mortality counts. 3. On-beach monitoring and aerial surveys. 4. Tagging (satellite transmitter), analysis of inter-nesting, migration and foraging grounds movements and behaviour. 		<p>Barrow Island – Chevron Australia: 2005 -ongoing annual surveys, flatback turtles – nesting success, track counts and satellite tracking, hatchling survival and dispersal.</p> <p>Barrow, Montebello and Lowendal Islands:</p> <ol style="list-style-type: none"> 1. Nesting demographics 2. Nesting demographics 3. Tagging and nest counts 4. Tagging and nest counts at Varanus, Beacon, Bridled, Abutilon and Parakeelya islands. <p>North West Shelf Flatback Conservation Program - https://flatbacks.dbca.wa.gov.au/program-activities</p>		<ol style="list-style-type: none"> 1. Beach/Nesting surveys (counts by species). 2. Beach/Nesting surveys (counts by species). 3. Nesting and tagging studies 4. Satellite tracking methods 	<ol style="list-style-type: none"> 1. High Resolution aerial surveys 2. Adult tracks, body pits, nests, emerged nests. 3. Adult tracks, body pits, nests, emerged nests. 4. Flipper tag resightings and track counts
References/Data:							

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP	Pilbara Islands – Southern Island Group	Dampier Archipelago
		1. Santos – Report. 2. NTP Annual Reports DATAHOLDERS: DBCA. Reports available at http://ningalooturtles.org.au/?page_id=181 3. Rob et al. 2019 DATAHOLDER: DBCA 4. Tucker et al. 2019 DATAHOLDER: DBCA		Barrow Island – Chevron (2015c) DATAHOLDER: Chevron Australia Barrow, Montebello and Lowendal Islands: 1. DBCA 2. Pendoley 2005. AMOSC/DBCA (DPaW) 2014. 3. Santos (2014) DATAHOLDER: Santos 4. Santos (2005-present) DATAHOLDER: Santos North West Shelf Flatback Conservation Program https://flatbacks.dbca.wa.gov.au/program-activities		1. Pendoley 2009. DATAHOLDER: Chevron. 2. Quadrant Energy/Santos. Dataholders. Santos 3. DBCA. Dataholder 4. Pendoley Environment - Whittock, Pendoley and Hamann (2010-2011)	1. DBCA Karratha office 2. Pendoley Environmental 2006. DATAHOLDER: Woodside. 3. DBCA 4. Thums et al 2019 DATAHOLDER: AIMS
Fish	SM09 Baited Remote Underwater Video Stations (BRUVS), Visual Underwater Counts (VUC), Diver Operated Video (DOV).	Studies: 1. AIMS/DBCA 2014 Baseline Ningaloo Survey – repeat and expansion on the LTM (Co-funded survey: Woodside and AIMS). 2. Demersal fish populations – baseline assessment (AIMS/WAMSI). 3. DBCA study measured Species Richness, Community Composition, and Target Biomass, through UVC. BRUVS studies determining max N, Species Richness, and Biomass. 4. Pilbara Marine Conservation Partnership Stereo BRUVS in shallow water (~10m) in 2014 in northern region of the Ningaloo Marine Park, in shallow water (~10m) inside the lagoonal reef of the Ningaloo Marine Park in 2016, in deep water (~40m) across the length of the Ningaloo Marine Park in 2015, in shallow water outside of Ningaloo Reef from Waroora to Jurabi in 2015 and offshore of the Muiron Islands in 2015. 5. Elasmobranch faunal composition of Ningaloo Marine Park. 6. Juvenile fish recruitment surveys at Ningaloo reef. 7. Demersal fish assemblage sampling method comparison 8. Ningaloo Outlook (CSIRO) - Shallow and Deep Reefs Program Methods:	1. Glomar Shoal and Rankin Bank Environmental Survey Report, 2013, quantitatively surveyed benthic habitats and communities. AIMS report to Woodside. Scientific Publication - Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems, 2018. 2. Rankin Bank Environmental Survey Extension, 2014, Habitat assessment of an area southeast of Rankin Bank. 3. Glomar Shoal and Rankin Bank surveys, 2017. GWF-2 Monitoring Programme. Quantitatively surveyed benthic habitats and communities. 4. Temporal Studies survey of Rankin Bank and Glomar Shoal, 2018.	Barrow Island: Chevron: East and West Coast intertidal and subtidal baseline and monitoring Barrow, Montebello and Lowendal Islands: 1. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~10m) from Exmouth to Barrow Islands in 2015. 2. Finfish monitoring as part of DBCAs Western Australian Marine Monitoring Program (2015-ongoing).	1. CSIRO – Fish Diversity. 2. Fish species richness and abundance.	1. Pilbara Marine Conservation Partnership Stereo BRUVS drops in deep water (20-55m) offshore of Bessieres Island in 2016.	1. Fish assemblages quantitatively described Mermaid Sound using BRUVs. Recorded main habitat types (sand, reef, coral and macroalgae) and at a total of 412 sites. 2. West Australian Museum of Fish of Dampier archipelago. 3. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~10m) in 2015 around the Dampier Archipelago. 4. Finfish community monitoring as part of DBCA Dampier Archipelago Marine Monitoring Program (2007-ongoing).

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP	Pilbara Islands – Southern Island Group	Dampier Archipelago
		1. UVC surveys. 2. BRUVS Study with 304 video samples at three specific depth ranges (1-10 m, 10-30 m and 30-110m). 3. UVC surveys. 4. Stereo BRUVS 5. Snorkel and Scuba surveys. 5. Underwater visual census. 6. Diver operated video. 7. Diver UVC. 8. Diver UVC, stereo BRUVs	1. BRUVs. 2. BRUVs. 3. BRUVs. 4. BRUVs.	Barrow Island – Chevron (2015a and b) – demersal fish: stereo BRUVS (subtidal habitats) and netting combination for mangrove habitat Barrow, Montebello and Lowendal Islands: 1. Stereo BRUVS. 2. Diver underwater visual surveys (UVS)	1. Semi V Wing trawl net or an epibenthic sled. 2. ROV Video.	1. Stereo BRUVs	1. BRUVs, Stereo Baited Remote Underwater Video Systems. 2. Fish collected and species lists. 3. Stereo BRUVS. 4. Diver UVS.
References/Data:							
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ANNEX E: TACTICAL RESPONSE PLANS

TACTICAL RESPONSE PLANS
Exmouth
Mangrove Bay
Turquoise Bay
Yardie Creek
Muiron Islands
Jurabi to Lighthouse Beaches Exmouth
Ningaloo Reef – Refer to Mangrove/ Turquoise Bay and Yardie Creek
Exmouth Gulf
Shark Bay Area 1: Carnarvon to Wooramel
Shark Bay Area 2: Wooramel to Petite Point
Shark Bay Area 3: Petite Point to Dubaut Point
Shark Bay Area 4: Dubaut Point to Herald Bight
Shark Bay Area 5: Herald Bight to Eagle Bluff
Shark Bay Area 6: Eagle Bluff to Useless Loop
Shark Bay Area 7: Useless Loop to Cape Bellefin
Shark Bay Area 8: Cape Bellefin to Steep Point
Shark Bay Area 9: Western Shores of Edel Land
Shark Bay Area 10: Dirk Hartog Island
Shark Bay Area 11: Bernier and Dorre Islands
Abrohlos Islands: Pelseart Group
Abrohlos Islands: Wallabi Group
Abrohlos Islands: Easter Group
Dampier
Rankin Bank & Glomar Shoals
Barrow and Lowendal Islands
Pilbara Islands – Southern Island Group
Montebello Island – Stephenson Channel Nth TRP
Montebello Island – Champagne Bay and Chippendale channel TRP
Montebello Island – Claret Bay TRP
Montebello Island – Hermite/Delta Island Channel TRP
Montebello Island – Hock Bay TRP
Montebello Island – North and Kelvin Channel TRP
Montebello Island – Sherry Lagoon Entrance TRP
Withnell Bay
Holden Bay
King Bay
No Name Bay / No Name Beach
Enderby Island – Dampier
Rosemary Island – Dampier
Legendre Island – Dampier
Karratha Gas Plant

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KGP to Withnell Creek
KGP to Northern Shore
KGP Fire Pond & Estuary
KGP to No Name Creek
Broome
Sahul Shelf Submerged Banks and Shoals
Clerke Reef (Rowley Shoals)
Imperieuse Island (Rowley Shoals)
Mermaid Reef (Rowley Shoals)
Scott Reef
Oiled Wildlife Response
Exmouth
Dampier region
Shark Bay

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APPENDIX I: OIL POLLUTION FIRST STRIKE PLAN

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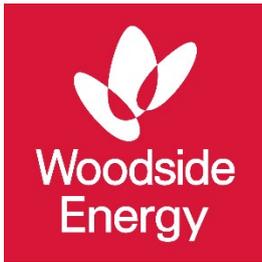
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Page 742 of 752

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Scarborough Offshore Facility and Trunkline Operations – Oil Pollution First Strike Plan

Corporate HSE

Hydrocarbon Spill Preparedness

November 2024

Revision 0b

TABLE OF CONTENTS

CONTROL AGENCIES AND INCIDENT CONTROLLERS.....	5
SPILLS IN STATE/ PORT WATERS.....	5
RESPONSE PROCESS OVERVIEW	6
1. NOTIFICATIONS.....	7
2. RESPONSE TECHNIQUES	9
3. RESPONSE PROTECTION AREAS.....	11
4. DISPERSANT APPLICATION	14
APPENDIX A – CREDIBLE SPILL SCENARIOS AND HYDROCARBON INFORMATION	15
APPENDIX B – NOTIFICATION FORMS.....	16
APPENDIX C – SPILL ASSESSMENT QUESTIONS	18
APPENDIX D – COORDINATION STRUCTURE FOR A CONCURRENT HYDROCARBON SPILL IN BOTH COMMONWEALTH AND STATE WATERS/ SHORELINES	19
APPENDIX E – WOODSIDE INCIDENT MANAGEMENT STRUCTURE	20
APPENDIX F – WOODSIDE LIAISON OFFICER RESOURCES TO DOT	21
APPENDIX G – DOT LIAISON OFFICER RESOURCES TO WOODSIDE.....	25

CONTROL AGENCIES AND INCIDENT CONTROLLERS

Source	Location	Level	Jurisdictional Authority/ Hazard Management Agency	Control Agency	Incident Controller
Spill from facility including subsea infrastructure Note: pipe laying and accommodation vessels are considered a “facility” under Australian regulations	Commonwealth waters	1	NOPSEMA	Woodside	Person In Charge (PIC) with support from Onshore Team Leader (OTL)
		2/3		Woodside	Corporate Incident Management Team (CIMT) Incident Commander
	State waters	1/2/3	Western Australia Department of Transport (DoT)	DoT	DoT Incident Controller
	Within port limits	1	DoT	Port Authority	Port Harbour Master
2/3		DoT		DoT Incident Controller	
Spill from vessel Note: SOPEP should be implemented in conjunction with this document	Commonwealth waters	1	Australian Marine Safety Authority (AMSA)	AMSA	Vessel Master
		2/3		AMSA	AMSA (with response assistance from Woodside)
	State waters	1/2/3	DoT	DoT	DoT Incident Controller
	Within port limits	1	DoT	Port Authority	Port Harbour Master
2/3		Port Authority/DoT		Port Harbour Master/DoT Incident Controller	

SPILLS IN STATE/ PORT WATERS

In the event of a hydrocarbon spill (hereafter ‘spill’) where Woodside Energy Ltd (‘Woodside’) is the responsible party and the spill may impact State waters and shorelines, Woodside (or the Vessel Master) will commence the initial response actions and notify the Western Australian Department of Transport (DoT). In the event that Woodside is the responsible party for a spill that occurs within port limits, Woodside will notify the Port Authority and DoT for all spill levels.

Initially Woodside will be required to make available an appropriate number of suitably qualified persons to work in the DoT Incident Management Team (IMT) ([APPENDIX F](#) – Woodside Liaison Officer resources to DoT). DoT/ Port Authority’s role as the Controlling Agency in State waters/ within port limits does not negate the requirement for Woodside to have appropriate plans and resources in place to adequately respond to a marine hydrocarbon spill incident in State waters/ within port limits, or to commence the initial response actions to a spill prior to DoT establishing incident control in line with DoT *Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements* (July 2020). Cost recovery arrangements for offshore marine pollution incidents (MOP) are in accordance with Section 9 of the Guidance Note:

https://www.transport.wa.gov.au/mediaFiles/marine/MAC_P_Westplan_MOP_OffshorePetroleumIndGuidance.pdf

Woodside’s Incident Management Structure for a hydrocarbon spill, including Woodside Liaison Officer’s command structure within DoT can be seen at [APPENDIX E](#) – Woodside Incident Management Structure.

The coordination structure for a concurrent hydrocarbon spill in both Commonwealth and State waters/ shorelines is shown in [APPENDIX D](#) – Coordination structure for a concurrent hydrocarbon spill in both Commonwealth and State waters/ shorelines.

RESPONSE PROCESS OVERVIEW

For guidance on credible scenarios and hydrocarbon characteristics, refer to APPENDIX A		
ALL INCIDENTS	Notify the Woodside Communication Centre (WCC) on: [1]	
	Incident Controller or delegate to make relevant notifications in Table 1-1 of this Oil Pollution First Strike Plan.	
LEVEL 1	FACILITY INCIDENT	VESSEL INCIDENT
	Coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan. Remember to download each Operational Plan.	Notify AMSA or Port Authority (if within port limits) and coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan Remember to download each Operational Plan.
	If the spill escalates such that the site cannot manage the incident, inform the WCC on: [1] and escalate to a level 2/3 incident.	
LEVEL 2/3	FACILITY INCIDENT	VESSEL INCIDENT
	Handover control to CIMT and notify DoT or Port Authority (if within port limits)	Handover control to AMSA or Port Authority (if within port limits) and stand up CIMT to assist.
	Commence quick revalidation of the recommended strategies on Table 2-1 taking into consideration seasonal sensitivities and current situational awareness. Commence validated strategies.	If requested by AMSA/Port Authority: Commence quick revalidation of the recommended strategies on Table 2-1 taking into consideration seasonal sensitivities and current situational awareness. Commence validated strategies.
	Create an Incident Action Plan (IAP) for ongoing operational periods. The content of the IAP should reflect the selected response strategies based on current situational awareness. For the full detailed pre-operational Net Environmental Benefit Analysis (NEBA) see the OSPRMA Appendix A.	If requested by AMSA/Port Authority: Create an IAP for ongoing operational periods. The content of the IAP should reflect the selected response strategies based on current situational awareness. For the full detailed pre-operational NEBA see the OSPRMA Appendix A.

1. NOTIFICATIONS

The Incident Controller or delegate must ensure the below notifications (Table 1-1) are completed within the designated timeframes.

For spills from a vessel, relevant notifications must be undertaken by a Woodside representative.

Table 1-1: Notifications

In the event of an incident between campaign vessels, also activate relevant vessel Emergency Response Plans and/or Bridging Documents

Timing	By	To	Name	Contact	Instruction	Form	Complete? (✓)
NOTIFICATIONS FOR ALL LEVELS OF SPILL							
Immediately	Offshore Installation Manager (OIM) or Vessel Master	Woodside Communication Centre (WCC)	CIMT IC	[1]	Verbally notify WCC of event and estimated volume and hydrocarbon type.	Verbal	
Within 2 hours	Woodside Site Rep (WSR), Corporate Incident Management Team Duty Manager (CIMT DM) or Delegate	National Offshore Petroleum Safety Environmental Management Authority (NOPSEMA ¹)	Incident notification office	[2]	Verbally notify NOPSEMA for spills >80L. Record notification using Initial Verbal Notification Form or equivalent and send to NOPSEMA as soon as practicable (cc to NOPTA and DEMIRS).	Link	
Within 3 days	WSR, CIMT DM or Delegate				Provide a written NOPSEMA Incident Report Form as soon as practicable (no later than 3 days after notification) (cc to NOPTA and DEMIRS). NOPSEMA [2] NOPTA [3] DEMIRS [4]	[2]	
As soon as practicable	CIMT IC or Delegate	Woodside	Environment Unit Leader	As per roster	Verbally notify Environment Unit Leader of event and seek advice on relevant performance standards from EP.	Verbal	
Within 2 hours of becoming aware of a marine pollution incident (MOP) that occurs in or may impact state waters	CIMT IC or Delegate	DoT	DoT Maritime Environmental Emergency Response Unit (MEER) Duty Officer	[5]	Verbally notify DoT MEER Duty Officer that a spill has occurred and, if required, request use of equipment stored in Karratha. Follow up with a written Marine Pollution Report (POLREP) as soon as practicable following verbal notification. Additionally, DoT to be notified if spill is likely to extend into WA State waters. Request DoT to provide liaison to Woodside IMT.	[5]	
As soon as practicable if spill arises in or is likely to extend into port limits.	CIMT IC or Delegate	Pilbara Ports Authority (PPA)	PPA Dampier Vessel Traffic Services (VTS)	[6]	Any spill within or close to the Dampier Port boundary should be reported immediately to the PPA Dampier VTS.	Verbal/ [6]	
As soon as practicable	CIMT IC or Delegate	Department of Climate Change, Energy, the Environment and Water (DCCEEW) Director of National Parks	Marine Park Compliance Duty Officer	[7]	The Marine Park Compliance Duty Officer is notified in the event of oil pollution within a marine park, or where an oil spill response action must be taken within a marine park, so far as reasonably practicable, prior to response action being taken. This notification should include: <ul style="list-style-type: none"> titleholder details time and location of the incident proposed response arrangements and locations as per the OPEP contact details for the response coordinator confirmation of access to relevant monitoring and evaluation reports when available. 	Verbal	
As soon as practicable if there is potential for oiled wildlife or the spill is expected to contact land or waters managed by WA Department of	CIMT IC or Delegate	DBCA	Duty Officer	[8]	Phone call notification to Pilbara regional office.	Verbal	

¹ Notification to NOPSEMA must be from a Woodside Representative.

Biodiversity, Conservation and Attractions (DBCA)						
As soon as practicable	Public Information	Relevant persons/ organisations	To be determined	To be determined	Should it be identified that additional persons/organisations such as, but not limited to, commercial fishers and tourism operators may be affected, Woodside would, at the relevant time, engage with these parties as appropriate and in alignment with the Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) for the Scarborough Offshore Facility and Trunkline Operations activity. Relevant persons/organisations will be re-assessed throughout the response period.	Verbal initially
As soon as practicable	Public Information	Relevant cultural authorities	To be determined	To be determined	Should it be identified that relevant cultural authorities may be affected, Woodside would, at the relevant time, engage with these parties as appropriate and in alignment with the OSPRMA for the Scarborough Offshore Facility and Trunkline Operations activity. Relevant cultural authorities will be re-assessed throughout the response period.	Verbal initially
As soon as practicable	Public Information	Murujuga Aboriginal Corporation (MAC)	MAC CEO	[9]	Woodside will engage MAC and seek input to spill response planning as the relevant cultural authority as soon as practicable after becoming aware of a marine pollution incident from Scarborough trunkline activities that may impact cultural heritage values.	Verbal initially
ADDITIONAL NOTIFICATIONS TO BE MADE ONLY IF SPILL IS FROM A VESSEL						
"Without delay" as per <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth)</i> s 11(1)	Vessel Master	Australian Maritime Safety Authority (AMSA)	Response Coordination Centre (RCC)	[10]	Verbally notify AMSA RCC of the hydrocarbon spill. Follow up with written Harmful Substances Report (POLREP – AMSA) as soon as practicable.	[10]
ADDITIONAL LEVEL 2/3 NOTIFICATIONS						
As soon as practicable	CIMT IC or Delegate	Australian Marine Oil Spill Centre (AMOSC)	AMOSC Duty Manager	[11]	Notify AMOSC that a spill has occurred and follow-up with an email from the CIMT IC/ Deputy CIMT IC/CMT Leader to formally activate AMOSC. Determine what resources are required consistent with the AMOS Plan and detail in a Service Contract that will be sent to Woodside from AMOSC upon activation.	[11]
As soon as practicable	CIMT IC or Delegate	Oil Spill Response Limited (OSRL)	OSRL Duty Manager	[12]	Contact OSRL duty manager and request assistance from technical advisor in Perth. Send the completed notification form to OSRL as soon as practicable.	[12]
					For mobilisation of resources, send the mobilisation form to OSRL as soon as practicable. The mobilisation form must be signed by a nominated callout authority from Woodside. OSRL can advise the names on the call out authority list, if required.	[12]
As soon as practicable if extra personnel are required for incident support	CIMT IC or Delegate	Marine Spill Response Corporation (MSRC)	MSRC Response Manager	[13]	Activate the contract with MSRC (in full) for the provision of up to 30 personnel depending on what skills are required. Please note that provision of these personnel from MSRC are on a best endeavours basis and are not guaranteed.	Verbal

2. RESPONSE TECHNIQUES

Table 2-1: Response techniques

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	MDO	Dry gas					
Operational monitoring – tracking buoy (OM02)	Yes	No	ALL	If a vessel is on location, consider the need to deploy the oil spill tracking buoy. If no vessel is on location, consider the need to mobilise oil spill tracking buoys from the King Bay Supply Base (KBSB) Stockpile. If a surface sheen is visible from the facility, deploy the satellite tracking buoy within two hours.	Operations	WITHIN 24 HOURS: Tracking buoy deployed within 2 hours.	Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02 of The Operational Monitoring Operational Plan). Deploy tracking buoy in accordance with Link .
Operational monitoring – predictive modelling (OM01)	Yes	No	ALL	MDO: Undertake initial modelling using the Rapid Assessment Oil Spill Tool and weathering fate analysis using Automated Data Inquiry for Oil Spills (ADIOS) or refer to the hydrocarbon information in Appendix A . Dry gas (Level 2/3): If feasible, existing worst-case discharge modelling will be verified with available real-time data.	Situation or Environment	WITHIN 24 HOURS: Initial modelling within 6 hours using the Rapid Assessment Tool.	Predictive Modelling of Hydrocarbons to Assess Resources at Risk (OM01 of The Operational Monitoring Operational Plan). <i>Planning Section to download immediately and follow steps.</i>
	Yes	No	ALL	MDO: Send Oil Spill Trajectory Modelling (OSTM) form (Appendix B, Form 7) to RPS Response ([14]).	Situation	WITHIN 24 HOURS: Detailed modelling within 4 hours of RPS Response receiving information from Woodside.	
Operational monitoring – aerial surveillance (OM02)	Yes	No	ALL	MDO: Instruct Aviation Unit Leader to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in Appendix B Form 8 . Dry gas (Level 2/3): overflights only feasible if gas detection indicates it is safe to do so.	Logistics – Aviation	WITHIN 24 HOURS: 2 trained aerial observers. 1 aircraft available. Report made available to the IMT within 2 hours of landing after each sortie.	Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02 of The Operational Monitoring Operational Plan). <i>Planning Section to download immediately and follow steps.</i>
Operational monitoring – satellite tracking (OM02)	Yes	No	ALL	The Situation Unit Leader to action satellite imagery services. This may be obtained via: <ul style="list-style-type: none">• AMOSC Duty Manager: [11]• OSRL Duty Manager: [12]• KSAT: [15]• Others identified by CIMT.	Situation	WITHIN 24 HOURS: Service provider will confirm availability of an initial acquisition within 2 hours. Data received to be uploaded into Woodside Common Operating Picture.	
Operational monitoring – monitoring hydrocarbons in water (OM03)	Yes	No	ALL	MDO: Consider the need to mobilise resources to undertake water quality monitoring (OM03).	Planning or Environment	WITHIN 72 HOURS: Water quality assessment access and capability. Daily fluorometry reports will be provided to IMT.	Detecting and Monitoring for the Presence and Properties of Hydrocarbons in the Marine Environment (OM03 of The Operational Monitoring Operational Plan).
Operational monitoring – pre-emptive assessment of receptors at risk (OM04)	Yes	No	ALL	MDO: Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk (OM04).	Planning or Environment	WITHIN 24 HOURS: In agreement with WA DoT, deployment of 1 specialist for each of the Response Protection Areas (RPA) with predicted impacts.	Pre-emptive Assessment of Sensitive Receptors (OM04 of The Operational Monitoring Operational Plan).
Operational monitoring – shoreline assessment (OM05)	Yes	No	ALL	MDO: Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05).	Planning or Environment	WITHIN 24 HOURS: In agreement with WA DoT, deployment of 1 specialist trained in Shoreline Clean-up Assessment Technique (SCAT) for each of the RPAs with predicted impacts.	Shoreline Assessment (OM05 of The Operational Monitoring Operational Plan).
Surface dispersant	No	No	N/A	This response strategy is not recommended.			
Containment and recovery	No	No	N/A	This response strategy is not recommended.			
Mechanical dispersion	No	No	N/A	This response strategy is not recommended.			
In-situ burning	No	No	N/A	This response strategy is not recommended.			
Shoreline protection and deflection	Yes	No	L2/3	Equipment from Woodside, Pilbara Port Authority (PPA) (if within port limits), AMOSC and AMSA Western Australian Stockpiles mobilised. Consideration of mobilisation of interstate/international shoreline protection equipment (i.e. OSRL).	Operations and Planning	WITHIN 24 HOURS: In agreement with WA DoT, activate relevant Tactical Response Plans (TRPs) within 12 hours. In agreement with WA DoT, mobilise teams to RPAs within 24 hours of operational monitoring predicting impacts.	Protection and Deflection Operational Plan. <i>Logistics Section to download immediately and follow steps.</i>

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	MDO	Dry gas					
	Yes	No				In agreement with WA DoT, equipment mobilised from closest stockpile within 24 hours. WITHIN 48 HOURS: Supplementary equipment mobilised from AMOSC, AMSA and State stockpiles within 48 hours. Supplementary equipment mobilised from OSRL within 48 hours.	
Shoreline clean-up	Yes	No	L2/3	Equipment from Woodside, and/or PPA (if within port limits) AMOSC and AMSA Western Australian Stockpiles and relevant personnel mobilised. Consideration of mobilisation of interstate/international shoreline clean-up equipment and relevant personnel (i.e. OSRL).	Logistics and Planning	WITHIN 24 HOURS: Relevant Tactical Response Plans (TRPs) will be identified in the First Strike Plan for activation within 24 hours of a release. In liaison with WA DoT (for Level 2/3 incidents), mobilise and deploy 1-2 shoreline clean-up operations within 24 hours. In agreement with WA DoT, equipment mobilised from closest stockpile within 24 hours. Access to ~124 m ³ of solid and liquid waste storage available within 24 hours upon activation of 3 rd party contract. WITHIN 48 HOURS: Supplementary equipment mobilised from AMOSC, AMSA and State stockpiles within 48 hours. Supplementary equipment mobilised from OSRL within 48 hours.	Shoreline Clean-up Operational Plan. <i>Logistics Section to download immediately and follow steps.</i>
Oiled wildlife response	Yes	No	L2/3	If oiled wildlife is a potential impact, request AMOSC to mobilise containerised oiled wildlife first strike kits and relevant personnel. Refer to relevant Tactical Response Plan for potential wildlife at risk. Mobilise AMOSC oiled wildlife containers. Consider whether additional equipment is required from local suppliers.	Logistics and Planning	WITHIN 24 HOURS: Initiate a wildlife first strike response within 24 hours of confirmed or imminent wildlife contact as directed by relevant Operational Monitoring techniques (OM01-05) and in liaison with DBCA.	Oiled Wildlife Response Operational Plan.
Scientific monitoring (type II)	Yes	No	L2/3	Notify Woodside science team of spill event.	Environment		Oil Spill Scientific Monitoring Programme – Operational Plan.
Source Control Techniques							
Well Intervention - SFRT	No	Yes	L2/3	Dry Gas: As per Source Control Emergency Response Plan.	Operations, Logistics and Planning (source control)	WITHIN 48 HOURS: Remotely Operated Vehicle (ROV) on Mobile Offshore Drilling Unit (MODU) ready for deployment within 48 hours.	Subsea First Response Toolkit (SFRT) Operational Plan Source Control Emergency Response Plan.
Subsea Dispersant	No	No	N/A	Not applicable for a diesel spill or dry gas release.			
Capping Stack	No	Yes	L2/3	Dry Gas: Conventional/vertical capping stack deployment with a heavy lift vessel will be attempted at the discretion of the vessel master on the day, giving due regard to the safety of the vessel and crew and consideration to the factors that may influence a safe deployment such as plume and environmental conditions (e.g. wind speed, wave height and current).	Operations, Logistics and Planning (source control)	DAY 16: Capping stack deployed by a chartered construction vessel.	SFRT and Capping Stack Operational Plan. Source Control Emergency Response Plan.
Relief Well	No	Yes	L2/3	Dry Gas: As per Source Control Emergency Response Plan.	Operations, Logistics and Planning (source control)	WITHIN 24 HOURS: Identify source control vessel availability within 24 hours. ROV on MODU ready for deployment within 48 hours. MODU mobilised to location.	Source Control Emergency Response Plan.

3. RESPONSE PROTECTION AREAS

Action: Provide relevant Control Agency with applicable Tactical Response Plans for any Response Protection Areas (RPAs) identified during operational monitoring.

Based on stochastic hydrocarbon spill modelling results, only CS-01 is predicted to result in shoreline contact at feasible response thresholds (>100 g/m²). The sensitive receptors outlined in **Table 3-1** are identified as priority protection areas, as they have the potential to be contacted by hydrocarbon at or above impact threshold levels within ~48 hours of a spill.

Table 3-1: Receptors for Priority Protection with Potential Impact within ~48 Hours

Receptor	Distance and Direction from Operational Area (km)	Minimum time to shoreline contact (above 100 g/m ²) in days	Maximum shoreline accumulation (above 100 g/m ²) in m ³	Tactical Response Plans
Dampier Archipelago	Adjacent to Trunkline Operational Area (State Waters end)	0.75	55	Mermaid Sound - Dampier Archipelago Inshore Waters
Keast Island	8.54 km east of Trunkline Operational Area (State Waters end)	0.75	20	
Gidley Island	8.97 km south-east of Trunkline Operational Area (State Waters end)	1.63	12	
Cape Bruguieres	6 km south-east of Trunkline Operational Area (State Waters end)	1.25	48	
Angel Island	12.10 km south-east of Trunkline Operational Area (State Waters end)	2.46	3	
Cohen Island	5.83 km east of Trunkline Operational Area (State Waters end)	1.29	5	
Rosemary Island	15.80 km south-west of Trunkline Operational Area (State Waters end)	1.21	21	Rosemary Island – Dampier
Legendre Island	9.53 km east of Trunkline Operational Area (State Waters end)	0.83	15	Legendre Island – Dampier

Tactical Response plans for these and other locations can be accessed via this [link](#) and include the details of potential forward operating bases and staging areas.

Oil Spill Trajectory Modelling specific to the spill event will be required to determine the regional sensitive receptors to be contacted beyond 48 hours of a spill.

Figure 3-1 illustrates the location of regional sensitive receptors in relation to the Scarborough Offshore Facility and Trunkline Operations Operational Areas (collectively referred to as the Petroleum Activities Area (PAA)).

Consideration should be given to other stakeholders (including mariners) in the vicinity of the spill location.

Table 3-2 indicates the assets within the vicinity of the PAA.

Table 3-2: Assets within 50 km of the Scarborough Project PAA

Asset	Distance and Direction from PAA	Operator
Wheatstone Platform	10 km north	Chevron
Pluto Platform	2 km north	Woodside
Stag Platform	5 km south	Jadestone
Reindeer Platform	15 km north	Santos
Goodwyn Platform	48 km north	Woodside
Campbell Platform and Sinbad platform (Varanus hub)	50 km south	Santos

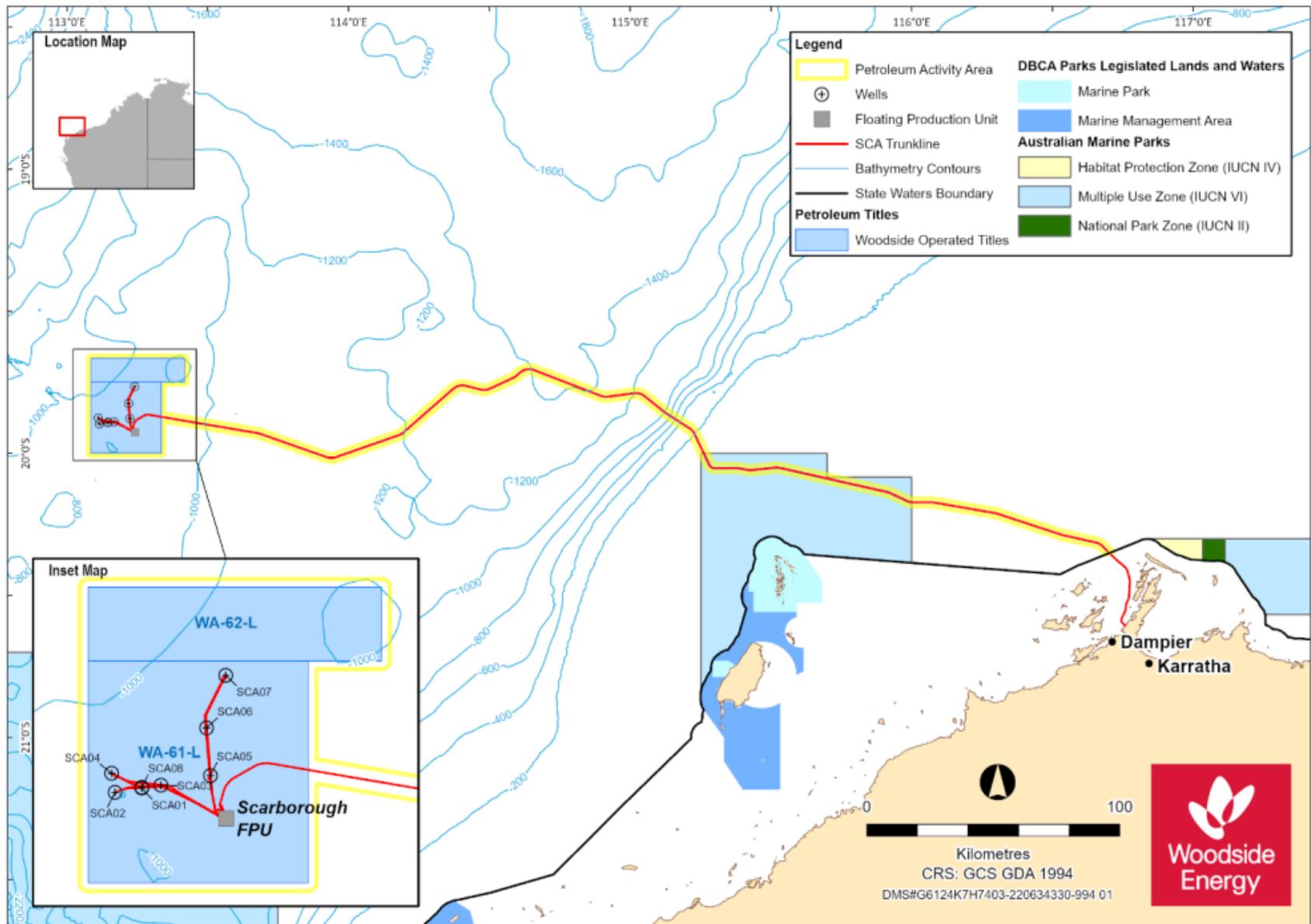


Figure 3-1: Petroleum Activity Area and regional sensitive receptors

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4. DISPERSANT APPLICATION

Dispersant is not considered an appropriate response strategy for this activity as described in the Scarborough Offshore Facility and Trunkline Operations Environment Plan Appendix D (Woodside's Oil Spill Preparedness and Response Mitigation Assessment).

APPENDIX A – CREDIBLE SPILL SCENARIOS AND HYDROCARBON INFORMATION

Table A - 1: Credible spill scenarios and hydrocarbon information

Scenario	Product	API gravity	Volume	Residue	Weathering rate		Suggested ADIOS2 Analogue ²
CS-01 <i>Instantaneous Release of 250 m³ of Marine Diesel outside Mermaid Sound</i>	MDO	0.829 @ 25°C	250 m ³	5% (12.5 m ³)	12 hours (BP < 180 °C)	6.0%	<i>Diesel Fuel Oil (Southern USA 1). API of 37.2</i>
					24 hours (180 °C < BP < 265 °C)	34.6%	
					Several days (265 °C < BP < 380 °C)	54.4%	
CS-02 <i>Instantaneous Release of 250 m³ of Marine Diesel within Montebello AMP</i>	MDO	0.829 @ 25°C	250 m ³	5% (12.5 m ³)	12 hours (BP < 180 °C)	6.0%	<i>Diesel Fuel Oil (Southern USA 1). API of 37.2</i>
					24 hours (180 °C < BP < 265 °C)	34.6%	
					Several days (265 °C < BP < 380 °C)	54.4%	
CS-03 <i>Instantaneous Release of 470 m³ of Marine Diesel at the FPU Location</i>	MDO	0.829 @ 25°C	470 m ³	5% (23.5 m ³)	12 hours (BP < 180 °C)	6.0%	<i>Diesel Fuel Oil (Southern USA 1). API of 37.2</i>
					24 hours (180 °C < BP < 265 °C)	34.6%	
					Several days (265 °C < BP < 380 °C)	54.4%	
CS-04 <i>Loss of well containment due to a failure at the wellheads and/or Xmas trees</i>	Dry Gas	N/A	No liquid hydrocarbon	N/A	N/A	N/A	N/A
					N/A	N/A	
					N/A	N/A	

² Initial screening of possible ADIOS2 analogues considered hydrocarbons with similar APIs. Suggested selection is based on the closest distillation cut to the Woodside hydrocarbon. Only hydrocarbons with >380°C distillation cuts were included in selection process.

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APPENDIX B – NOTIFICATION FORMS

Table B - 1: Notification forms

No.	Form Name	Link
1	Record of initial verbal notification to NOPSEMA template	Link
2	NOPSEMA Incident Report Form	[2]
3	Harmful Substances Report (POLREP – AMSA)	[10]
4	AMOSC Service Contract	[11]
5	Marine Pollution Report (POLREP – DoT)	[5]
6a	OSRL Initial Notification Form	[12]
6b	OSRL Mobilisation Activation Form	[12]
7	RPS Response Oil Spill Trajectory Modelling Request	[14]
8	Aerial Surveillance Observer Log	Link
9	Tracking buoy deployment instructions	Link

FORM 1 – RECORD OF INITIAL VERBAL NOTIFICATION TO NOPSEMA



NOPSEMA phone: [2]	
Date of call	
Time of call	
Call made by	
Call made to	
Information to be provided to NOPSEMA:	
Date and time of incident/ time caller became aware of incident	
Details of incident	1. Location
	2. Title
	3. Source
	<input type="checkbox"/> Platform
	<input type="checkbox"/> Pipeline
	<input type="checkbox"/> FPSO
	<input type="checkbox"/> Exploration drilling
	<input type="checkbox"/> Well
	<input type="checkbox"/> Other (please specify)
	4. Hydrocarbon type
5. Estimated volume	
6. Has the discharge ceased?	
7. Fire, explosion or collision?	
8. Environment Plan(s)	
9. Other Details	
Actions taken to avoid or mitigate environmental impacts	
Corrective actions taken or proposed to stop, control or remedy the incident	
After the initial call is made to NOPSEMA, please send this record as soon as practicable to:	
NOPSEMA	[2]
NOPTA	[3]
DEMIRS	[4]

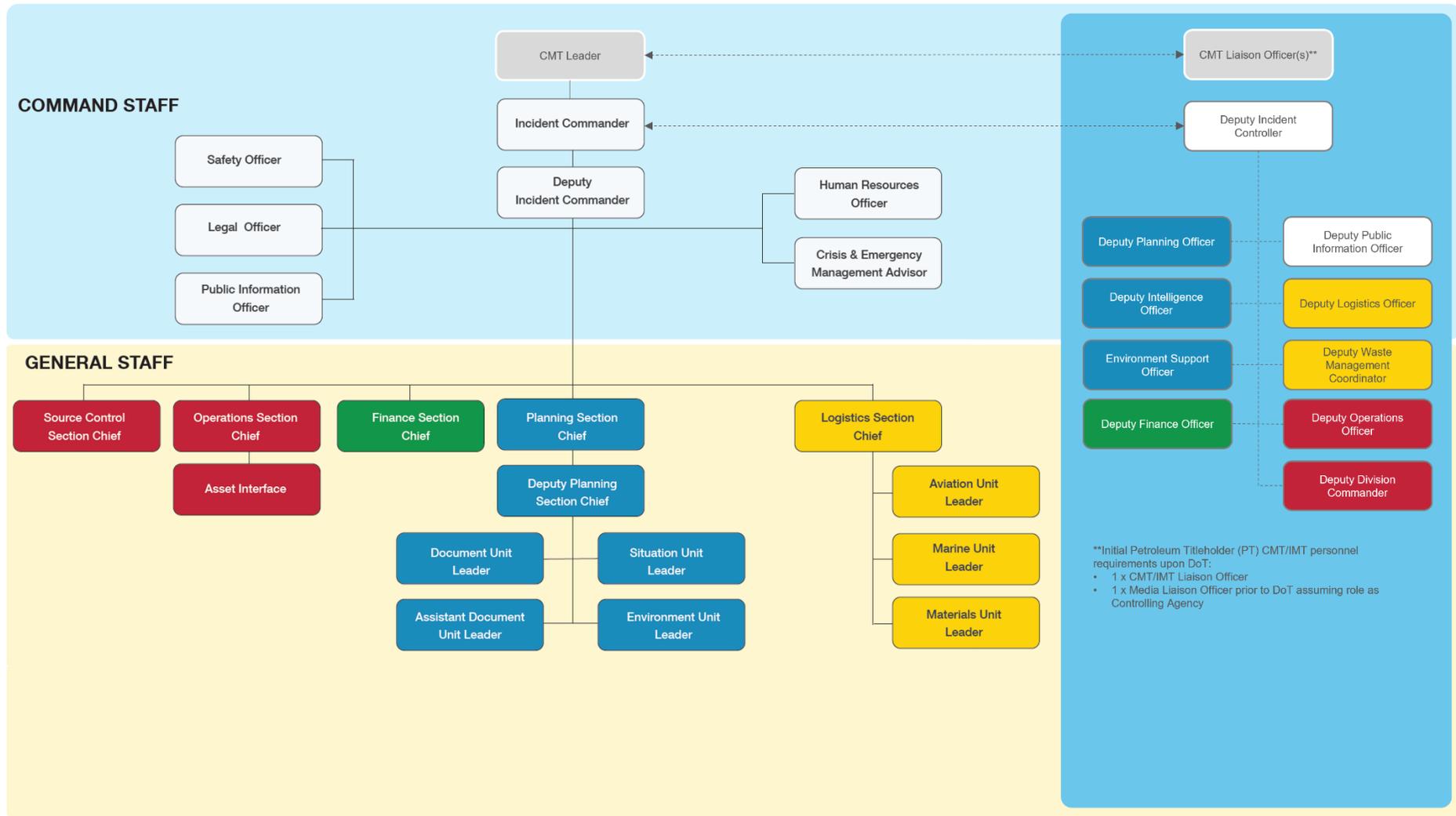
APPENDIX C – SPILL ASSESSMENT QUESTIONS

What has happened?		
Date/time		
Spill source		
Spill cause		
Safety situation		
What is it?		
Oil type and name		
Oil properties	Specific gravity	
	Viscosity	
	Pour point	
	Asphaltenes	
	Wax content	
	Boiling point	
Where is it?		
Latitude and longitude		
Distance and bearing		
Affected area	<input type="checkbox"/> Offshore	
	<input type="checkbox"/> Subsea	
	<input type="checkbox"/> Shoreline	
	<input type="checkbox"/> Estuary	
	<input type="checkbox"/> Port	
	<input type="checkbox"/> Harbour	
	<input type="checkbox"/> Inland	
	<input type="checkbox"/> River	
	<input type="checkbox"/> Other (please detail):	
Water depth		
How big is it?		
Area		
Release type	<input type="checkbox"/> Instantaneous	Estimated volume:
	<input type="checkbox"/> Continuous release	Estimated release rate:
Where it is going?		
Metocean conditions		
Currents and tides		
What is in the way?		
Resources at risk		
Time until resource contact		
What's happening to it?		
Weathering processes		
Response actions underway		

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APPENDIX E – WOODSIDE INCIDENT MANAGEMENT STRUCTURE

Woodside incident management structure for hydrocarbon spill (including Woodside Liaison Officers command structure within DoT IMT if required).



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APPENDIX F – WOODSIDE LIAISON OFFICER RESOURCES TO DOT

In the event that the DoT is required to establish an IMT, Woodside will make available an appropriate number of appropriately qualified persons to work within the DoT IMT. In the event the PPA is the Control Agency within the Dampier Port limits, Woodside will make available similar roles as requested.

It is an expectation that Woodside's nominated CMT Liaison Officer and the Deputy Incident Controller attend the DoT Fremantle Incident Control Centre (ICC) as soon as possible after the formal request has been made by the SMPC, and no later than 8 am on the day following the request being formally made. For Woodside personnel designated to serve in DoT's Forward Operating Base (FOB), it is expected that they arrive at the FOB no later than 24 hours from the formal request being made by the SMPC.

Area	Role	Woodside Liaison Role ⁴	Key Duties	#
DoT Maritime Environmental Emergency Coordination Centre (MEECC)	CMT Liaison Officer	CIMT Liaison	<ul style="list-style-type: none"> Provide a direct liaison between the CMT and the MEECC. Facilitate effective communications and coordination between the CIMT Leader and State Marine Pollution Coordinator (SMPC). Offer advice to SMPC on matters pertaining to PT crisis management policies and procedures. 	1
DoT IMT Incident Control	Deputy Incident Controller	Deputy Incident Commander (Deputy IC)	<ul style="list-style-type: none"> Provide a direct liaison between the PT IMT and DoT IMT. Facilitate effective communications and coordination between the PT IC and the DoT IC. Offer advice to the DoT IC on matters pertaining to PT incident response policies and procedures. Offer advice to the Safety Coordinator on matters pertaining to PT safety policies and procedures, particularly as they relate to PT employees or contractors operating under the control of the DoT IMT. 	1
DoT IMT Intelligence	Deputy Intelligence Officer	Situation Unit Leader (Intelligence)	<ul style="list-style-type: none"> As part of the Intelligence Team, assist the Intelligence Officer in the performance of their duties in relation to situation and awareness. Facilitate the provision of relevant modelling and predications from the PT IMT. Assist in the interpretation of modelling and predictions originating from the PT IMT. Facilitate the provision of relevant situation and awareness information originating from the DoT IMT to the PT IMT. Facilitate the provision of relevant mapping from the PT IMT. Assist in the interpretation of mapping originating from the PT IMT. Facilitate the provision of relevant mapping originating from the DoT IMT to the PT IMT. 	1

⁴ These positions would be mobilised, in consultation with DoT, to align to the actual spill scenario. The selected roles and/or individual personnel would be subject to continued evaluation to ensure continued 'best fit'. For CIMT roster arrangements, contact the WCC. During a prolonged response, additional personnel may be sourced through internal resourcing and mutual Aid agreements such as the AMOSC Core Group via [11]

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Area	Role	Woodside Liaison Role ⁴	Key Duties	#
DoT IMT Intelligence – Environment	Environment Support Officer	Deputy Environment Unit Leader	<ul style="list-style-type: none"> As part of the Intelligence Team, assist the Environment Coordinator in the performance of their duties in relation to the provision of environmental support into the planning process. Assist in the interpretation of the PT OPEP and relevant TRP plans. Facilitate in requesting, obtaining and interpreting environmental monitoring data originating from the PT IMT. Facilitate the provision of relevant environmental information and advice originating from the DoT IMT to the PT IMT. 	1
DoT IMT Planning-Plans/ Resources	Deputy Planning Officer	Deputy Planning Section Chief	<ul style="list-style-type: none"> As part of the Planning Team, assist the Planning Officer in the performance of their duties in relation to the interpretation of existing response plans and the development of incident action plans and related sub plans. Facilitate the provision of relevant IAP and sub plans from the PT IMT. Assist in the interpretation of the PT OPEP from the PT. Assist in the interpretation of the PT IAP and sub plans from the PT IMT. Facilitate the provision of relevant IAP and sub plans originating from the DoT IMT to the PT IMT. Assist in the interpretation of the PT existing resource plans. Facilitate the provision of relevant components of the resource sub plan originating from the DoT IMT to the PT IMT. <p>(Note this individual must have intimate knowledge of the relevant PT OPEP and planning processes)</p>	1
DoT IMT Public Information-Media/ Community Engagement	Deputy Public Information Officer	Deputy Public Information Officer	<ul style="list-style-type: none"> As part of the Public Information Team, provide a direct liaison between the PT Media team and DoT IMT Media team. Facilitate effective communications and coordination between the PT and DoT media teams. Assist in the release of joint media statements and conduct of joint media briefings. Assist in the release of joint information and warnings through the DoT Information and Warnings team. Offer advice to the DoT Media Coordinator on matters pertaining to PT media policies and procedures. Facilitate effective communications and coordination between the PT and DoT Community Liaison teams. Assist in the conduct of joint community briefings and events. Offer advice to the DoT Community Liaison Coordinator on matters pertaining to the PT community liaison policies and procedures. Facilitate the effective transfer of relevant information obtained from through the Contact Centre to the PT IMT. 	1

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Area	Role	Woodside Liaison Role ⁴	Key Duties	#
DoT IMT Logistics	Deputy Logistics Officer	Deputy Logistics Section Chief	<ul style="list-style-type: none"> As part of the Logistics Team, assist the Logistics Officer in the performance of their duties in relation to the provision of supplies to sustain the response effort. Facilitate the acquisition of appropriate supplies through the PTs existing OSRL, AMOSC and private contract arrangements. Collects Request Forms from DoT to action via PT IMT. <p>(Note this individual must have intimate knowledge of the relevant PT logistics processes and contracts)</p>	1
DoT IMT Finance-Accounts/ Financial Monitoring	Deputy Finance Officer	Deputy Finance Section Chief	<ul style="list-style-type: none"> As part of the Finance Team, assist the Finance Officer in the performance of their duties in relation to the setting up and payment of accounts for those services acquired through the PTs existing OSRL, AMOSC and private contract arrangements. Facilitate the communication of financial monitoring information to the PT to allow them to track the overall cost of the response. Assist the Finance Officer in the tracking of financial commitments through the response, including the supply contracts commissioned directly by DoT and to be charged back to the PT. 	1
DoT IMT Operations	Deputy Operations Officer	Deputy Operations Section Chief	<ul style="list-style-type: none"> As part of the Operations Team, assist the Operations Officer in the performance of their duties in relation to the implementation and management of operational activities undertaken to resolve an incident. Facilitate effective communications and coordination between the PT Operations Section and the DoT Operations Section. Offer advice to the DoT Operations Officer on matters pertaining to PT incident response procedures and requirements. Identify efficiencies and assist to resolve potential conflicts around resource allocation and simultaneous operations of PT and DoT response efforts. 	1
DoT IMT Operations – Waste Management	Deputy Waste Management Coordinator	Deputy Waste Coordinator (Materials)	<ul style="list-style-type: none"> As part of the Operations Team, assist the Waste Management Coordinator in the performance of their duties in relation to the provision of the management and disposal of waste collected in State waters. Facilitate the disposal of waste through the PT's existing private contract arrangements related to waste management and in line with legislative and regulatory requirements. Collects Request Forms from DoT to action via PT IMT. 	1
DoT FOB Operations Command	Deputy Division Commander	FOB Deputy Incident Commander	<ul style="list-style-type: none"> As part of the Field Operations Team, assist the Division Commander in the performance of their duties in relation to the oversight and coordination of field operational activities undertaken in line with the IMT Operations Section's direction. Provide a direct liaison between the PT FOB and DoT FOB. 	1

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Area	Role	Woodside Liaison Role ⁴	Key Duties	#
			<ul style="list-style-type: none"> • Facilitate effective communications and coordination between the PT Division Commander and the DoT Division Commander. • Offer advice to the DoT Division Commander on matters pertaining to PT incident response policies and procedures. • Assist the Safety Coordinator deployed in the FOB in the performance of their duties, particularly as they relate to PT employees or contractors. • Offer advice to the Safety Coordinator deployed in the FOB on matters pertaining to PT safety policies and procedures. 	
Total				11

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APPENDIX G – DOT LIAISON OFFICER RESOURCES TO WOODSIDE

Once DoT activates a State waters/shorelines IMT, DoT will make available the following roles to Woodside.

Area	DoT Liaison Role	Personnel Sourced from:	Key Duties	#
Woodside CIMT	DoT Liaison Officer (prior to DoT assuming Controlling Agency)/ Deputy Incident Controller – State waters (after DoT assumes Controlling Agency)	DoT	<ul style="list-style-type: none"> Facilitate effective communications between DoT’s SMPC/Incident Controller and the Petroleum Titleholder’s appointed CMT Leader/Incident Controller. Provide enhanced situational awareness to DoT of the incident and the potential impact on State waters. Assist in the provision of support from DoT to the Petroleum Titleholder. Facilitate the provision technical advice from DoT to the Petroleum Titleholder Incident Controller as required. 	1
Woodside Public Information – Media	DoT Media Liaison Officer	DoT	<ul style="list-style-type: none"> Provide a direct liaison between the PT Media team and DoT IMT Media team. Facilitate effective communications and coordination between the PT and DoT media teams. Assist in the release of joint media statements and conduct of joint media briefings. Assist in the release of joint information and warnings through the DoT Information & Warnings team. Offer advice to the PT Media Coordinator on matters pertaining to DoT and wider Government media policies and procedures. 	1
Total DoT Personnel Initial Requirement to Woodside				2

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APPENDIX J: CONCORDANCE WITH SCARBOROUGH OFFSHORE PROJECT PROPOSAL

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Controlled Ref No: SA0006AF0000022

Revision: 3

Woodside ID: 1401801827

Page 743 of 752

Uncontrolled when printed. Refer to electronic version for most up to date information.

The Scarborough OPP describes the scope of the project and its component activities, at a level comprehensive enough to facilitate thorough evaluation of environmental impacts and risks and appropriate setting of EPOs. However, in accordance with NOPSEMA guidance, it is acknowledged that an OPP is prepared at an early stage in project development, before detailed planning of component activities has occurred. More detailed descriptions of the component activities are therefore expected in subsequent EPs.

Refinement or modifications to methods or timing for individual project activities may occur after an OPP acceptance and before the submission of EPs. These refinements or modifications to the accepted project cannot be new activities and cannot significantly change the overall environmental impacts and risks of the project as described in the accepted OPP. Table 1 below shows which scopes from the Scarborough OPP may have progressed in level of definition from the time the Scarborough OPP was authored.

Section 4 of the Scarborough OPP provides a detailed description of the entire Scarborough project, including the Petroleum Activities Program covered by this EP.

Table 1: Concordance of activities described in the Scarborough Offshore Project Proposal with those included in this Environment Plan

Scarborough OPP Section	Scope or overview of the Activity	Relevance to this EP	Refinement or modification to methods	Refinement or modification to timing	Is this a new activity	Significance of change
Introduction	The OPP states that Woodside is targeting a final investment decision (FID) in 2020 to be ready for first cargo in 2024.	FID occurred in November 2021, and first cargo planned for 2026.	No	Yes	No	No relevance to environmental impact/risks. Achieving these milestones is subject to regulatory approvals and commercial arrangements being finalised.
4.4.2.1	With respect to reservoir monitoring methodology, the OPP states that "Pressure and saturation changes in the reservoir will be monitored over the life of the Project. Data will be used to inform decisions regarding reservoir management."	Reservoir monitoring methods have since been further defined to include gravimetry, a process involving installation of concrete pads on the seabed which are used to periodically support a passive gravity meter and enable determination of a field-wide measurement of gravity (refer to Section 3.10).	Yes	No	No	This change does not significantly alter the overall environmental impacts and risks of the project as described in the accepted Scarborough OPP. Section 6.7.2 of the EP has assessed the impact/consequence of seabed disturbance from subsea infrastructure (including gravimetry concrete pads) to have a maximum impact significance level of 'D' (Minor) based on impact potential for the most sensitive receptor (KEFs). The impact significance levels for receptors are consistent with the levels rated in the Scarborough OPP.

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Scarborough OPP Section	Scope or overview of the Activity	Relevance to this EP	Refinement or modification to methods	Refinement or modification to timing	Is this a new activity	Significance of change
		The extent of seabed disturbance caused by gravimetry concrete pads across WA-61-L and WA-62-L is up to 530 m ² (concrete pads are each ~2 m ² in area). Although this area was not specifically included in the OPP seabed disturbance calculations, it is encompassed in the contingency area included in the 0.234 km ² total disturbance estimate. This area was used as a basis for impact assessment in the OPP. Hence there is no change in impact from the OPP.				As part of consultation for this EP, all relevant stakeholders have been consulted on the activity, including the gravimetry scope.
4.4.2.3	The OPP states that FPU Mooring radius is 1400 m.	Mooring horizontal distance from fairlead chain stopper to pile up to 1770 m.	Yes	No	No	Seabed disturbance assessment in (Section 6.7.2) is independent of mooring horizontal distance length.
4.4.2.3	The OPP states that FPU deck dimensions are 2 @ 70x 70 x 13 m, and draft is 28 m.	3 decks. Middle (largest) deck is 78 x 101 m, with draft of 32 m.	Yes	No	No	No relevance to environmental impact/risks.
4.4.6.1	The OPP states that chemicals stored on the FPU include acids and solvents, hydrate and corrosion inhibitor, surfactants,	FPU also stores scale inhibitor, deoiler/ demulsifier, biocide, oxygen scavenger, divalent cation removal,	Yes	No	No	Chemical selection in line with Section 3.9.16.5

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Scarborough OPP Section	Scope or overview of the Activity	Relevance to this EP	Refinement or modification to methods	Refinement or modification to timing	Is this a new activity	Significance of change
	lubricating fluid and greases, hydraulic oils and fluids, paints, specialised cleaning fluids, seawater system treatment chemicals"	antifoam, inorganic scale remover				
7.1.1.1	The OPP states that FPU light emissions are generally metal halide, halogen or fluorescent bright white	This has been changed to LED fixtures.	Yes	No	No	No relevance to environmental impact/risks. There are no relevant receptors of light emissions.
7.1.3.2	The OPP states that average annual total Scope 1 and Scope 3 GHG emissions are 28.42 MtCO ₂ -e in an average year.	Estimates updated with most recent available information and aligned to most recent regulatory framework, for an estimate of 36 MtCO ₂ -e.	Yes	No	No	<p>This change does not significantly alter the overall environmental impacts and risks of the project as described in the accepted Scarborough OPP.</p> <p>These changes are best understood by comparing material differences between Table 6-22 from the EP and Table 7-20 from the OPP.</p> <p>The estimate for annual direct emissions has increased from 0.47 to 0.61 MtCO₂e. This is due to a number of factors:</p> <ul style="list-style-type: none"> The OPP estimate is based on an average year of production, whereas the updated EP estimate is the highest expected annual emissions in the five-year life of the EP. Higher emissions are expected during the early phases of operation (i.e., the duration of this EP) due to start-up and high production/export rates. This is expected to change over time in line with production profile.

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Scarborough OPP Section	Scope or overview of the Activity	Relevance to this EP	Refinement or modification to methods	Refinement or modification to timing	Is this a new activity	Significance of change
						<ul style="list-style-type: none"> Design development since the OPP was published has resulted in an increased production rate expected in early field life. Assumptions related to design and equipment have been updated to reflect latest engineering information, and methodology used to estimate emissions associated with fuel gas combustion on the facility was changed from NGERS Method 2 to the more conservative Method 1. <p>The annual estimate of GHG emissions associated with onshore processing has slightly increased from 2.84 in the OPP to 2.90 MtCO₂e in the EP. Design development since the OPP has resulted in higher expected maximum onshore processing rate (8.55 t LNG and 1.35 t Domgas as described in Section 6.7.6) which has now been applied.</p> <p>The estimate for annual third party transport of products, regasification, distribution and end use has increased from 25.11 in the OPP to 32 MtCO₂e in the EP due to increased expected LNG and Domgas production rate associated with Scarborough gas following onshore processing.</p> <p>Further, A factor of 3.4 tCO₂e/tLNG was applied in estimates for the OPP. This was misrepresented in Table 7-18 of the OPP for Third Party LNG consumption as 3.13 tCO₂e/tLNG. As stated in Table 6-20 of this EP, a factor of 3.32 tCO₂/tLNG is now used. This is based on the same underlying data from Ecoinvent, however</p>

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Scarborough OPP Section	Scope or overview of the Activity	Relevance to this EP	Refinement or modification to methods	Refinement or modification to timing	Is this a new activity	Significance of change
						has changed due to updated LNG density assumptions. As described in section 6.7.6, it is not appropriate to apply these annual values over the expected field life due to production rate changes as the field/s decline. Due to this uncertainty, conservative estimates over development life from the OPP have been retained. These are also inclusive of Thebe and Jupiter fields which may be tied into the Scarborough FPU in future and is therefore selected as the most appropriate bounds for the assessment.
7.1.4.1	The OPP states the expected underwater noise source levels.	Updated underwater noise modelling was conducted, providing underwater noise source levels specific to the FPU and associated operations.	Yes	No	No	This change does not significantly alter the overall environmental impacts and risks of the project as described in the accepted Scarborough OPP. The underwater noise source levels described in the EP do not differ significantly from those described in the OPP, and provide a more accurate representative of the noise sources for this scope.
7.2.6.1	The OPP states that credible loss of hydrocarbon to sea during bunkering is 8 m ³ MDO.	Credible bunkering loss of containment has been reassessed as 50 m ³ , based on more stringent application of AMSA guidance (AMSA 2023)	Yes	No	No	This change does not significantly alter the overall environmental impacts and risks of the project as described in the accepted Scarborough OPP. This is not the governing hydrocarbon loss of containment scenario for this scope, hence the assessment of this risk is covered under the governing scenario (loss of structural integrity of the FPU).

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APPENDIX K: MURUJUGA ROCK ART STRATEGY AND MURUJUGA ROCK ART MONITORING PROGRAM

Program: Murujuga Rock Art (Western Australian Government)

The Western Australian Government publish on their aboriginal heritage conservation website a summary of their Murujuga Rock Art Program, the partnership with Murujuga Aboriginal Corporation, and the Murujuga Rock Art Strategy.. A description of the program is provided below, courtesy of Govt of Western Australia Website: <https://www.wa.gov.au/service/aboriginal-affairs/aboriginal-heritage-conservation/program-murujuga-rock-art>

Background:

Murujuga (which means 'hip bone sticking out' in the Ngarluma-Yaburara language) comprises the Burrup Peninsula and the Dampier Archipelago 1,300 km north of Perth, Western Australia. The Government of Western Australia (State Government) recognises Murujuga as a unique ecological and archaeological area containing one of the largest collections of Aboriginal engraved rock art in the world. Murujuga is also home to industry that contributes to the local, state and national economy and employment. Concerns the rock art could be damaged by industrial air emissions have led to several independent scientific studies and rock art monitoring initiatives since the mid 2000s.

Murujuga Rock Art Strategy:

The purpose of the Murujuga Rock Art Strategy (MRAS) is to protect the Aboriginal rock art by providing a long-term framework that builds on previous work to deliver an improved approach to monitoring, analysis and management.

The Murujuga Rock Art Strategy will be reviewed at least every five years. This will ensure it remains current, supports appropriate governance arrangements, and that the best scientific knowledge and management practices are used to protect the rock art.

Scope:

The department has primary responsibility for the day-to-day implementation of the strategy in partnership with MAC. This includes working with MAC to oversee the development and implementation of a world's best practice monitoring and analysis program that will determine whether the rock art on Murujuga is subject to accelerated change.

The scope of this strategy is to:

- establish an environmental quality management framework, including the derivation and implementation of environmental quality criteria
- develop and implement a robust program of monitoring and analysis to determine whether change is occurring to the rock art on Murujuga
- identify and commission scientific studies to support the implementation of the monitoring and analysis program and management
- establish governance arrangements to ensure that:
 - monitoring, analysis and reporting are undertaken in such a way as to provide confidence to Traditional Owners, the community, industry scientists and other stakeholders about the integrity, robustness, repeatability and reliability of the monitoring data and results
 - government is provided with accurate and appropriate recommendations regarding the protection of the rock art, consistent with legislative responsibilities
 - develop and implement a communication strategy in consultation with stakeholders.

Monitoring Program [Murujuga Rock Art Monitoring Program – MRAMP]:

A best practice monitoring and analysis program commenced in 2020. It will provide reliable information on changes and trends in the condition of the rock art and whether the rock art is showing signs of accelerated change.

The program includes:

- installation of air quality monitoring stations across Murujuga
- regular field measurements of selected rock art panels using a variety of methods
- detailed laboratory investigation of rock samples, including the microorganisms living on the rock surface.

The results from these studies will guide management and protection of the rock art. Reports produced as part of the monitoring program are regularly published in the Murujuga Rock Art Strategy document collection.

The monitoring program is overseen by the department and MAC, in consultation with national and international subject matter experts, a panel of independent peer reviewers and stakeholders. MAC has developed the Murujuga Research Protocols as a set of governing principles and guidelines to ensure research is conducted in a respectful and culturally appropriate manner.

The monitoring program is being implemented by Calibre Group and experts from Curtin University until early 2026. Curtin University has also developed a training program for MAC Rangers to build their skills and knowledge in monitoring and analysis techniques. Once Rangers are qualified, MAC will be well placed to implement the monitoring from 2026 onwards.

Conceptual models of the rock art system were published in 2021 to share the current understanding of the system and interactions that are likely to be occurring. These models inform the development of the monitoring studies plans and the development of an environmental quality management framework.

The monitoring studies data collection and analysis plan, published in April 2022, is crucial to the design of the Murujuga Rock Art Monitoring Program, and the scope and quality of the science to monitor, evaluate and report on changes and trends in the integrity of the rock art on Murujuga.

The first Monitoring Studies Technical Report was published in December 2023, following an independent peer review process. View the Summary Monitoring Studies Report. View all reports from the Murujuga Rock Art Monitoring Program.

Key milestones and status:

Year	Program key milestone and status
2020-2021	<ul style="list-style-type: none"> • <i>Review of weathering/alteration/degradation processes that have the potential to cause change in the rock art (completed)</i> • <i>Delivery of a stakeholder workshop (completed)</i> • <i>Development of conceptual models and monitoring studies plan (completed)</i> • <i>Determination of optimal monitoring sites (completed)</i> • <i>Peer review of conceptual model and monitoring studies plan (completed)</i>
2022	<ul style="list-style-type: none"> • <i>MAC and the department's approval of the monitoring studies plan (completed)</i> • <i>State Government commitment to funding dedicated MAC Ranger positions and to support training and capacity building for MAC (announced May 2022)</i> • <i>Completion of fieldwork and laboratory monitoring studies (2022 studies completed)</i> • <i>Commencement of Ranger training needs analysis, Ranger training and capacity building (completed)</i>
2023	<ul style="list-style-type: none"> • <i>Continuation of fieldwork and laboratory monitoring studies (2023 fieldwork completed)</i> • <i>Procurement and installation of air quality monitoring stations (completed)</i> • <i>Continuation of Ranger training and capacity building (completed)</i> • <i>Development of report on monitoring studies March 2022–March 2023 (peer reviewed) (completed)</i> • <i>Delivery of a stakeholder workshop (completed)</i>
2024	<ul style="list-style-type: none"> • <i>Continue fieldwork and laboratory monitoring studies</i> • <i>Report on monitoring studies April 2023–April 2024 (peer reviewed)</i> • <i>Design ongoing monitoring program</i> • <i>Develop interim Environmental Quality Criteria (EQC) based on field and laboratory (chamber) studies</i> • <i>Implement the ongoing monitoring program</i> • <i>Commence reporting against interim EQC</i> • <i>Continue Ranger training and capacity building (Curtin University micro credentials)</i> • <i>Develop Environmental Monitoring Programme Regulations under the Environmental Protection Act 1986</i> • <i>Independent review of the Murujuga Rock Art Strategy</i>
2025	<ul style="list-style-type: none"> • <i>Report on monitoring studies April 2024–April 2025 (peer reviewed)</i> • <i>Design final monitoring program</i> • <i>Develop final EQC</i> • <i>Report on monitoring program 2024–2025</i>

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	<ul style="list-style-type: none"> • Commence progressive handover monitoring and reporting program to Murujuga Aboriginal Corporation (with support from the department) • Independent review of the monitoring program
2026 (and beyond)	<ul style="list-style-type: none"> • Ongoing monitoring program managed by the Murujuga Aboriginal Corporation and the Department of Water and Environmental Regulation • Ongoing monitoring and reporting against final EQC

Stakeholder Reference Group:

The Murujuga Rock Art Stakeholder Reference Group is an advisory group that was established by the previous Minister for Environment, Hon. Stephen Dawson MLC, in September 2018. The group facilitates engagement between the Murujuga Aboriginal Corporation (MAC) and key government, industry and community representatives on the development and implementation of the strategy. Professor Stephen van Leeuwen is the independent chair of the stakeholder reference group, which meets on a quarterly basis. Visit the document collection to read [summaries of meetings and community forums](#). The [Terms of Reference](#) are reviewed regularly in consultation with MAC and the Independent Chair to ensure the group remains effective in achieving its purpose.

APPENDIX L: WOODSIDE MASTER EXISTING ENVIRONMENT

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Page 752 of 752

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Description of the Existing Environment

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TABLE OF CONTENTS

1.	INTRODUCTION	12
1.1	Purpose	12
1.2	Scope	12
1.3	Review and Revision	13
1.4	Regional Context	13
2.	PHYSICAL ENVIRONMENT	16
2.1	Regional Context	16
2.2	Marine Systems of the North-west Marine Region	16
2.3	Meteorology and Oceanography	19
2.3.1	Browse.....	27
2.3.2	North West Shelf / Scarborough.....	27
2.3.3	North-west Cape.....	28
2.4	Physical Environment of NWMR	28
2.5	Air quality.....	29
3.	MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (EPBC ACT)...	33
3.1	Summary of Matters of National Environmental Significance (MNES).....	33
3.2	Part 13 Statutory Instruments for EPBC Act Listed Threatened and Migratory Species in the NWMR, SWMR and NMR	37
4.	HABITAT AND BIOLOGICAL COMMUNITIES	41
4.1	Regional context	41
4.2	Biological Productivity of NWMR.....	41
4.3	Planktonic Communities in the NWMR.....	42
4.3.1	Browse.....	42
4.3.2	North-west Shelf / Scarborough	43
4.3.3	North-west Cape.....	43
4.4	Habitats and Biological Communities in the NWMR	44
4.4.1	Offshore Habitats and Biological communities	44
4.4.2	Browse.....	44
4.4.3	North-west Shelf / Scarborough	47
4.4.4	North-west Cape.....	48
4.4.5	Shoreline, coastal habitats and biological communities.....	49
5.	FISHES, SHARKS AND RAYS	58
5.1	Regional Context	58
5.2	Protected Sharks, Sawfishes and Rays in the NWMR	61
5.2.1	Sharks and Sawfishes	61
5.2.2	Rays	64
5.3	Fish, Shark and Sawfish Biological Important Areas in the NWMR	64
5.4	Fish Assemblages of the NWMR	69
5.4.1	Regional Context for Fish Assemblages of NWMR	69
5.4.2	Listed Fish Species in the NWMR.....	69
5.4.3	Browse.....	70

5.4.4	NWS / Scarborough	70
5.4.5	North-west Cape	70
6.	MARINE REPTILES	72
6.1	Regional Context for Marine Reptiles	72
6.2	Marine Turtles in the NWMR, SWMR and NMR Bioregions	74
6.2.1	Life Cycle Stages	74
6.2.2	Habitat Critical to Survival for Marine Turtles in the NWMR	75
6.3	Marine Turtle Biological Important Areas in the NWMR	80
6.4	Marine Turtle Summary for NWMR	90
6.4.1	Browse	90
6.4.2	North-west Shelf / Scarborough	92
6.4.3	North-west Cape	94
6.5	Sea Snakes	95
6.6	Crocodiles	96
6.7	Water Monitor	97
7.	MARINE MAMMALS	98
7.1	Regional Context	98
7.2	Cetaceans in the NWMR	101
7.3	Dugongs in the NWMR	101
7.4	Pinnipeds in the NWMR	101
7.5	Marine Mammals in the NWMR	101
7.6	Habitat Critical to the Survival for Marine Mammals in the NWMR	110
7.7	Biological Important Areas in the NWMR	112
7.8	Marine Mammal Summary for the NWMR	125
7.8.1	Browse	125
7.8.2	North-west Shelf / Scarborough	125
7.8.3	North-west Cape	125
8.	SEABIRDS AND MIGRATORY SHOREBIRDS OF THE NWMR	126
8.1	Regional Context	126
8.2	Seabirds in the NWMR	133
8.2.1	Moderate occurrence seabird species	142
8.2.2	Biologically Important Areas for seabirds in the NWMR	143
8.2.3	Seabird Summary for NWMR	151
8.2.3.1	Browse	151
8.2.3.2	NWS / Scarborough	151
8.2.3.3	North-west Cape	151
8.3	Shorebirds	151
8.4	Other marine birds	168
9.	THREATENED AND MIGRATORY SPECIES SEASONAL PRESENCE	169
10.	KEY ECOLOGICAL FEATURES	175
11.	PROTECTED AREAS	189
11.1	Regional Context	189
11.2	World Heritage Properties	189

11.3	National and Commonwealth Heritage Places— Natural.....	189
11.4	Wetlands of International Importance (listed under the Ramsar Convention)	189
11.5	Australian Marine Parks.....	190
11.5.1	North West Marine Parks Network.....	191
11.5.2	Indian Ocean Territory	202
11.5.3	South-west Marine Parks Network.....	205
11.5.4	North Marine Park Network.....	218
11.6	Threatened Ecological Communities.....	225
11.7	Australian Whale Sanctuary.....	226
11.8	State Marine Parks and Reserves.....	226
11.9	Summary of Protected Areas within the NWMR	227
11.10	Summary of Protected Areas within the SWMR	243
11.11	Summary of Protected Areas within the NMR	250
12.	SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT	254
12.1	Cultural Values and Heritage	254
12.1.1	Native Title.....	254
12.1.2	Coastal First Nations Groups	255
12.1.3	Sea Country.....	259
12.1.4	Marine Parks.....	260
12.1.5	Indigenous Protected Areas.....	260
12.1.6	First Nations Cultural Heritage	265
12.1.6.1	Submerged Cultural Heritage	266
12.1.6.2	First Nations Sites of Significance	269
12.1.7	Historic Sites of Significance.....	269
12.1.8	Historic Underwater Heritage	269
12.1.9	World, National and Commonwealth Listed Heritage Places.....	270
12.2	Socio-Economic Values	277
12.2.1	Commercial Fisheries Commonwealth and State.....	277
12.2.1.1	Fish Habitat Protection Areas	307
12.2.2	Aquaculture	310
12.3	Fisheries – Traditional.....	311
12.4	Tourism and Recreation.....	312
12.4.1	Gascoyne Region	312
12.4.2	Pilbara region.....	313
12.4.3	Kimberley Region	313
12.5	Shipping.....	313
12.6	Petroleum Basins.....	314
12.7	Defence	314
13.	REFERENCES	316
	APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR	359
	APPENDIX B. Supporting Figures for Section 2.3 Meteorology and Oceanography	360

TABLE OF FIGURES

Figure 1-1. Marine Bioregions: North-west (NWMR), South-west (SWMR), North (NMR) and South-East (as defined under the EPBC Act, refer to (DCCEEW, 2021b)).....	15
Figure 2-1. The marine systems of the North-west Marine Region (NWMR) (data source: DEWHA 2007a)	17
Figure 2-2. Average daily maximum air temperature for land surface adjacent to NWMR: (a) summer (northern wet season) and (b) winter (northern dry season)	22
Figure 2-3. Average monthly surface wind direction and velocity for NWMR: (a) summer (February, northern wet season) and (b) winter (July, northern dry season)	23
Figure 2-4. Tropical cyclone annual occurrence and cyclone tracks for NWMR	24
Figure 2-5. Ocean surface temperature for NWMR: (a) summer (February, northern wet season) and (b) winter (July, northern dry season) (data source: Locarnini et al. 2018 in World Ocean Atlas 2018)	25
Figure 2-6. Ocean surface and sub-surface currents of the NWMR and wider region (data source: adopted from Wijeratne et al. 2018)	26
Figure 2-7. The eight Integrated Marine and Coastal Regionalisation of Australia (IMCRA) v4.0 provincial bioregions of the NWMR (GA, 2024)	30
Figure 2-8. Bathymetry of the NWMR (data source: Geoscience Australia)	31
Figure 2-9. Overview of the seabed sediments of the NWMR (data source: Baker et al., 2008)	32
Figure 4-1. The position of Scott Reef, Ashmore and the Rowley Shoals off North-western Australia and location of permanent long-term monitoring sites (source: Gilmour et al., 2023)	45
Figure 4-2. Habitat maps of Rankin Bank and Glomar Shoal (source: AIMS, 2014)	50
Figure 5-1 Whale shark BIAs for the NWMR and tagged whale shark satellite tracks (data source for BIAs: DCCEEW, 2024b)	67
Figure 6-1 Generalised life cycle of marine turtles (Commonwealth of Australia, 2017)	75
Figure 6-2 Marine turtle species habitat critical to survival (nesting beaches and internesting buffers) for the NWMR (data source: DCCEEW, 2024b)	79
Figure 6-3 Green turtle BIAs within the NWMR (data source: DCCEEW, 2024b)	86
Figure 6-4 Flatback turtle BIAs within the NWMR (data source: DCCEEW, 2024b)	88
Figure 6-5 Loggerhead turtle BIAs within the NWMR (data source: DCCEEW, 2024b)	89
Figure 7-1 Habitat critical to the survival for the southern right whale in the NWMR (DCCEEW, 2024a)	111
Figure 7-2 Humpback whale BIAs for the NWMR (data source: DCCEEW, 2024b)	116
Figure 7-3 Humpback whale tagged tracks for north and south bound migrations (AMMC as published in Double et al. 2010 and 2012)	117
Figure 7-4 Pygmy blue whale BIAs for the NWMR and tagged whale tracks for northbound migration (data source for BIAs: DCCEEW, 2024b)	118
Figure 7-5 Southern right whale BIAs for the NWMR. Migration and reproduction BIAs along the coast extend to 3 nm (data source: DCCEEW, 2024b)	119
Figure 7-6 Australian snubfin dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)	120
Figure 7-7 Indo-Pacific humpback dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)	121
Figure 7-8 Dugong BIAs for the NWMR (data source: DCCEEW, 2024b)	123
Figure 7-9 Australian sea lion BIAs in the northern extent of the SWMR closest to the NWMR (data source: DCCEEW, 2024b)	124
Figure 8-1 Wedge-tailed shearwater BIAs for the NWMR (data source: DCCEEW, 2024b)	146
Figure 8-2 Tern species BIAs for the NWMR (data source: DCCEEW, 2024b)	147
Figure 8-3 Red-footed and brown booby BIAs for the NWMR (data source: DCCEEW, 2024b) ..	148
Figure 8-4 Greater and lesser frigatebird BIAs for the NWMR (data source: DCCEEW, 2024b) ..	149
Figure 8-5 White-tailed tropicbird BIAs for the NWMR (data source: DCCEEW, 2024b)	150
Figure 10-1 Key Ecological Features (KEFs) within the NWMR (data source: DCCEEW, 2024d) ..	181
Figure 10-10-2. Key Ecological Features (KEFs) within the SWMR (data source: DCCEEW, 2024d)	185
Figure -10-3. Key Ecological Features (KEFs) within the NMR (data source: DCCEEW, 2024d) ..	188

Figure 11-1 Commonwealth and State Marine Protected Areas for the NWMR and Indian Ocean Territories (data source: GA, 2024) 242

Figure 11-2 Commonwealth and State Marine Protected Areas for the SWMR (data source: GA, 2024) 249

Figure 11-3 Commonwealth and State Marine Protected Areas within the NMR (data source: GA, 2024) 253

Figure 12-1 Coastal Native Title Claims/ Determinations and ILUAs in the NWMR (data source: DPLH 2024) 256

Figure 12-2 Coastal Native Title Claims/ Determinations and ILUAs in the NMR (data source: DPLH 2024) 257

Figure 12-3 Coastal Native Title Claims/ Determinations and ILUAs in the SWMR (data source: DPLH 2024) 258

Figure 12-12-4 Indigenous Protected Areas (IPAs) in Australia (data source: DCCEEW & NIAA, 2024) 264

Figure 12-5 Indicative Bathymetry of the Ancient Submerged Landscape (data source: GA 2024, DCCEEW, 2024d) 268

Figure 12-6 Shipwrecks in the NWMR (data source: WAM, 2018 and AODN, 2008) 274

Figure 12-7 Shipwrecks in the NMR (data source: WAM, 2018 and AODN, 2008) 275

Figure 12-8 Shipwrecks in the SWMR (data source: WAM, 2018 and AODN, 2008) 276

Figure 12-9: MOU 74 Box. Operations of Indonesian Traditional Fishermen in Areas of the Australian Fishing Zone and Continental Shelf – 1974 312

TABLE OF TABLES

Table 1-1. Description of the Marine Bioregions 14

Table 2-1 Key physical characteristics of the NWMR, SWMR and NMR 16

Table 2-2. Key characteristics of the Marine Systems of the NWMR 18

Table 2-3 NWMR climate and oceanography summary 20

Table 2-4 Summary meteorology and oceanography for Browse (refer to Appendix B for supporting metocean figures and data sources) 27

Table 2-5 Summary meteorology and oceanography for the North West Shelf and Scarborough (refer to Appendix B for supporting metocean figures and data sources) 27

Table 2-6 Summary meteorology and oceanography for the North-west Cape (refer to Appendix B for supporting metocean figures) 28

Table 3-1 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) within and potentially occurring within the NWMR 34

Table 3-2 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) within and potentially occurring within the SWMR 34

Table 3-3 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) within and potentially occurring within the NMR 36

Table 3-4 Summary of EPBC Act threatened and migratory species to be considered for impact or risk evaluation for Woodside operations 38

Table 4-1 Habitats and biological communities within the NWMR 51

Table 4-2 Habitats within the SWMR 54

Table 4-3 Habitats and Biological Communities within the NMR 56

Table 5-1 Fish species (including sharks and rays) identified by the EPBC Act PMST that may occur within the NWMR 59

Table 5-2 EPBC Act listed Conservation Dependent species of fishes and sharks that may occur in the NWMR, NMR and SWMR 60

Table 5-3 Information on the EPBC-listed threatened shark, fish and sawfish species that may or are known to occur within the NWMR. 61

Table 5-4 Information on migratory ray species within the NWMR 64

Table 5-5 Fish, whale shark and sawfish BIAs within the NWMR (source: AMSIS, accessed 14/08/2024) 65

Table 6-1 Marine reptile species identified by the EPBC Act PMST that may occur within or utilise habitats in the NWMR for key life cycle stages.....	73
Table 6-2 Genetic stock, habitat critical to survival and key life cycle stage seasonality of the four species of marine turtles within the NWMR	76
Table 6-3 Marine turtle BIAs within the NWMR	81
Table 6-4 Marine turtle key information for Browse activity area.	91
Table 6-5 Marine turtle key information for NWS / Scarborough activity area.....	93
Table 6-6 Marine turtle key information for North-west Cape activity area.....	95
Table 6-7 Information on the two threatened sea snake species within the NWMR.....	96
Table 7-1 Marine mammal species identified by the EPBC Act PMST that may occur within the NWMR.	99
Table 7-2 Information on the threatened/migratory marine mammal species within the NWMR ..	102
Table 7-3 Marine mammal BIAs within the NWMR.....	113
Table 8-1. High and moderate occurrence seabird and migratory shorebird species (threatened/migratory/marine) identified by the EPBC Act PMST and NWMR Seabird and Shorebird Existing Knowledge and Threats report as potentially occurring within the NWMR	127
Table 8-2 Species summary for moderate occurrence pelagic and nearshore seabird species within the NWMR.	142
Table 8-3 Seabird BIAs within the NWMR (source: AMSIS, 2024 [accessed on 12/08/24]	144
Table 8-4 Species summary for high and selected moderate occurrence key shorebird species.	153
Table 8-5 Species summary for moderate occurrence key shorebird species	165
Table 8-6 Species summary for high occurrence key other marine bird species	168
Table 9-1 Seasonal sensitivity of key threatened and migratory species in the NWMR	169
Table 10-1 Key Ecological Features (KEF) within the NWMR.	176
Table 10-2 Key Ecological Features (KEF) within the SWMR	182
Table 10-3 Key Ecological Features (KEF) within the NMR	186
Table 11-1 Summary of Commonwealth Australian Marine Parks (AMPs) in the North West Marine Park Network	191
Table 11-4 Summary of Commonwealth marine parks within Indian Ocean territories	203
Table 11-2 Summary of Commonwealth Australia Marine Parks (AMP)s for the South West Marine Park Network	205
Table 11-3 Summary of Commonwealth Australian Marine Parks (AMP)s for the North Marine Park Network	218
Table 11-5 Summary of Threatened Ecological Communities within the NWMR, NMR and SWMR.	225
Table 11-6 Protected Areas within the NWMR	227
Table 11-7 Protected Areas within the SWMR	243
Table 11-8 Protected Areas within the NMR	250
Table 12-1 Commonly identified Sea Country species and habitats.	259
Table 12-2 Intangible Heritage Values associated with Sea Country.....	265
Table 12-3 Heritage Places (Indigenous and Historic) within the NWMR	271
Table 12-4 Heritage Places (Indigenous and Historic) within the NMR.....	271
Table 12-5 Heritage Places (Indigenous and Historic) within the SWMR	272
Table 12-6 Commonwealth and State managed fisheries	278

1. INTRODUCTION

1.1 Purpose

This document applies, where indicated in the relevant Environment Plan (EP), to Woodside Energy Ltd. (Woodside) activities and operations.

1.2 Scope

This document describes the existing environment within the Woodside areas of activity located in Commonwealth waters off north-western Western Australia (WA), with a focus on the North-west Marine Region (NWMR) (

Figure 1-1). This document includes details of the particular and relevant values and sensitivities of the environment as required by the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth) (OPGGS (E) Regulations) to inform the impact and risk evaluation of Woodside's activities within the NWMR. Furthermore, the key values of the South-west Marine Region (SWMR) and the North Marine Region (NMR) are summarised to encompass areas outside the NWMR. This is with reference to the environment that may be affected (EMBA), as defined and described in individual EPs, for unplanned hydrocarbon spill risks. Additional information appropriate to the nature and scale of the impacts and risks of activities that may interact with the environment will be used to further inform impact and risk assessments and be included in the Description of the Existing Environment of individual EPs.

This document is informed by a variety of resources that includes: a search of the Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) for the marine bioregions (NWMR, SWMR and NMR) and the three PMST reports provided in **APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR**; State (WA)/ Commonwealth Marine Park Management Plans, the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) Species Profile and Threats Database (SPRAT), EPBC Act Part 13 statutory instruments (recovery plans, conservation advices and wildlife conservation plans for listed threatened and migratory species); and peer reviewed scientific publications, as well as Woodside and Joint Venture (JV) funded studies and other titleholder funded study findings available in the public domain.

1.3 Review and Revision

The information presented in this document is reviewed and updated on at least a 5-year basis. Key updates are captured in a 'change register'. Material risk may trigger updates within the 5-year review period, as per the OPGGS (E) Regulations. Key updates may include but are not limited to the status of EPBC Act listed species, Part 13 Instruments, policies and guidelines, key advice from external stakeholders and recently published scientific literature.

1.4 Regional Context

Where relevant, the physical, biological and social environments within the areas of interest are discussed with reference to the three marine bioregions of Australia—North-west marine region (NWMR), South-west marine region (SWMR) and North marine region (NMR), the Marine Bioregional Plans has been prepared under section 176 of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)¹ (**Table 1-1**). The NWMR is the focal marine bioregion for the Woodside Description of the Existing Environment as this is currently the location of most of Woodside's activities.

¹ <https://www.dcceew.gov.au/environment/marine/marine-bioregional-plans> (accessed:04/08/2024)

Table 1-1. Description of the Marine Bioregions

Marine Bioregion	Description
North-west (DSEWPAC, 2012a)	The NWMR includes all Commonwealth waters (from 3 nautical mile (nm) from the Territorial Sea Baseline (TSB) to the 200 nm Exclusive Economic Zone (EEZ) boundary) extending from the WA/Northern Territory border to Kalbarri, south of Shark Bay in WA, covering an area of approximately 1.07 million km ² and includes extensive areas of shallower waters on the continental shelf, as well as deep areas of abyssal plain where water depths are 5000 m or greater.
South-west (DSEWPAC, 2012b)	The SWMR comprises Commonwealth waters from the eastern end of Kangaroo Island in South Australia to Shark Bay in WA. The region spans approximately 1.3 million km ² of temperate and subtropical waters and abuts the coastal waters of SA and WA.
North (DSEWPAC, 2012c)	The NMR comprises Commonwealth waters from West Cape York Peninsula to the NT/WA border). The region covers approximately 625,689 km ² of tropical waters in the Gulf of Carpentaria and Arafura and Timor seas, and abuts the coastal waters of Queensland and the NT.

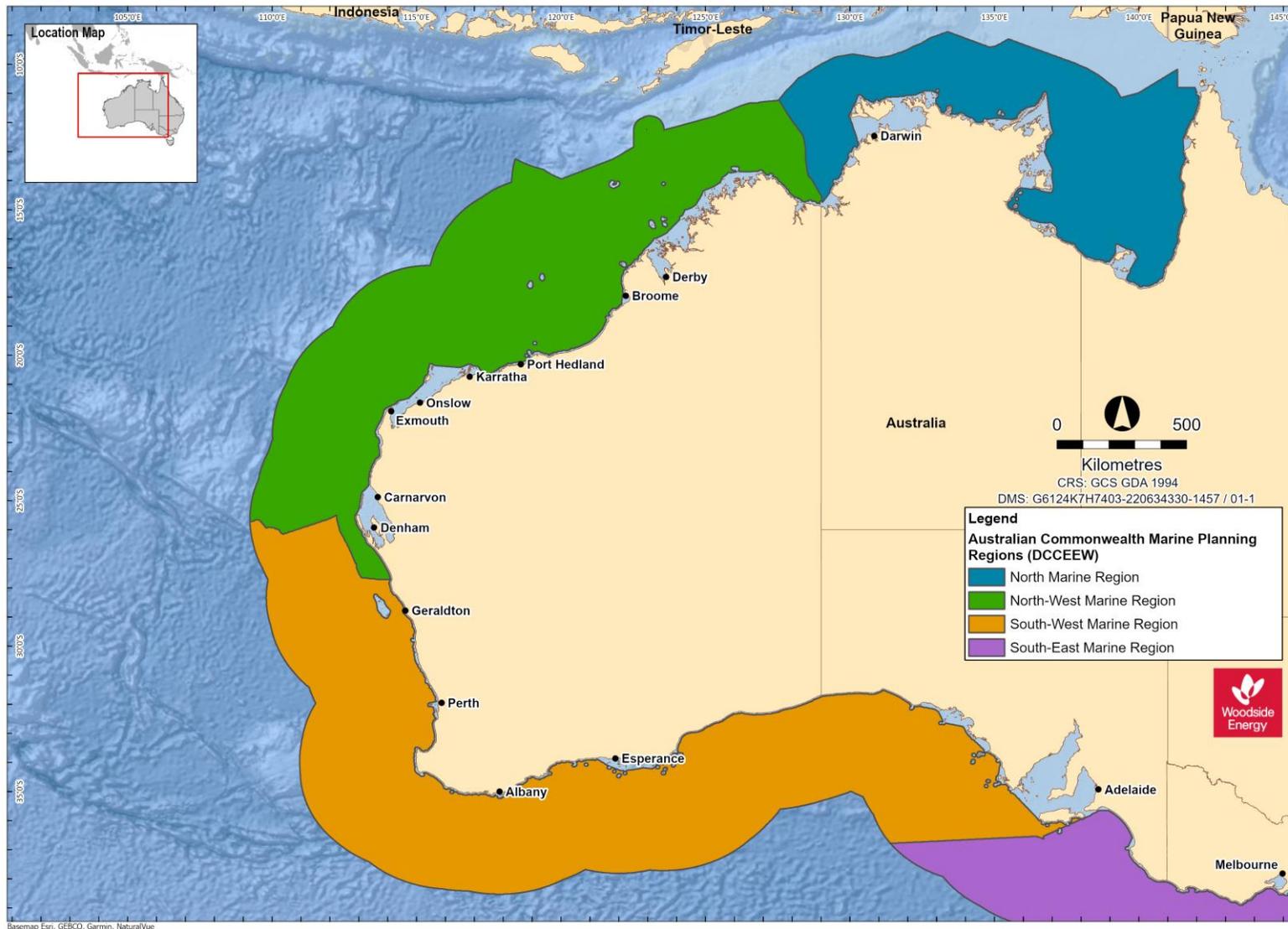


Figure 1-1. Marine Bioregions: North-west (NWMR), South-west (SWMR), North (NMR) and South-East (as defined under the EPBC Act, refer to (DCCEE, 2021b)).

2. PHYSICAL ENVIRONMENT

2.1 Regional Context

The key physical characteristics of the NWMR, SWMR and NMR are presented in **Table 2-1**. The remainder of this section then focuses entirely on the NWMR.

Table 2-1 Key physical characteristics of the NWMR, SWMR and NMR

Bioregion	Key Characteristics
North-west Marine Region	The NWMR experiences a tropical monsoonal climate towards the northern extent of the region, transitioning to tropical arid and subtropical arid within the central and southern areas of the region (DSEWPAC, 2012a).
	The NWMR is part of the Indo-Australian Basin, the ocean region between the north-west coast of Australia and the Indonesian islands of Java and Sumatra. Dominant currents in the Region include: the South Equatorial Current, the Indonesian Throughflow; the Eastern Gyral Current, and the Leeuwin Current (DEWHA, 2007a).
	The seafloor of the NWMR consists of four general feature types: continental shelf; continental slope; continental rise; and abyssal plain and is distinguished by a range of topographic features including canyons, plateaus, terraces, ridges, reefs, and banks and shoals.
South-west Marine Region	The SWMR contains both subtropical and temperate climates, with overall light climatic cycles.
	The SWMR experiences complex and unusual oceanographic patterns, driven largely by the Leeuwin Current and its associated currents that have a significant influence on biodiversity distribution and abundance.
	The major seafloor features of the SWMR include a narrow continental shelf on the West coast to the waters off South-west WA, and a wide continental shelf dominated by sandy carbonate sediments of marine origin in the Great Australian Bight. The region also contains a steep, muddy continental slope, many canyons and large tracts of abyssal plains (DSEWPAC, 2012b).
North Marine Region	The NMR experiences a tropical monsoonal climate with complex weather cycles, including high temperatures and heavy seasonal yet variable rainfall and cyclones, which can be both destructive (loss of seagrass and mangroves) and constructive (mobilisation of sediment into coastal habitats).
	The NMR comprises Commonwealth waters from West Cape York Peninsula to the NT-WA border, covering tropical waters in the Gulf of Carpentaria and Arafura and Timor seas. Currents in the NMR are driven largely by strong winds and tides, with only minor influences from oceanographic currents such as the Indonesian Throughflow and the South Equatorial Current (DSEWPAC, 2012c).
	The seafloor of the NMR consists mainly of a wide continental shelf, as well as other geomorphological features such as shoals, banks, terraces, valleys, shallow canyons and limestone pinnacles.

2.2 Marine Systems of the North-west Marine Region.

The NWMR is divided into three large scale ecological marine systems on the basis of the influence of major ocean currents, seafloor features and eco-physical processes (e.g. climate, tides, freshwater inflow) upon the Region (DSEWPAC, 2012a). The three large scale marine systems approximate the Woodside activity areas within the NWMR (**Figure 2-1**). The key characteristics of each marine system are outlined in **Table 2-2**.

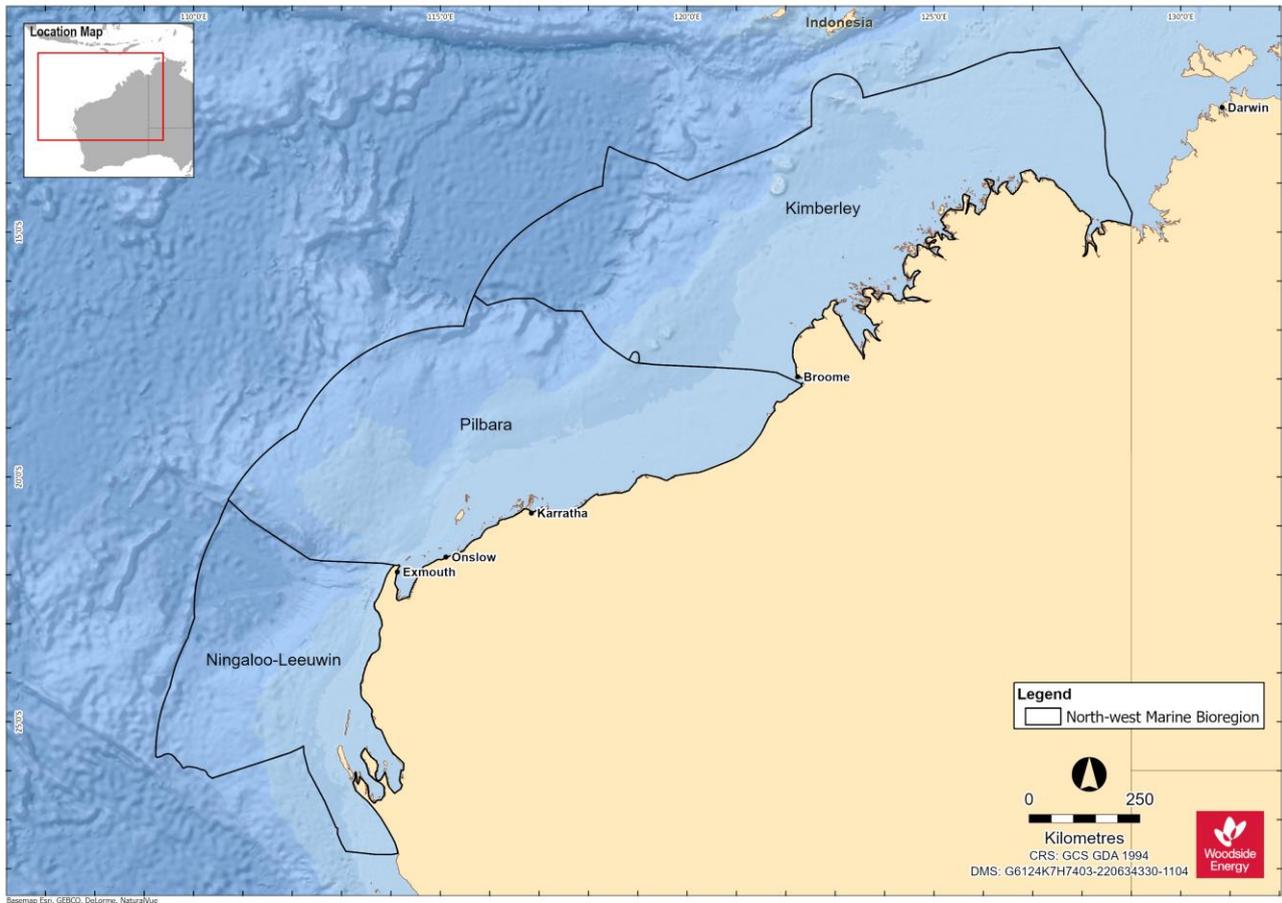


Figure 2-1. The marine systems of the North-west Marine Region (NWMR) (data source: DEWHA 2007a)

Table 2-2. Key characteristics of the Marine Systems of the NWMR

Note: Woodside areas align with the marine systems as described in DEWHA (2007a)

Marine System	Woodside Activity Area	Key Characteristics
Kimberley	Browse	<p>Tropical monsoonal climate</p> <p>Strong influence from Indonesian Throughflow</p> <p>Predominantly tropical Indo-Pacific species</p> <p>Subject to episodic offshore cyclonic activity, rarely crossing the coast</p> <p>Large tidal regimes</p> <p>Freshwater input from terrestrial monsoonal run-off</p> <p>Turbid coastal waters (i.e. light limited systems)</p> <p>Dominated by shelf environments</p> <p>Predominantly hard substrates in inner to mid-shelf environments</p> <p>Includes a number of shelf-edge atolls (i.e. Scott Reef, Rowley Shoals)</p>
Pilbara	North-west Shelf (NWS) / Scarborough	<p>Tropical arid climate</p> <p>Transition between Indonesian Throughflow and Leeuwin Current dominated areas</p> <p>Predominantly tropical species</p> <p>High cyclone activity with frequent crossing of the coast</p> <p>Transitional tidal zone</p> <p>Internal tide activity</p> <p>Large areas of shelf and slope</p> <p>Dry coast with ephemeral freshwater inputs</p>
Ningaloo-Leeuwin	North-west Cape	<p>Subtropical arid climate</p> <p>Leeuwin Current consolidates</p> <p>Transitional tropical/temperate faunal area</p> <p>Higher water clarity in near-shore and offshore environments</p> <p>Narrow shelf and slope</p> <p>Marginal tidal range</p> <p>Seasonal wind forcing more dominant influence on marine environment</p>

2.3 Meteorology and Oceanography

This section describes the general meteorological conditions and oceanography for the NWMR and provides further detail for the three Woodside activity areas (**Table 2-3**). The NWMR is influenced by a complex system of ocean currents that change between seasons and between years, which generally result in its surface waters being warm and nutrient-poor, and of low salinity (DEWHA, 2007a). The mix of bathymetric features, complex topography and oceanography across the whole North-west marine environment has created and supports a globally important marine biodiversity hotspot (Wilson, 2013). The purpose of **Table 2-3** is to provide high-level physical characteristics of the marine environment within and across the NWMR. This subsection does not describe warming trends or discuss forecast trajectories for the NWMR.

Table 2-3 NWMR climate and oceanography summary

Receptor	Description
Meteorology	
Seasonal patterns	The NWMR associated land mass of the Australian continent is characterised as a hot and humid summer climate zone. The broader NWMR experiences variations of a tropical or monsoon climate. In the far North-west (Kimberley), there is a hot summer season from December to March and a milder winter season between April and November. The Pilbara area is described as having a tropical arid climate with high cyclone activity (DEWHA, 2007a). The Pilbara and North-west Cape has a hot summer season from October to April and a milder winter season between May and September with transition periods between the summer and winter regimes.
Air temperature and rainfall	In summer (between September and March), maximum daily temperatures range from 18°C to 36°C. During winter (May to July), mean daily temperatures range from 12°C to 30°C (BOM, 2023c), refer to Figure 2-2a and b . Rainfall in the region typically occurs during the summer, with highest falls observed late in the season. This is often associated with the passage of tropical low-pressure systems and cyclones.
Wind	Wind patterns in North-west WA are dictated by the seasonal movement of atmospheric pressure systems. During summer, high-pressure cells produce prevailing winds from the North-west and South-west, which vary between 10 and 13 ms ⁻¹ . During winter, high-pressure cells over central Australia produce North-easterly to South-easterly winds with average speeds of between 6 and 8 ms ⁻¹ . Refer to Figure 2-3 and b .
Tropical cyclones	The NWS and Pilbara coast (within the NWMR) experiences more cyclonic activity than any other region of the Australian mainland coast (BOM, 2021a). Tropical cyclone activity typically occurs between November and April and is most frequent in the region during December to March (i.e. considered the peak period), with an average of about one cyclone per month (BOM, 2021a). Refer to Figure 2-4 .
Oceanography	
Ocean temperature	Waters in NWMR are tropical year-round, with sea surface temperature in open shelf waters reaching ~26°C in summer and dropping to ~22°C in winter. Nearshore temperatures (as recorded for the NWS area) fluctuate more widely on an annual basis from ~<23°C in winter to ~31°C in summer (Hallenberger et al. 2022), indicative of present-day sea surface temperatures, acquired from the CISRO Oceans and Atmosphere database. Refer to Figure 2-5a and b , for the seasonal variation across and within the NWMR.
Currents	<p>The major surface currents influencing North-west WA flow towards the poles and include the Indonesian Throughflow, the Leeuwin Current, the South Equatorial Current, and the Eastern Gyral Current. The Ningaloo Current, the Holloway Current, the Shark Bay Outflow, and the Capes Current are seasonal surface currents in the region. Below these surface currents are several subsurface currents, the most important of which are the Leeuwin Undercurrent and the West Australian Current. These subsurface currents flow towards the equator in the opposite direction to surface currents (DEWHA, 2007a). Refer to Figure 2-6.</p> <p>The offshore waters of the NWMR are characterised by surface and subsurface boundary currents that flow along the continental shelf/slope and are enhanced through inflows from the ocean basins and are an important conduit for the poleward heat and mass transport along the West coast (Wijeratne et al., 2018).</p> <p>Local physical oceanography is strongly influenced by the large-scale water movements of the Indonesian Throughflow (Liu et al. 2015; Sutton et al. 2019). Typically, a warm and well-mixed oligotrophic surface layer, and a cooler and more nutrient rich deeper water layer (Menezes et al. 2013).</p>
Waves	<p>Sea surface waves within the NWMR generally reflect the direction of the synoptic winds and flow predominately from the South-west in the summer and East in winter (Pearce et al., 2003).</p> <p>The NWS within the NWMR is a known area of internal wave generation. Both internal tides and internal waves are thought to be more prevalent during summer months due to the increased stratification of the water column (DEWHA, 2007a).</p> <p>Along the continental slope of the NWMR, strong internal waves and interaction between semi-diurnal tidal currents and seabed topographic features facilitates upwelling events and localised productivity events (Holloway, 2001).</p>
Tides	<p>Tides on the NWS (NWMR) increase as the water moves from deep towards the shallower coast. The highest offshore tides are experienced at the border of the Browse and Canning basins. The smallest tides are experienced at the Exmouth Plateau, near the coast.</p> <p>Tides of the NWS (NWMR) are predominantly semi-diurnal (two highs and two lows each day), but with increasing importance of the diurnal (once per day) inequality at the southern and northern extremities of the NWS.</p>

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Receptor	Description
	The tide range—represented by the Mean Spring Range (MSR)—increases northwards along the coast from 1.4 m at North-west Cape (Point Murat) to 7.7 m at Broome, before decreasing again (apart from local amplification in King Sound and Collier Bay) to about 5 m off Cape Londonderry. The MSR then increases again through Joseph Bonaparte Gulf and on up 5.5 m at Darwin (RPS, 2016).

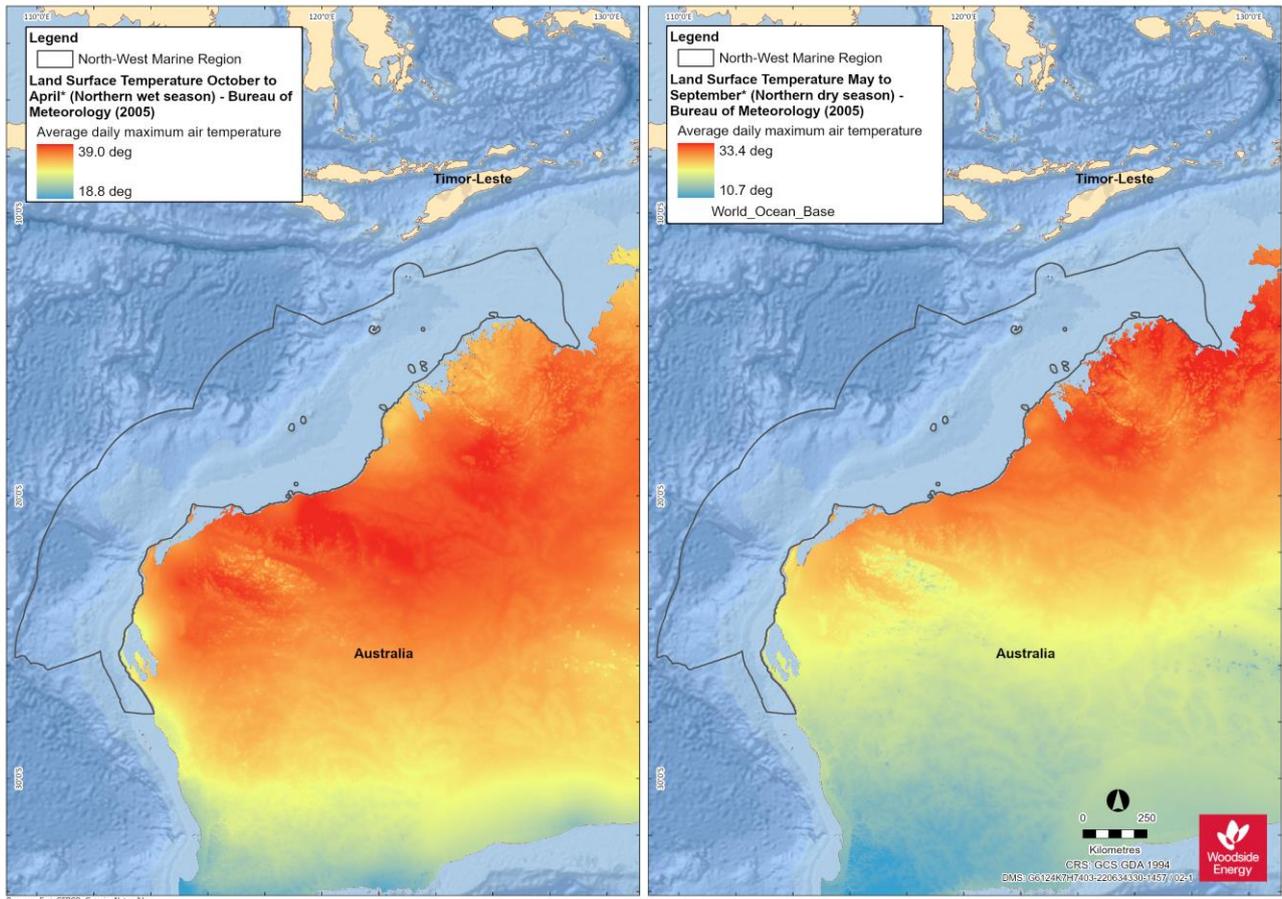


Figure 2-2. Average daily maximum air temperature for land surface adjacent to NWMR: (a) summer (northern wet season) and (b) winter (northern dry season)

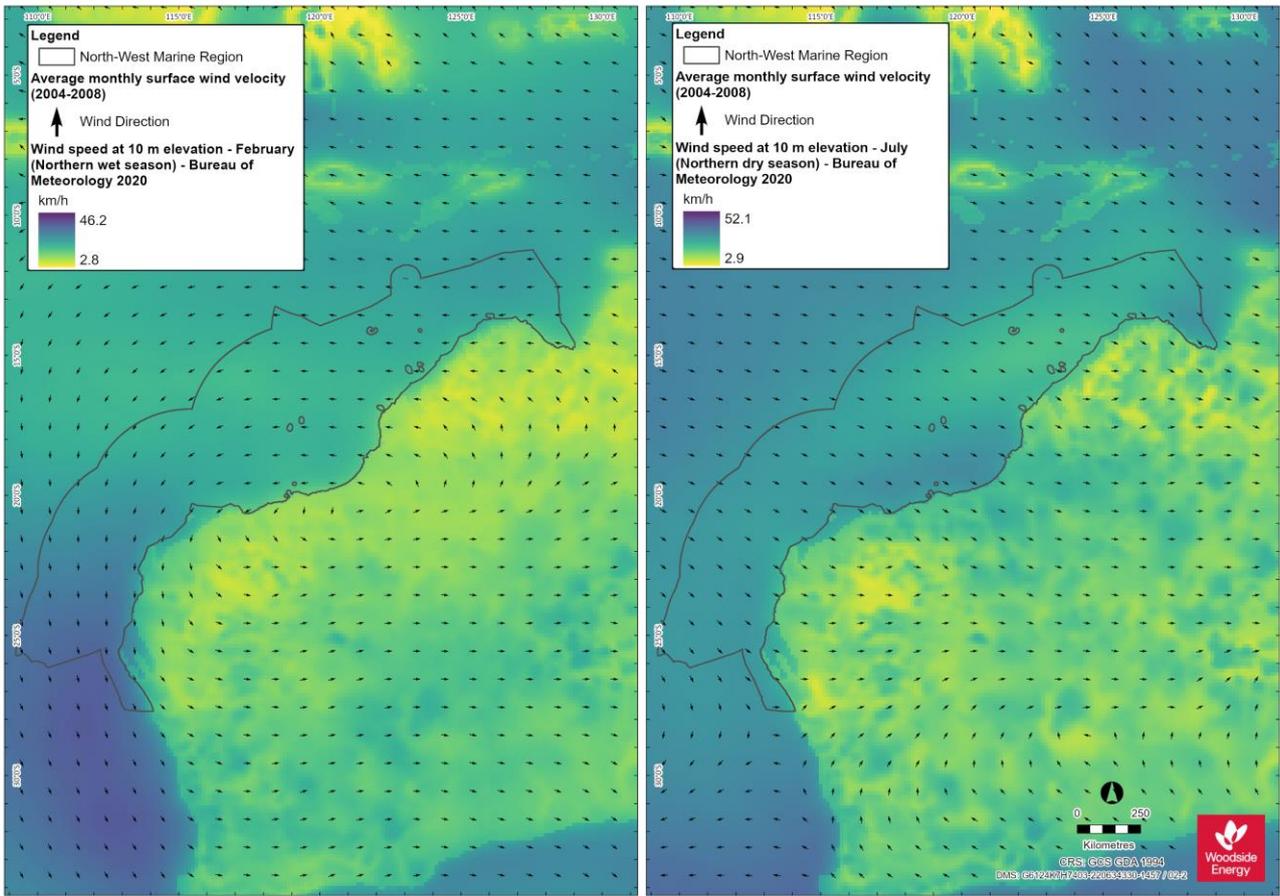


Figure 2-3. Average monthly surface wind direction and velocity for NWMR: (a) summer (February, northern wet season) and (b) winter (July, northern dry season)

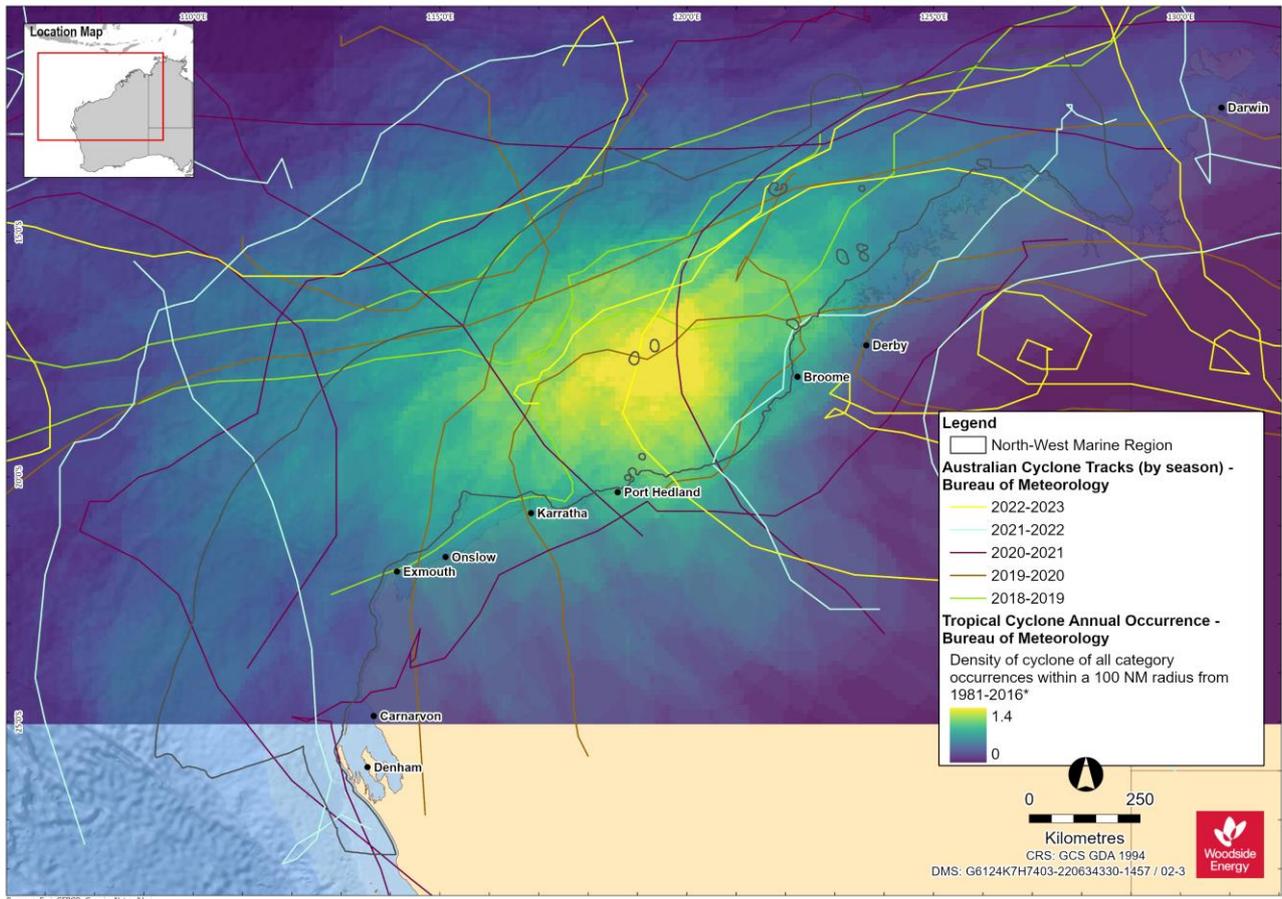


Figure 2-4. Tropical cyclone annual occurrence and cyclone tracks for NWMR

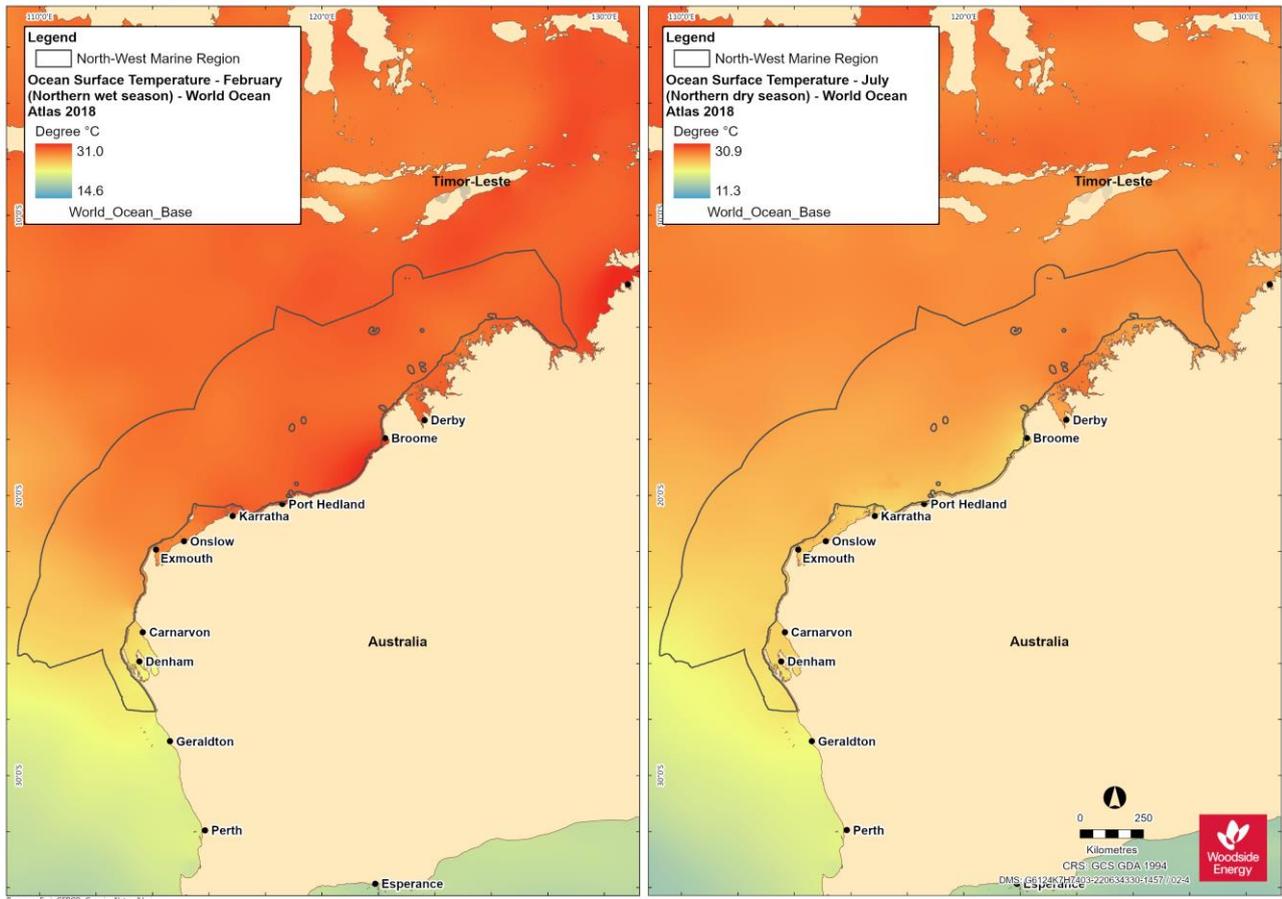


Figure 2-5. Ocean surface temperature for NWMR: (a) summer (February, northern wet season) and (b) winter (July, northern dry season) (data source: Locarnini et al. 2018 in World Ocean Atlas 2018)

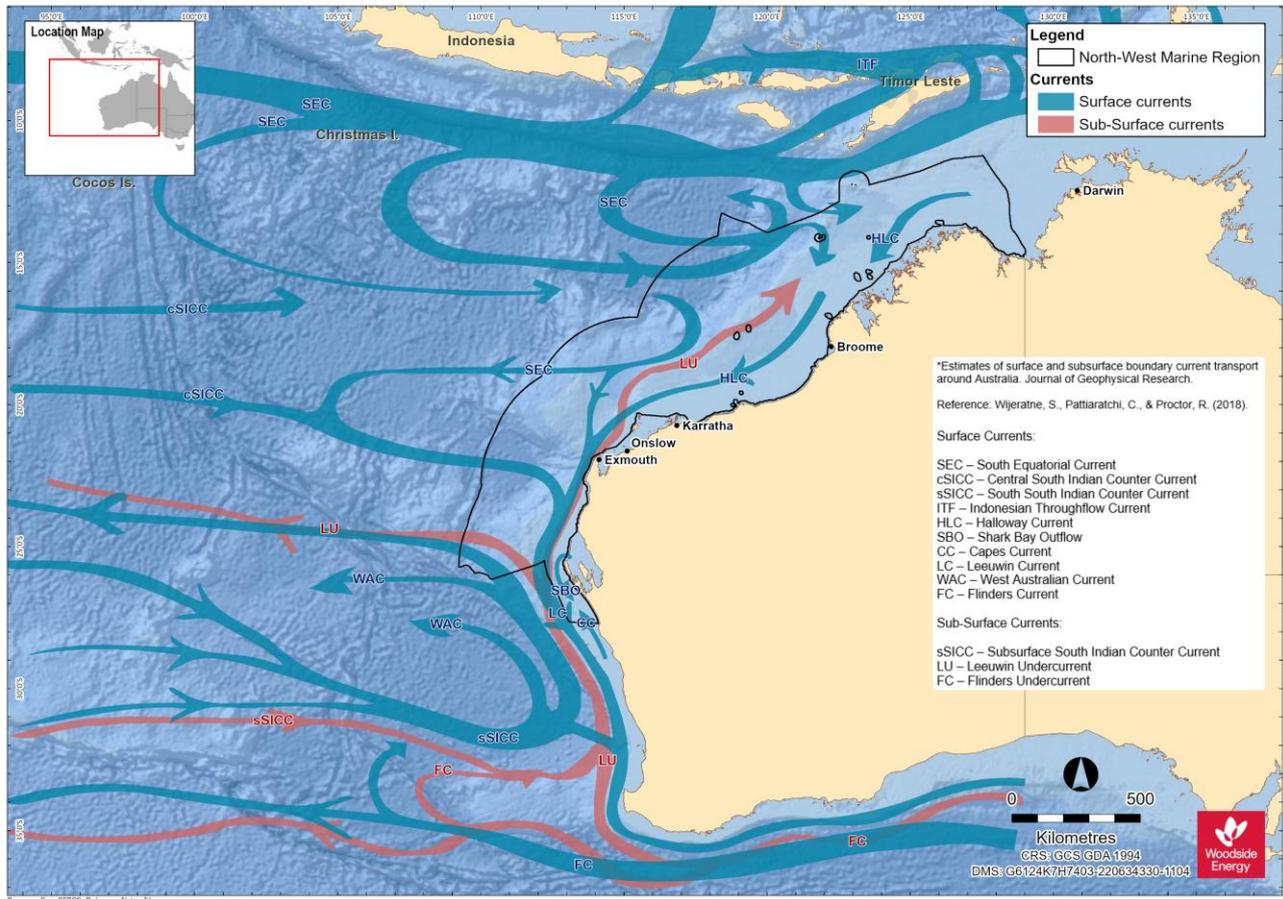


Figure 2-6. Ocean surface and sub-surface currents of the NWMR and wider region (data source: adopted from Wijeratne et al. 2018)

2.3.1 Browse

Table 2-4 Summary meteorology and oceanography for Browse (refer to APPENDIX B. Supporting Figures for Section 2.3 Meteorology and Oceanography for supporting metocean figures and data sources)

Receptor	Description
Meteorology	
Seasonal patterns	The Browse area overlapping the Kimberley marine system experiences tropical monsoon climate with two distinct seasons: the wet season from December to March and dry season from April to November.
Air temperature	The mean annual air temperature recorded at Troughton Island between 2010 and 2020 ranged from 22.5°C in 2019 to 32.8°C in 2016 and highest mean monthly air temperatures were recorded for the months of November and December (BOM, 2023a).
Rainfall	Rainfall recorded from Troughton Island in the Browse basin ranged from barely detectable (<1 mm) mean monthly level to >100 mm in December to March, with the highest rainfall recorded for January (reflecting the wet monsoon season of the Kimberley marine system) (BOM, 2023a).
Wind	The dry season experiences high-pressure systems that bring East to South-easterly winds with average wind speeds during the season of approximately 16.6 km/h and maximum wind gusts of 65 km/h. In contrast the wet season brings predominately westerly winds with average wind speeds approximately 17 km/h and maximum gusts exceeding 100 km/h (generally associated with tropical cyclones (MetOcean Engineers, 2005).
Oceanography	
Currents	Surface currents exhibit seasonal directionality, with flow to the South-west during March to June and more variable outside this period (Woodside, 2019). This is consistent with the stronger Leeuwin Current flow during winter months, with more variable currents driven by local wind stress during periods of weaker Leeuwin Current flow.

2.3.2 North West Shelf / Scarborough

Table 2-5 Summary meteorology and oceanography for the North West Shelf and Scarborough (refer to APPENDIX B. Supporting Figures for Section 2.3 Meteorology and Oceanography for supporting metocean figures and data sources)

Receptor	Description
Meteorology	
Seasonal patterns	The NWS and Scarborough areas experience the monsoonal climate of the wider NWMR with a distinct wet and dry seasonal regime and transitions periods between seasons.
Air temperature	Air temperatures as measured at the North Rankin A platform on the NWS ranged from a maximum average of 39.8°C in summer to a minimum average temperature of 15.2°C in winter (Woodside, 2015).
Rainfall	Rainfall patterns annually reveal the wet season with highest rainfalls during the late summer, often associated with the passage of tropical low-pressure systems and cyclones. Rainfall in the dry season is typically extremely low (Pearce et al. 2003) and Appendix B .
Wind	Winds are typically from the southwest during the wet season (summer) and tending from the South-east during the dry season (winter). The summer South-westerly winds are driven by high pressure cells that pass from West to East over the Australian continent. During the winter period, the relative position of the high-pressure cells shifts further North, leading to prevailing South-easterly winds from the mainland (Pearce et al. 2003) and Appendix B .
Oceanography	
Currents	The large-scale ocean currents of the NWMR, primarily the Indonesian Throughflow and Leeuwin Current (and Holloway Current), are the primary influence on the NWS and Scarborough areas. The Indonesian Throughflow and Leeuwin Current are strongest during the late summer and winter and flow reversals to the North-east, typically short-lived and weak when there are strong South-westerly winds, can generate localised upwelling on the shelf edge (Holloway and Nye, 1985; James et al. 2004 and Condie et al. 2006).

2.3.3 North-west Cape

Table 2-6 Summary meteorology and oceanography for the North-west Cape (refer to APPENDIX B. Supporting Figures for Section 2.3 Meteorology and Oceanography for supporting metocean figures)

Receptor	Description
Meteorology	
Seasonal patterns	The climate of the NWMR is dry tropical exhibiting a hot summer season and a mild winter season. There are often distinct transition periods between the summer and winter regimes, characterised by periods of relatively low winds.
Air temperature	Air temperatures in the North-west Cape area range from high summer temperatures (maximum average of 38°C) and mild winter temperatures (minimum average of 11.5°C) as recorded from the Learmonth Airport (BOM, 2023b).
Rainfall	Rainfall typically occurs during the summer, with highest rainfall during later summer and autumn (mean monthly level to >19 mm), with the highest rainfall recorded during June, often associated with the passage of tropical low-pressure systems and cyclones. Rainfall is typically low in winter (<2 mm) (BOM, 2023b).
Wind	Winds vary seasonally, generally from the South-west quadrant during summer months and the south, south-east quadrant during the autumn and winter months. The summer south-westerly winds are driven by high pressure cells that pass from West to East over the Australian continent. Winds typically weaken and are more variable during the transitional period between the summer and winter seasons, generally between April to August.
Oceanography	
Currents	Surface currents exhibit seasonal directionality, with flow to the South-west during March to June and more variable outside this period (Woodside, 2022). This is consistent with the stronger Leeuwin Current flow during winter months, with more variable currents driven by local wind stress during periods of weaker Leeuwin Current flow.

2.4 Physical Environment of NWMR

Based on the Integrated Marine and Coastal Regionalisation of Australia (IMCRA) Version 4.0, there are eight provincial bioregions that occur within the NWMR, which are based on patterns of demersal fish diversity, benthic habitat and oceanographic data (Commonwealth of Australia, 2006), **Figure 2-7**. Of the eight provincial bioregions that occur within the NWMR, these include four offshore (~65% of total NWMR area) and four shelf (~35% of total NWMR area) bioregions (Baker et al., 2008).

The NWMR is a tropical carbonate margin that comprises an extensive area of shelf, slope and abyssal plain/deep ocean floor, as well as complex areas of bathymetry such as plateau, terraces and major canyons (Harris et al., 2005). A series of reefs are located on the outer shelf/slope of the NWMR, including Ashmore, Cartier, Scott and Seringapatam reefs (Baker et al., 2008). The distribution of seafloor geomorphic features has been systematically mapped over much of the Australian margin and adjacent seafloor. The mapped area can be divided into 10 geomorphic regions, of which the NWMR overlays two; the Western Margin and Northern Margin (Harris et al., 2005). Most of the region consists of either continental slope (61%) or continental shelf (28%) (DEWHA, 2007a) with more than 40% of the NWMR having a water depth less than 200 m. The shallow shelf is contrasted by features such as the Cuvier and Argo abyssal plains, which reach depths of more than five km. A unique feature of the region is the significant narrowing of the continental shelf around North-west Cape (approximately 7 km wide) from the broad continental shelf in the north of the region (approximately 400 km wide at Joseph Bonaparte Gulf) (DEWHA, 2007a), **Figure 2-8**.

The geological history of the region, as well as its geomorphology and oceanography, has influenced the composition and distribution of sediments (DEWHA, 2007a). The sedimentology of the NWMR is dominated by marine carbonates, which show a broad zoning and fining with water depth. Main trends of the NWMR sediments include a tropical carbonate shelf that is dominated by sand and gravel, an outer shelf/slope zone that is dominated by mud and a relatively homogenous rise and abyssal plain/deep ocean floor that is dominated by non-carbonate mud (Baker et al., 2008), **Figure 2-9**.

The distribution and resuspension of sediments on the inner shelf is strongly influenced by the strength of tides across the continental shelf as well as episodic events such as cyclones. Further offshore, on the mid to outer shelf and on the slope itself, sediment movement is primarily influenced by ocean currents and internal tides (DEWHA, 2007a).

This variation in bathymetry and interactions with oceanographic processes provides a diversity of habitats to marine fauna and flora within the NWMR.

2.5 Air quality

The ambient air quality of all three marine regions is largely unpolluted due to the extent of the open ocean area, the activities currently carried out in each and the relative remoteness of each region.

Vessel traffic and existing offshore surface infrastructure are the only likely sources of pollutants in the marine region. Closer to the coast there may be localised and temporary reductions in air quality around areas of high vessel traffic, or due to the occurrence of dust storms and bushfires. International contributors to reduced air quality in the marine region may include 'slash-and-burn' agricultural methods and large forest fires in South-east Asian regions (Vadrevu et al. 2014; Kim Oanh et al. 2018).

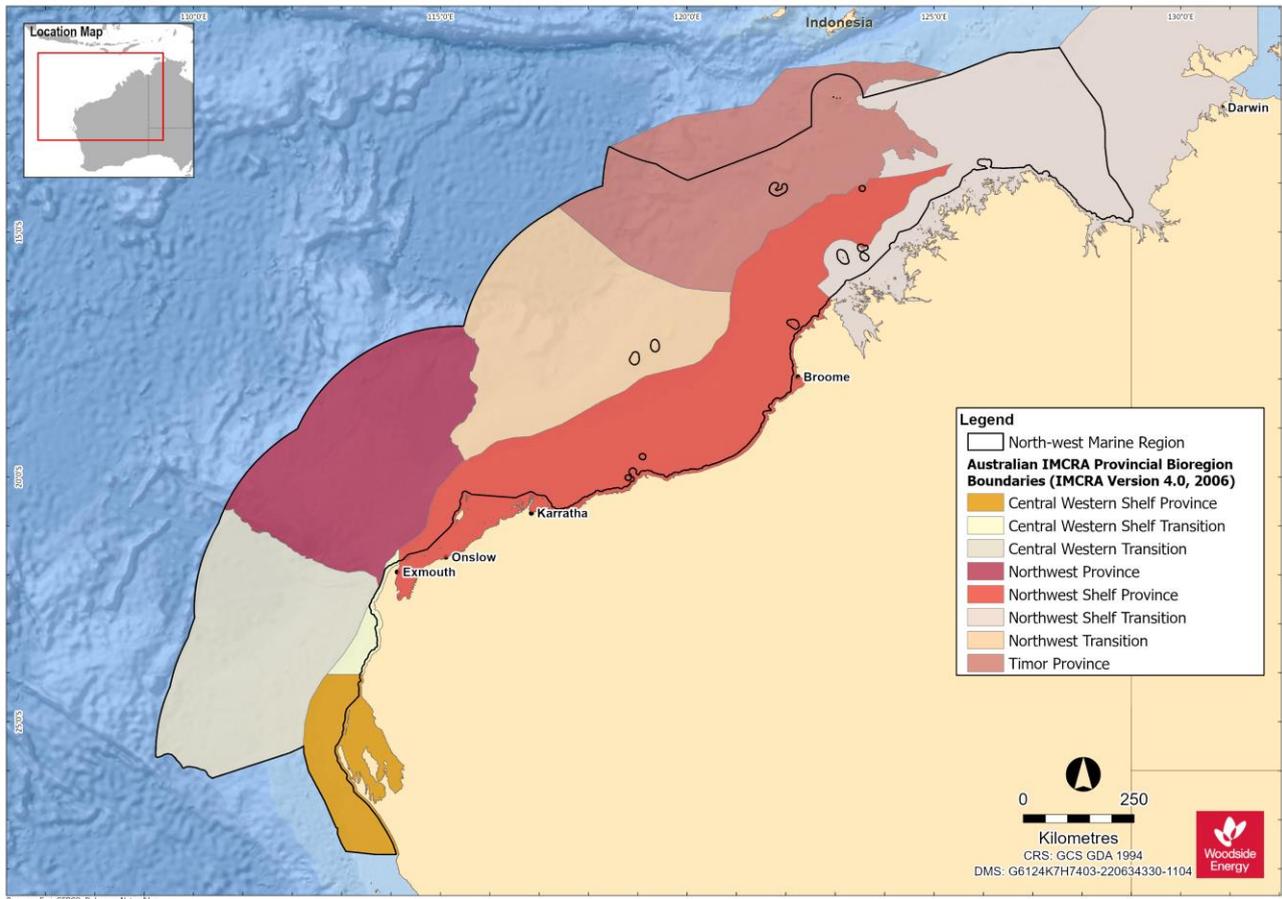


Figure 2-7. The eight Integrated Marine and Coastal Regionalisation of Australia (IMCRA) v4.0 provincial bioregions of the NWMR (GA, 2024)

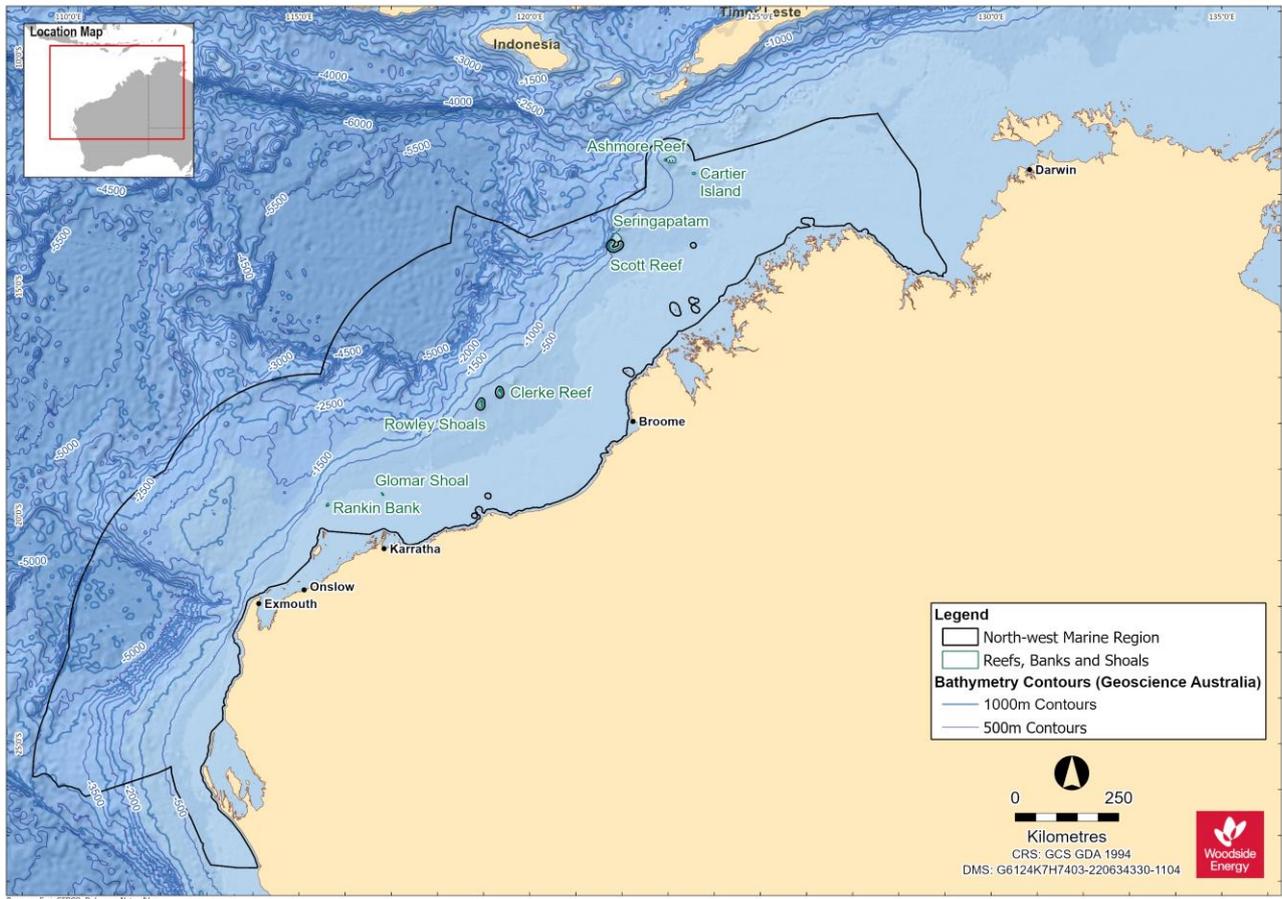


Figure 2-8. Bathymetry of the NWMR (data source: Geoscience Australia)

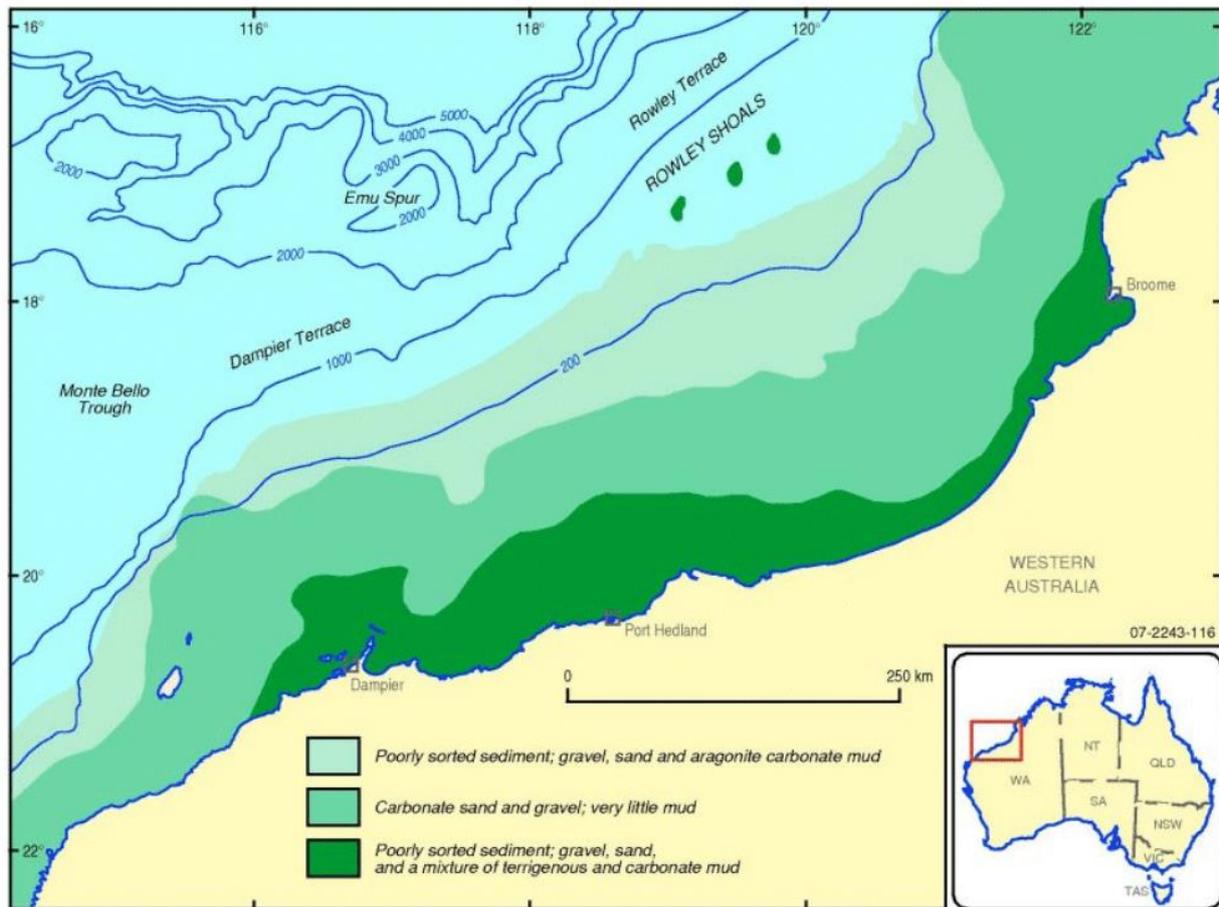


Figure 2-9. Overview of the seabed sediments of the NWMR (data source: Baker et al., 2008)

3. MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (EPBC ACT)

3.1 Summary of Matters of National Environmental Significance (MNES)

This section summarises the matters of national environmental significance (MNES) reported for the three bioregions; NWMR (**Table 3-1**), SWMR (**Table 3-2**) and NMR (**Table 3-3**), based on the Protected Matters search reports (**APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR).

Additional information on these MNES is provided in subsequent sections (referenced in **Table 3-1**, **Table 3-2** and **Table 3-3**).

Table 3-1 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) within and potentially occurring within the NWMR

MNES	Number	Description	Section of this Document
World Heritage Properties	2	Shark Bay The Ningaloo Coast	Section 11
National Heritage Places	5	Shark Bay The Ningaloo Coast The West Kimberley The Dampier Archipelago (including Burrup Peninsula) Dirk Hartog Landing Site 1616	Section 11
Wetlands of International Importance (Ramsar)	4	Ashmore Reef National Nature Reserve Eighty Mile Beach Ord River Floodplain Roebuck Bay	Section 11
Commonwealth Marine Areas	5	EEZ and Territorial Sea Key Ecological Features (KEFs) Australian Marine Parks (AMPs) Australian Whale Sanctuary Extended Continental Shelf	Section 0 Section 11
Listed Threatened Ecological Communities	1	Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula	Terrestrial community and not considered further
Listed Threatened Species	109	Refer NWMR PMST report (APPENDIX A . Protected Matter Search Reports for NWMR, SWMR and NMR)	Section 5 – Section 9
Listed Migratory Species	97	Refer NWMR PMST report (APPENDIX A . Protected Matter Search Reports for NWMR, SWMR and NMR)	Section 5 – Section 9

Table 3-2 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) within and potentially occurring within the SWMR

MNES	Number	Description	Section of this Document
World Heritage Properties	1	Australian Convict Sites (Fremantle Prison).	Section 11
National Heritage Places	5	Cheetup Rock Shelter Batavia Shipwreck site HMAS Sydney II and HSK Kormoran Fitzgerald River National Park Fremantle Prison (former).	Section 11

MNES	Number	Description	Section of this Document
Wetlands of International Importance (Ramsar)	6	Becher Point Wetlands Forrestdale and Thomsons Lakes Peel-Yalgorup System Vasse-Wonnerup System Lake Gore Lake Warden System	Section 11
Commonwealth Marine Areas	5	EEZ and Territorial Sea Key Ecological Features (KEFs) Australian Marine Parks (AMPs) Australian Whale Sanctuary Extended Continental Shelf	Section 0 Section 11
Listed Threatened Ecological Communities	9	SWMR Subtropical and Temperate Coastal Saltmarsh Terrestrial Banksia Woodlands of the Swan Coastal Plain ecological community Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community Aquatic Root Mat Community 3 in Caves of the Leeuwin Naturaliste Ridge Thrombolite (microbial) community of coastal freshwater lakes of the Swan Coastal Plain (Lake Richmond) Sedgelands in Holocene dune swales of the southern Swan Coastal Plain Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion Empodisma peatlands of southwestern Australia	Section 11
Listed Threatened Species	166	Refer SWMR PMST report (APPENDIX A . Protected Matter Search Reports for NWMR, SWMR and NMR)	N/A
Listed Migratory Species	89	Refer SWMR PMST report (APPENDIX A . Protected Matter Search Reports for NWMR, SWMR and NMR)	N/A

Table 3-3 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) within and potentially occurring within the NMR

MNES	Number	Description	Section of this Document
World Heritage Properties	0	N/A	N/A
National Heritage Places	0	N/A	N/A
Wetlands of International Importance (Ramsar)	0	N/A	N/A
Commonwealth Marine Areas	5	EEZ and Territorial Sea Key Ecological Features (KEFs) Australian Marine Parks (AMPs) Australian Whale Sanctuary Extended Continental Shelf	Section 0 Section 11
Listed Threatened Ecological Communities	0	N/A	N/A
Listed Threatened Species	82	Refer NMR PMST report (APPENDIX A . Protected Matter Search Reports for NWMR, SWMR and NMR)	N/A
Listed Migratory Species	82	Refer NMR PMST report (APPENDIX A . Protected Matter Search Reports for NWMR, SWMR and NMR)	N/A

3.2 Part 13 Statutory Instruments for EPBC Act Listed Threatened and Migratory Species in the NWMR, SWMR and NMR

A screening process was conducted to identify which EPBC Act listed threatened and migratory species, and associated Part 13 statutory instruments, are relevant in the context of the assessment of impacts and risks associated with petroleum activities in each of the Woodside activity areas. The screening criteria included:

- overlap amongst the Woodside activity areas with habitat critical for survival (marine turtles etc) and with biologically important areas (BIAs) (overlapping the marine environment) for any listed threatened and/or migratory species as reported in the PMST searches;
- published literature, unpublished reports and/or credible anecdotal information (e.g. feedback from stakeholders) indicating species presence/occurrence within the Woodside activity areas;
- temporal overlap between the likely timing of petroleum activities and peak periods for key critical life stage behaviours (e.g. breeding, nesting, calving, resting, foraging, migration); and
- environmental aspects associated with petroleum activities that have been identified as a key threat to a species in a Part 13 statutory instrument (e.g. anthropogenic noise, light emissions, marine debris).

Relevant EPBC Act threatened and migratory species and their Part 13 statutory instruments are listed in **Table 3-4**. For the full list of EPBC Act listed species for each marine bioregion refer to the PMST reports (**APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR).

Table 3-4 Summary of EPBC Act threatened and migratory species to be considered for impact or risk evaluation for Woodside operations

Species	EPBC Act Part 13 Statutory Instrument
All vertebrate marine fauna	Threat Abatement Plan for the impacts of marine debris on vertebrate marine life (Commonwealth of Australia, 2018)
Marine Mammals	
Blue whale	Conservation Management Plan for the Blue Whale: A Recovery Plan under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> 2015–2025 (Commonwealth of Australia, 2015a)
Southern right whale	National Recovery Plan for the Southern Right Whale <i>Eubalaena australis</i> (DCCEEW, 2024a)
Sei whale	Conservation Advice <i>Balaenoptera borealis</i> sei whale (Threatened Species Scientific Committee, 2015a)
Fin whale	Conservation Advice <i>Balaenoptera physalus</i> fin whale (Threatened Species Scientific Committee, 2015c)
Australian sea lion	Recovery Plan for the Australian Sea Lion (<i>Neophoca cinerea</i>) 2013 (DSEWPAC, 2013a) Conservation Advice <i>Neophoca cinerea</i> Australian Sea Lion (Threatened Species Scientific Committee, 2020a) (in effect under the EPBC Act from 23-Dec-2020)
Marine Reptiles	
All marine turtle species (loggerhead, green, leatherback, hawksbill, flatback, olive ridley)	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017) National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (DCCEEW, 2023d)
Mitchell's water monitor	Conservation Advice for <i>Varanus mitchelli</i> (Mitchell's water monitor) (DCCEEW, 2023c)
Short-nosed sea snake	Approved Conservation Advice for <i>Aipysurus apraefrontalis</i> (Short-nosed Sea Snake) (DSEWPAC, 2011a)
Leaf-scaled sea snake	Approved Conservation Advice for <i>Aipysurus foliosquama</i> (Leaf-scaled Sea Snake) (DSEWPAC, 2011b)
Fishes, Sharks, Rays and Sawfishes	
Grey nurse shark (West coast population)	Recovery Plan for the Grey Nurse Shark (<i>Carcharias taurus</i>) 2014 (DOE, 2014)
White shark	Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>) 2013 (DSEWPAC, 2013b)
Whale shark	Conservation Advice <i>Rhincodon typus</i> whale shark (Threatened Species Scientific Committee, 2015d)
All sawfishes (largetooth, green, dwarf, speartooth, narrow)	Sawfish and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015b)
Seabirds	
Migratory seabird species	Wildlife Conservation Plan for Seabirds (Commonwealth of Australia, 2020) National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (DCCEEW, 2023d)

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Species	EPBC Act Part 13 Statutory Instrument
Australian fairy tern	National Recovery Plan for the Australian Fairy Tern <i>Sternula nereis nereis</i> (Commonwealth of Australia, 2020) EPBC Act Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (DoEE, 2018)
Australian lesser noddy	Conservation Advice <i>Anous tenuirostris melanops</i> Australian lesser noddy (Threatened Species Scientific Committee, 2015e) EPBC Act Threat Abatement Plan to reduce the impacts of exotic rodents on biodiversity on Australian offshore islands of less than 100,000 hectares (DEWHA, 2009)
Amsterdam Petrel	National Recovery Plan for albatrosses and petrels (DCCEEW, 2022) EPBC Act Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (DoEE, 2018)
Brown booby	EPBC Act Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (DoEE, 2018)
Wedge-tailed shearwater	
Flesh-footed shearwater	
Wilson's storm petrel	
Shorebirds	
Migratory shorebird species	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015c) EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing, and mitigating impacts on EPBC Act listed migratory shorebird species (DoEE 2017) National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (DCCEEW, 2023d)
Eastern curlew, far eastern curlew	Conservation Advice <i>Numenius madagascariensis</i> Far eastern curlew (DCCEEW, 2023f)
Curlew sandpiper	Conservation Advice <i>Calidris ferruginea</i> curlew sandpiper (DCCEEW, 2023g)
Bar-tailed godwit (<i>menzbieri</i>)	Conservation Advice <i>Limosa lapponica menzbieri</i> Bar-tailed godwit (northern Siberia) (DCCEEW, 2024e)
Lesser sand plover	Conservation Advice <i>Charadrius mongolus</i> Lesser sand plover (Threatened Species Scientific Committee, 2016)
Australian painted snipe	Conservation Advice <i>Rostratula australis</i> Australian painted snipe (Threatened Species Scientific Committee 2013a)
Great knot	Conservation Advice <i>Calidris tenuirostris</i> Great knot (DCCEEW, 2024g)
Red knot, knot	Conservation Advice <i>Calidris canutus</i> Red knot (DCCEEW, 2024f)
Greater sand plover	Conservation Advice <i>Charadrius leschenaultii</i> Greater sand plover (DCCEEW, 2023h)
Black-tailed godwit	Conservation Advice for <i>Limosa limosa</i> black-tailed godwit (DCCEEW, 2024h)
Common greenshank	Conservation Advice for <i>Tringa nebularia</i> (common greenshank) (DCCEEW, 2024i)
Asian dowitcher	Conservation Advice for <i>Limnodromus semipalmatus</i> (Asian dowitcher) (DCCEEW, 2024j)
Ruddy turnstone	Conservation Advice for <i>Arenaria interpres</i> (ruddy turnstone) (DCCEEW, 2024k)
Sharp-tailed sandpiper	Conservation Advice for <i>Calidris acuminata</i> (sharp-tailed sandpiper) (DCCEEW, 2024l)

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Species	EPBC Act Part 13 Statutory Instrument
Terek sandpiper	Conservation Advice for <i>Xenus cinereus</i> (terek sandpiper) (DCCEEW, 2024m)
Grey plover	Conservation Advice for <i>Pluvialis squatarola</i> (grey plover) (DCCEEW, 2024n)

4. HABITAT AND BIOLOGICAL COMMUNITIES

4.1 Regional context

The NWMR habitats range from nearshore benthic primary producer habitats such as seagrass beds, coral communities and mangrove forests, to offshore soft sediment seabed habitats and submerged and emergent reef systems. These habitats support biological communities that range from low density sessile and mobile benthos, such as sponges, molluscs and echinoids (with noted areas of sponge hotspot diversity) in offshore soft sediment habitat (DSEWPAC, 2012a) to complex, diverse, remote coral reef systems.

Benthic primary producer habitats, such as seagrass beds, coral communities and mangrove forests within the SWMR, are described as a mixture of tropical and temperate species, due to the seasonal influences of the tropical waters carried south by the Leeuwin Current and the temperate waters carried north by the Capes Current (DSEWPAC, 2012b).

The NMR shares similar habitat types to the NWMR. The predominant habitat of the region includes soft muddy sediments on relatively flat terrain. Other habitat types include seagrasses, reefs, shoals and coastal habitats such as mangroves and coastal wetlands (Rochester et al., 2007).

The summary of key habitats and biological communities provided in the following sub-sections is focused on the primary features of relevance to the activity areas within the NWMR – primarily the offshore habitats of the continental shelf and slope, submerged shoals and banks, and remote oceanic reef systems of recognised conservation value.

4.2 Biological Productivity of NWMR

Primary productivity of the NWMR is generally low and appears to be largely driven by offshore influences (Brewer et al., 2007), with periodic upwelling events and cyclonic influences driving coastal productivity with nutrient recycling and advection. Seasonal weather patterns also influence the delivery of nutrients from deep-water to shallow water. Cyclones and North-westerly winds during the North-west monsoon (approximately November–March) and the strong offshore winds of the South-east monsoon (approximately April–September) facilitate the upwelling and mixing of nutrients from deep-water to shallow water environments (Brewer et al., 2007).

The Indonesian Throughflow (ITF) has an important effect on productivity in the northern areas of the Region. Generally, its deep, warm and low nutrient waters suppress upwelling of deeper comparatively nutrient-rich waters, thereby forcing the highest rates of primary productivity to occur at depths associated with the thermocline. When the ITF is weaker, the thermocline lifts bringing deeper, more nutrient-rich waters into the photic zone and hence resulting in conditions favourable to increased productivity (DEWHA, 2007a). Similarly, the Leeuwin Current has a significant role in determining primary productivity in the southern areas of the NWMR. As with the ITF, the overlying warm oligotrophic waters of the Leeuwin Current suppress upwelling. A subsurface chlorophyll maximum is therefore formed at a depth in the water column where nutrients and light are sufficient for photosynthesis to proceed. Seasonal changes in the strength of the Leeuwin Current influence primary productivity levels, and seasonal interactions between the Leeuwin and Ningaloo currents in the south of the NWMR, are believed to be particularly important (DEWHA, 2007a).

Internal tides (defined as internal waves generated by the barotropic tide) are a striking characteristic of many parts of the NWMR and are associated with highly stratified water columns. Internal waves (solitons), which can raise cooler, generally more nutrient rich water higher in the water column, are generated between water depths of 400 m and 1000 m where bottom topography results in a significant change in water depth over a relatively short distance. Cyclones are episodic events in the NWMR that contribute to spikes in productivity through enrichment of surface water layers due to enhanced vertical mixing of the water column. Temporary increases in primary productivity as a result of cyclones generally last between one and two weeks, and it is believed that the impacts of

cyclones are generally limited to waters less than 100 m deep and affect benthic communities more substantially than pelagic systems (DEWHA, 2007a).

Water depth also has a significant overriding influence over productivity in the marine environment, due to its influence on light availability. This is reflected by distinct onshore and offshore assemblages of major pelagic groups of phytoplankton, microzooplankton, mesoplankton and ichthyoplankton. Productivity booms are thought to be triggered by seasonal changes to physical drivers or episodic events, as detailed above, which result in rapid increases in primary production over short periods, followed by extended periods of lower primary production. The trophic systems in the NWMR are able to take advantage of blooms in primary production, enabling nutrients generated to be used by different groups of consumers over long periods (DEWHA, 2007a).

Little detailed information is available about the trophic systems in the NWMR. The utilisation of available nutrients is thought to differ between pelagic and benthic environments, influenced by water depth and vertical migration of some species groups in the water column. In the pelagic system, it is thought that approximately half of the nutrients available are utilised by microzooplankton (e.g. protozoa) with the remainder going to macro/meso-zooplankton (e.g. copepods). As primary and secondary consumers, gelatinous zooplankton (e.g. salps, coelenterates) and jellyfish are thought to play an important role in the food web, contributing a significant proportion of biomass in the marine system during and for periods after booms in primary productivity. Salps are semi-transparent, barrel-shaped marine animals that can reproduce quickly in response to bursts in primary productivity and provide a food source for many pelagic fish species (DEWHA, 2007a).

4.3 Planktonic Communities in the NWMR

The NWMR has two distinct phytoplankton assemblages; a tropical oceanic community in offshore waters and a tropical shelf community confined to the NWS (Hallegraeff, 1995). MODIS (Moderate Resolution Imaging Spectrometer) satellite datasets from the NWMR indicates that chlorophyll (and thus phytoplankton) levels are low in summer months (December to March) and higher in the winter months (Schroeder et al., 2009). Low chlorophyll levels during summer months may be a result of lower plankton productivity during the wet season or lower nutrient inputs from warm surface waters dominant during summer. However, it is likely that much of the primary production is taking place below the surface, where the MODIS imagery does not penetrate (Schroeder et al., 2009). The winter months are relatively cloud-free and surface chlorophyll is high throughout most of the region.

Zooplankton may include organisms that complete their lifecycle as plankton (e.g. copepods, euphausiids) as well as larval stages of other taxa such as fishes, corals and molluscs. Peaks in zooplankton such as mass coral spawning events (typically in March and April) (Rosser and Gilmour, 2008) and fish larvae abundance (CALM, 2005a) can occur throughout the year. Spatial and temporal patterns in the distribution and abundance of macro-zooplankton on the North-west Shelf are influenced by sporadic climatic and oceanographic events, with large inter-annual changes in assemblages (Wilson et al., 2003). Amphipods, euphausiids, copepods, mysids and cumaceans are among the most common components of the zooplankton in the region (Wilson et al., 2003).

4.3.1 Browse

Phytoplankton within the Browse activity area is expected to reflect the conditions of the NWMR. There is a tendency for offshore phytoplankton communities in the NWMR to be characterised by smaller taxa (e.g. bacteria), whereas shelf waters are dominated by larger taxa such as diatoms (Hanson et al., 2007).

Zooplankton within the activity area may include organisms that complete their lifecycle as plankton (e.g. copepods, euphausiids) as well as larval stages of other taxa such as fishes, corals and molluscs. Peaks in zooplankton such as mass coral spawning events (typically in March and April) (Rosser and Gilmour, 2008; Simpson et al., 1993) and fish larvae abundance (CALM, 2005a) can occur throughout the year.

The influence of the Indonesian Throughflow restricts upwelling across the Kimberley System (approximately equates to the Browse activity area). However, small-scale topographically associated current movements and upwellings are thought to occur, which inject nutrients into specific locations within the system and result in 'productivity hot-spots'. Similarly, internal waves, generated at the shelf break (e.g. west of Browse Island and around submerged cliffs located at the continental shelf edge) play a role in making nutrients available in the photic zone (Sutton et al, 2019). Productivity within shallow nearshore waters is driven primarily by tidal movement and terrestrial runoff whereby nutrients are mixed by tidal action and new inputs of organic matter come from the land.

4.3.2 North-west Shelf / Scarborough

Plankton communities within the NWS / Scarborough activity area are expected to reflect conditions of the NWMR. Internal tides along the NWS and Exmouth Plateau result in the drawing of deeper cooler waters into the photic zone, stirring up nutrients and triggering primary productivity. Broadly the greatest productivity within this sub-system is found around the 200 m isobath associated with the shelf break.

4.3.3 North-west Cape

Waters of the North-west Cape experience a relatively high diversity of phytoplankton groups including diatoms, coccolithophorids and dinoflagellates. During the warmer months blooms of *Trichodesmium* occur in the region, these have been observed particularly on the frontal systems around Point Murat (Heyward et al., 2000).

Average Leeuwin Current phytoplankton biomass is characteristic of low productivity oceanic waters like the Indian, Pacific and Atlantic Oceans (Hanson et al., 2005). However, the Canyons linking the Cuvier Abyssal Plain and Cape Range Peninsula Key Ecological Feature(KEF) are connected to the Commonwealth waters adjacent to Ningaloo Reef and may also have connections to Exmouth Plateau. The canyons are thought to interact with the Leeuwin Current to produce eddies inside the heads of the canyons, resulting in waters from the Antarctic intermediate water mass being drawn into shallower depths and onto the shelf (Brewer et al. 2007). These waters are cooler and richer in nutrients and strong internal tides may also aid upwelling at the canyon heads (Brewer et al. 2007). The narrow shelf width (about 10 km) near the canyons facilitates nutrient upwelling and relatively high productivity. This high primary productivity leads to high densities of primary consumers, such as micro and macro-zooplankton, such as amphipods, copepods, mysids, cumaceans, euphausiids (Brewer et al., 2007).

4.4 Habitats and Biological Communities in the NWMR

4.4.1 Offshore Habitats and Biological communities

The NWMR has a large area of continental shelf and continental slope, with a range of bathymetric features such as canyons, plateaus, terraces, ridges, reefs, banks and shoals. The marine environment in this region is typified by tropical to sub-tropical marine ecosystems with diverse habitats from soft sediments, canyons, remote oceanic coral reef systems and continental shelf limestone pavement seabed habitat. The NWMR encompasses large seabed areas of deepwater seabed habitats dominated by soft sediments (sandy and muddy substrata with occasional patches of coarser sediments) and sparse benthic biota. Comprehensive surveys and documentation of habitats and biota from the shelf to deep waters (100 m to 1000 m) spanning 13 sites between Barrow Island and Ashmore Reef, running downslope across the continental shelf and slope of NWS were conducted in 2007 (Williams et al., 2010). Sites on the continental slope (approximately 400 m deep) predominately comprised soft, muddy sediments and epifauna were sparsely distributed and limited to isolated individual sessile biota such as crinoids, anemones, glass sponges and sea pens. Occasional non-sessile biota, characteristic of the deeper water benthic communities was recorded and included: echinoderms (urchins, holothurians and sea stars) and decapod crustaceans (prawns and crabs). Similar benthic biota composition was reported for the continental slope seabed habitats at depths of 700-1000 m (Williams et al., 2010) With reference to the North-west Shelf (NWS), multiple surveys have documented habitats comprising bare unconsolidated carbonate sediments supporting a sparse assemblage of deposit and filter feeding organisms, including glass sponges, urchins, sea cucumbers, sea stars and crustaceans (URS 2010). Filter feeding communities documented within the NWS include bryozoans, sponges, gorgonians, and hydroids attached to consolidated substrate; these were interspersed with sand which hosted fewer filter feeders (AIMS 2014). Infauna associated with soft, unconsolidated sediment habitat such as polychaetes are widespread and well represented along the continental shelf and upper slopes (Brewer et al. 2007, RPS 2012). The key habitats and biological communities that are representative of the broader NWMR are summarised in **Table 4-1**.

The key habitats and biological communities representative of the broader SWMR and NMR are summarised in **Table 4-2** and **Table 4-3**.

There is a marked biodiversity gradient from high ecological valued coastal (primary producer habitats and associated benthic and mobile biota) to the lower valued deeper offshore habitats comprising soft, unconsolidated sediments and typically sparser biota (epifauna and infauna), with the exception of the submerged shoal features, remote oceanic reef systems of the Rowley Shoals, Scott Reef and Ashmore Reef as well as the fringing reef habitats of Ningaloo, the Kimberley coastline, the offshore island groups such as Barrow Island, Lowendal and Montebellos and the Dampier Archipelago. A brief overview of the high valued biodiversity reef and mesophotic habitats and associated benthic communities are presented in the following sub-sections.

4.4.2 Browse

The most diverse habitats and benthic communities in the Kimberley region of North-western Australia, are where the oceanic reef systems of Ashmore, Cartier, Scott and Seringapatam reefs, and the Rowley Shoals, sit near the edge of the continental shelf hundreds of kilometres from the mainland and from each other (Gilmour et al., 2019 and 2023), refer to **Figure 4-1**. The long-term monitoring program for Scott Reef and the Rowley Shoals conducted by AIMS since 1994 is now one of the world's longest studies of coral reef ecosystems and provides unprecedented understanding of the background (baseline) changes at oceanic reefs on Australia's North-west Shelf, encompassing the physical drivers, and underlying processes of change (impact and recovery) from acute disturbances (heat stress – coral mass-bleaching and cyclones).

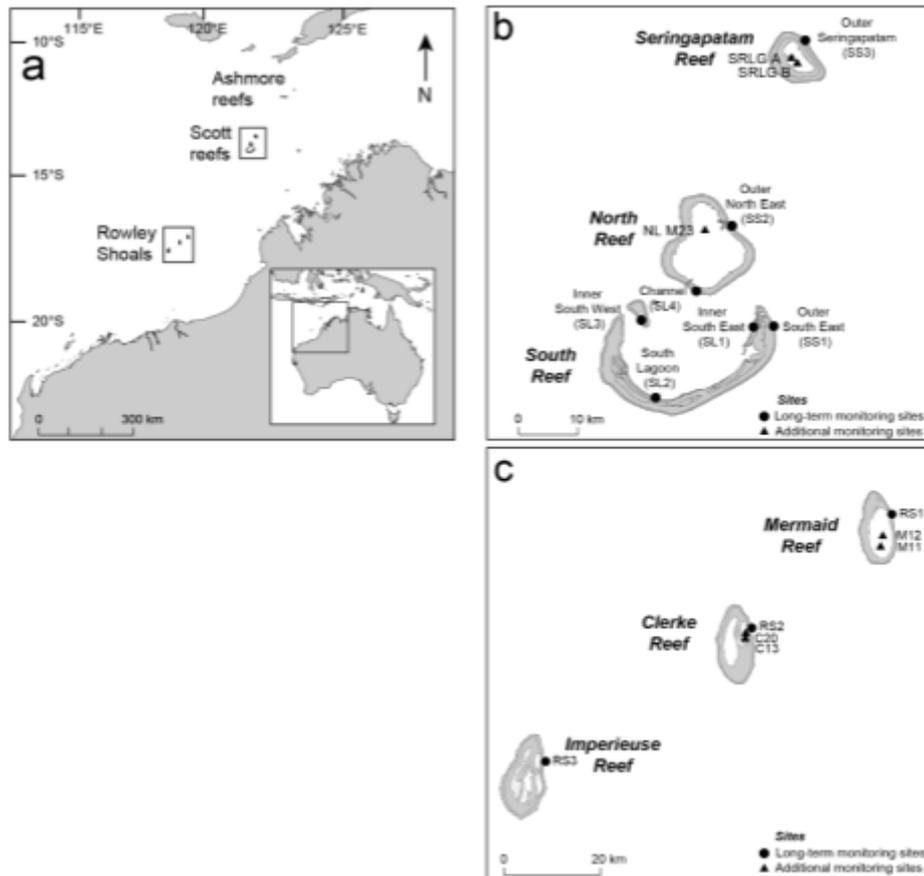


Figure 4-1. The position of Scott Reef, Ashmore and the Rowley Shoals off North-western Australia and location of permanent long-term monitoring sites (source: Gilmour et al., 2023)

Scott Reef is an annular reef approximately 17 km long and 16 km wide comprising two coral reef atolls rising steeply from depths of approximately 400-500 m. These atolls, referred to as South Scott Reef and North Scott Reef, are separated by a deep channel (**Figure 4-1**). North Scott Reef features an emergent reef flat, outer slope habitats and a shallow lagoon approximately 20 m deep with two small channels linking it to the surrounding ocean. The shallow closed waters of North Scott Reef lagoon contain a range of habitats from bare sand, sand with coral outcrops, and to shallow to deep lagoonal coral dominated habitats (Gilmour et al., 2013). This in contrast to the deeper, more open lagoon of South Scott Reef described as an extensive, unique mesophotic (30-70 m depth) coral dominated habitat comprising hard corals, calcareous algae, soft corals, sponges, bryzoans and other invertebrates (Gilmour et al. 2013; Heyward and Radford, 2019). It is largely protected from the direct influence of major storms by the surrounding horseshoe-shaped emergent reef rim (Heyward and Radford, 2019). South Scott Reef shallow water habitats also include reef flats (of low coral cover) and extensive outer reef slopes with the highest hard coral diversity of any habitat at Scott Reef (Gilmour et al., 2013).

Over the past 30 years the coral communities at Scott Reef have been extensively studied and the Scott Reef long-term monitoring program showed that from 1994-2021 the mean cover of hard and soft corals on the reef slopes was 36%, and ranged between 13% to 59%. Decreases in coral cover were caused by damaging waves, generated by storms and cyclones, and recurrent heat stress causing coral bleaching. The most severe heat stress and mass coral bleaching occurred in 1998 and 2016. Recovery from the first mass-bleaching event in 1998 took over a decade. By 2010, coral cover had reached pre-bleaching levels (45%). Despite moderate coral bleaching and cyclone disturbances, cover had increased by 49% in January 2016, after which the reefs were impacted by a second mass bleaching event that reduced mean coral cover to 15%. Five years after the 2016 mass bleaching event, total cover of hard and soft corals had reached 34%, showing a similar rate

of recovery to that following the 1998 mass bleaching (Gilmour et al. 2023). The Rowley Shoals comprise three distinct reef continental shelf atolls of similar dimension, shape and orientation, named Mermaid Reef, Clerke Reef and Imperieuse Reef. The reefs are orientated North-south and are approximately 30-40 km apart. Each atoll covers an area approximately 80-90 km² and extends almost vertically from seafloor depths of approximately 400 m. Each atoll comprises extensive lagoon habitat composed of bare sand, coral dominated patches and coral outcrops, emergent reef crests and outer reef slopes. At high tide only the sandy cays of Clerke Reef and Imperieuse Reef remain visible.

Across the Rowley Shoals, the reef crest and reef slope were most similar and the lagoon most unique in terms of habitat and benthic communities. Hard corals and coralline algae were the most abundant biota (>40%) and other benthic organisms such as sponges, ascidians and macroalgae are rare (<5%). Soft corals were also rare (<1%) at all reefs and habitats, apart from the reef slope (4%) at Mermaid Reef. Across all surveys (1995-2019), the mean cover of hard and soft corals at the reef slope was 46% and ranged between 26% and 58%. Decreases in coral cover were primarily due to frequent storms and cyclones. Between 2005 and 2008, three cyclones and moderate heat stress caused a mean reduction in coral cover (52% to 42%) at the reef slope habitat across the Rowley Shoals. Coral bleaching was low (<10%) in January 2016 except for minor to moderate (11-30%) bleaching at two lagoon sites at Mermaid Reef. A prolonged heat stress period (45 days) in May 2020 caused the worst coral bleaching on record (approximately 20%) across reef habitats with the highest heat stress and declines in coral cover at the reef slope for Imperieuse Reef (9%) and minor bleaching and small decreases in coral cover at the reef slope (5%) and lagoon (3%) at Clerke Reef (Gilmour et al. 2023).

The reefs of Seringapatam, Scott Reef, Ashmore Reef and Cartier Island are recognised as key ecological features (KEFs) within NWMR, refer to **Table 10-1**. Protected Area status (Australian Marine Parks and State Marine Parks and Reserves are listed and described in **Section 11** and includes: Commonwealth Marine Parks of Ashmore Reef, Cartier Island, Kimberley and Mermaid Reef, and State Marine Parks of the North Kimberley, the Rowley Shoals and Lalang-garram-horizontal falls and North Lalang-garram.

4.4.3 North-west Shelf / Scarborough

The NWS contains numerous submerged shoal features and as relatively recent surveys have revealed several of these features are of high biodiversity value comprising hard coral and macro-algae communities on upper reaches of the shoals and mesophotic filter-feeding benthic communities in deeper waters on and in proximity to the shoal features, namely, Rankin Bank and Glomar Shoal.

Rankin Bank

Rankin Bank comprises three main sedimentary banks rising steeply from between 80 and 120 m below sea level, reaching 20 – 40 m below the sea surface and featuring plateaus and troughs (Abdul Wahab et al., 2018). Rankin Bank is one of only two large, complex bathymetrical features on the outer western shelf of the West Pilbara (the other being Glomar Shoal, about 125 km West-south west) (Abdul Waheb et al., 2018), **Figure 4-1**.

Surveys of Rankin Bank were undertaken by the Australian Institute of Marine Science (AIMS) in 2013 and in 2017 to better understand the habitats and complexity of the submerged shoal ecosystems, and associated fish assemblages (AIMS, 2014; Abdul Waheb et al., 2018 and 2017 - Jones et al. 2021). The surveys were undertaken using various methods, including multibeam survey, towed video, Stereo Baited Underwater Video Survey (SBRUVS) and beam transmissions (to measure turbidity), at depths between 20 and 115 m (Abdul Waheb et al., 2018). Water column data were also collected in January 2017 to examine potential temporal variation in these parameters (Abdul Waheb et al., 2018).

Seabed sediments at Rankin Bank were primarily carbonate with a grain size of mostly sand, with finer muds found at the deeper sample sites (AIMS, 2014). Sand was also found to increase with depth and unconsolidated reef exceeded 30% at all depths (Abdul Waheb et al., 2018). Hydrocarbon and trace metal concentrations in sediments indicated the bank was unaffected by anthropogenic pollution (AIMS, 2014). Turbidity was lower at Rankin Bank than Glomar Shoal during the survey, with beam transmissions remaining above 95% at all depths (Abdul Waheb et al., 2018). Turbidity was slightly lower in 2017, whereas temperature and salinity were slightly higher at all depths (Abdul Waheb et al., 2018).

Proportion of cover by benthic taxa was highest for macroalgae and hard corals, particularly at depths less than 40 m, and decreased with increasing depth. Other benthic taxa included soft corals and sponges which were present in lower proportions at all depths. Encrusting corals were common, reaching cover of about 12.5% at depths less than 40 m. Solitary corals were also present (about 10% cover) primarily at depths between 40 and 60 m. Foliose and submassive/columnar corals were also present (Abdul Waheb et al., 2018).

Fish abundance and diversity at Rankin Bank were found to be comparable with other reefs in North-west Australia, and notably twice as abundant and 1.5 times more diverse than those fishes identified in a comparable survey at Glomar Shoal (Abdul Waheb et al., 2018). A total of 205 fish species were recorded at Rankin Bank, 100 of which were common to both Glomar Shoal and Rankin Bank. Depth, location, sand, sponges and hard coral were all found to contribute to the fish communities present. Specifically, fish communities were primarily associated with hard coral and shallow depths at Rankin Bank (Abdul Waheb et al., 2018).

Glomar Shoal

Glomar Shoal is a large (215 km²) and complex bathymetrical feature situated on the outer continental shelf off the Pilbara. Glomar Shoal is about 8.5 times wider than Rankin Bank at the 60 m contour. Glomar Shoal rises from 80 m depth on its South-west side and 70 m depth on its North-eastern side to form a single plateau at 40 m depth (Abdul Waheb et al., 2018). Together with Rankin Bank, these remote shallow water areas represent regionally unique habitats and are considered

likely to play an important role in the productivity of the Pilbara region (AIMS 2014, Abdul Wahab et al. 2018), **Figure 4-1**.

Baseline biodiversity and habitat mapping surveys of the benthic habitats and communities at Glomar Shoal and Rankin Bank were undertaken in 2013 and 2017 by AIMS (2014) as detailed in Abdul Waheb et al., (2018) and Jones et al. (2021), respectively. Salinity and temperature were found to be slightly higher in 2017 compared with the 2013 values (Abdul Wahab et al., 2018), most likely due to seasonality. Substrates at Glomar Shoal were found to vary with depth, from coarse unconsolidated sediment at depths greater than 60 m and hard substrate (i.e. consolidate reef) supporting benthic communities comprising hard and soft corals, sponges and macroalgae at depths < 40 m (Abdul Wahab et al., 2018). Total cover of benthic taxa (hard coral, soft coral, sponges and other benthic biota) was highest at depths < 40 m and decreased with depth (Abdul Wahab et al., 2018). At depths of 60-80 m benthic cover was low (about 2%) and at depths greater than 80 m benthic cover was barely present (Abdul Wahab et al., 2018).

A total of 170 fish species were identified at Glomar Shoal and fish abundance and diversity of the demersal fish communities of Glomar Shoal were found to vary with seabed habitat type; sand, hard coral and sponge coverage influenced fish communities, with higher abundance and diversity of fish associated with shallow hard coral habitats. (Abdul Wahab et al., 2018). In general, the fish abundance and diversity of Glomar Shoal are considered comparable with other reefs and the submerged shoals and banks in the region, although less diverse and abundant than fish assemblages at Rankin Bank (Abdul Wahab et al., 2018).

Glomar Shoal is recognised as a Key Ecological Feature (KEF) within NWMR, refer to **Table 10-1**. Protected Area status (Australian Marine Parks and State Marine Parks and Reserves) are described in **Section 11** and includes: Commonwealth Marine Parks of Montebello and State Marine Parks Montebello Islands and Barrow Island and the Barrow Island marine management area.

4.4.4 North-west Cape

Ningaloo Reef and Shark Bay are among Australia's iconic marine areas, and the significance of these ecosystems is recognised through their inclusion in State and Commonwealth Marine Parks and the World Heritage Register. Ningaloo Reef is the only example in the world of an extensive fringing reef on the West coast of a continent and is host to over 200 coral species and more than 500 reef fish species. Shark Bay is the most westerly point of Australia and represents a transition zone between temperate and tropical marine fauna, resulting in high species diversity (Miller et al., 2015), including fringing coral communities on the leeward side of the barrier islands of Dirk Hartog, Bernier and Dorre. Ningaloo Reef is one of the longest (approximately 300 km) and most pristine fringing reefs in the world, with an unusually narrow continental shelf. Deep oceanic waters, the reef and coastline habitats and benthic communities are in close proximity resulting in a huge array of internationally significant marine life coexisting. More than 200 hard coral species, 500 fish, 650 mollusc, 600 crustacean, 1000 marine algae, 155 sponge and 25 echinoderm species have been recorded from the shelf, slope and deep-water habitats². Refer to the CSIRO Ningaloo Outlook program for further information and publications relating to the shallow and deep-water reef systems, and megafauna species (marine turtles and whale sharks)³.

The extensive reef system has been classified by topography and benthic cover using airborne hyperspectral surveys and much of the area was allocated as shallow, flat lagoons intersected by narrow, deeper channels that facilitate water circulation. Five distinct geomorphic/benthic classes of coral-algae mosaics in different topographic settings: coral and algal communities (reef flat and very shallow areas), coral and algal communities (backreef and shallow forereef), coral and algal

² <https://www.dbca.wa.gov.au/management/world-heritage-areas/ningaloo-coast-world-heritage-area#:~:text=One%20of%20the%20longest%20and,life%20coexisting%20in%20one%20area.> [accessed on 18/08/2024]

³ <https://research.csiro.au/ningaloo/outlook/research-outputs/publications/>

communities (deep forereef and other deep areas), sand or limestone pavement (lagoonal slopes and flat lagoon areas) (Kobryn et al., 2022).

Ningaloo and the Muiron Islands fringing reef habitat supports benthic communities dominated by algae and consolidated reef in the shallow reef environment. Surveys conducted by AIMS in 2024 documented hard coral cover averaged approximately 13% across the Ningaloo Marine Park area (Miller et al., 2015). A notable pattern in the benthos recorded by Miller et al. (2015) was an increase in coral cover with latitude, with the highest coral cover recorded around Coral Bay and the reef areas in southern Ningaloo. Coral cover was the lowest at the East Ningaloo Province (northern Exmouth Gulf) (<6%). Relative to Scott Reef and the Rowley Shoals, the Ningaloo benthic communities are distinct in that they are characterised by high biotic cover overall, but dominated by algal cover and with less than half the cover of key biota including hard corals, soft corals and sponges as recorded on offshore reefs (Miller et al., 2015).

Ningaloo Reef is vulnerable to storm damage and marine heat stress events that have resulted in past localised coral damage and moderate coral bleaching. Coral bleaching occurred in 2022 due to warm ocean temperatures driven by the 2021–22 La Niña. The region's last severe marine heatwave was driven by the 2010–11 La Niña, which resulted in bleaching being recorded for the first time on Ningaloo⁴. Also of note is the recurrent deoxygenation events at Bills Bay (Coral Bay) following coral spawning events. In March 2022, the deoxygenation event was triggered by a combination of weather and oceanographic conditions that led to a prolonged trapping of coral spawn in Bills Bay and this in turn caused mass coral mortality and a large but localised fish kill. The 2022 deoxygenation event was the seventh such event recorded in documented history (Richards et al., 2024).

The Shark Bay region is renowned for its terrestrial and marine biodiversity including seagrass cover extending over 4,000 km² of the bay and the 1.030 km² Wooramel Seagrass Bank is the largest structure of its type in the world. Baseline surveys conducted in 2014 by AIMS specifically targeted the outer Shark Bay area and the habitats and benthic communities surrounding the barrier islands of Dirk Hartog, Bernier and Dorre. Sand was a dominant feature of the benthos (>60%), particularly in areas inside the bay and in deep water outside the bay. Benthic communities in relatively sheltered areas of outer Shark Bay were characterised by seagrass and turf algae, whereas in more exposed locations, benthos was dominated by macroalgal and turf algal communities. Corals and sponges made up <1% of the cover in outer Shark Bay, although due to inclement weather during surveys shallow areas where coral species are more likely to occur could not be surveyed. Observations of patchy but high coral cover in shallow parts of some towed video transects suggests coral cover across outer Shark Bay may have been underestimated. The highest coral cover was recorded in the channel between Dirk Hartog and Dorre Islands, indicating this area may be particularly favourable for coral growth (Miler et al., 2015).

Commonwealth waters adjacent to Ningaloo Reef is recognised as a Key Ecological Feature (KEF) within NWMR, refer to **Table 10-1**. Protected Area status (Australian Marine Parks and State Marine Parks and Reserves) are described in **Section 11** and includes: Commonwealth Marine Parks of Ningaloo and Shark Bay and State Marine Parks of the Ningaloo Reef and the Muiron Island marine management area and Shark Bay marine park and Hamelin Pool nature reserve.

4.4.5 Shoreline, coastal habitats and biological communities

The NWMR encompasses offshore and coastal waters, islands and mainland shoreline habitats typified by mangroves, tidal flats, saltmarshes, coral reefs (remote, offshore reef systems to extensive fringing reef systems like NingaloolikeNingaloo), sandy beaches, and smaller areas of rocky shores. Each of these shoreline types has the potential to support different flora and fauna assemblages due to the different physical factors (e.g. waves, tides, light, etc.) influencing the habitat.

⁴ <https://www.csiro.au/en/research/environmental-impacts/climate-change/state-of-the-climate>

The key shoreline habitats representative of the broader NWMR are summarised in **Table 4-1**.

The key shoreline habitats representative of the broader SWMR and NMR are summarised in **Table 4-2** and **Table 4-3**.

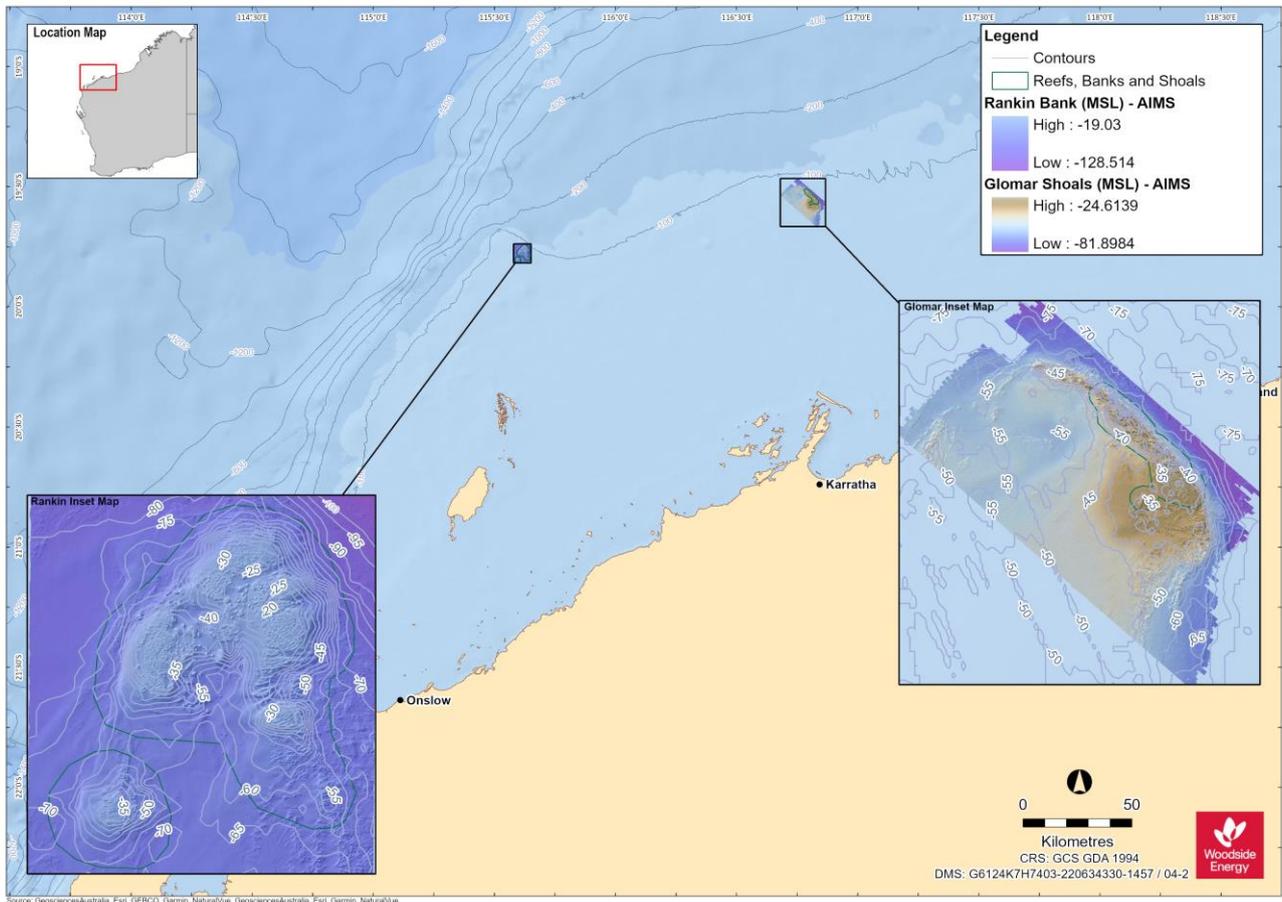


Figure 4-2. Habitat maps of Rankin Bank and Glomar Shoal (source: AIMS, 2014)

Table 4-1 Habitats and biological communities within the NWMR

Habitat/Community	Browse	NWS / Scarborough	North-west Cape	Reference
Offshore habitats and biological communities				
Soft sediment with infauna	The offshore environment of the NWMR comprises predominately of seabed habitats dominated by soft sediments (sandy and muddy substrata with occasional patches of coarser sediments) and sparse benthic biota. The benthic communities inhabiting the predominantly soft, fine sediments of the offshore habitats are characterised by infauna such as polychaetes, and sessile and mobile epifauna such as crustacea (shrimp, crabs and squat lobsters) and echinoderms (starfish, cucumbers). The density of benthic fauna is typically lower in deep-sea sediment habitats (greater than 200 m) than in shallower coastal sediment habitats, but the diversity of communities may be similar.			
Soft sediment with hard substrate outcropping	A unique seafloor feature combining both soft sediment and hard substrates, including outcrops, terraces, continental slope, and escarpments. This habitat is found in offshore areas of the NWMR, often associated with key ecological features such as the ancient coastline at 125 m depth contour KEF.			Section 10
	Ancient coastline at 125 m depth contour KEF Continental Slope Demersal Fish Communities KEF	Ancient coastline at 125 m depth contour KEF Continental Slope Demersal Fish Communities KEF	Ancient coastline at 125 m depth contour KEF Continental Slope Demersal Fish Communities KEF	Section 10
Coral Reef	Coral reef habitats within the NWMR have a high species diversity that includes corals, and associated reef species such as fishes, crustaceans, invertebrates, and algae. Coral reef habitats of the offshore environment of the NWMR include remote oceanic reef systems, large platform reefs, submerged banks and shoals.			
	Browse Island Scott Reef Seringapatam Reef Ashmore Reef Cartier Island Hibernia Reef	Rowley Shoals (including Mermaid Reef, Clerke Reef, Imperieuse Reef) Glomar Shoal Rankin Bank		Section 4.4.1 Section 10 Section 11
Seagrass and Macroalgae communities	Seagrass beds and benthic macroalgae reefs are a main food source for many marine species and also provide key habitats and nursery grounds (Heck et al., 2003; Wilson et al., 2010). In the northern half of Western Australia, these habitats are restricted to sheltered and shallow waters, including around offshore reef systems, due to large tidal movement, high turbidity, large seasonal freshwater run-off and cyclones.			
	Scott Reef Seringapatam Reef Ashmore Reef	Rowley Shoals (including; Mermaid Reef, Clerke Reef, Imperieuse Reef)		Section 11
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water by passing the water over specialised filtration structures (DEWHA, 2008). Filter feeders generally live in areas that have strong currents and hard substratum, often associated with deeper environments of the shoals and banks in the offshore NWMR.			
	Lower outer reef slopes of the oceanic reef	Glomar Shoal Rankin Bank	Cape Range canyon system	Section 4.4.1 Section 10

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Habitat/Community	Browse	NWS / Scarborough	North-west Cape	Reference
	systems such as Scott Reef	Ancient coastline at 125 m depth contour KEF		Section 11
Sandy Beaches	Sandy beaches are dynamic environments, naturally fluctuating in response to external forcing factors (e.g. waves, currents, etc). Sandy beaches vary in length, width and gradient, and in sediment type, composition, and grain size throughout the NWMR, being found around islands and reefs in the offshore areas of the region.			
	Browse Island Scott Reef (Sandy Islet) Ashmore Reef Cartier Island	Montebello Islands Lowendal Islands Barrow Island	Muiron Islands	Section 11
Nearshore/coastal habitats and biological communities				
Coral Reef	Coral reef habitats typically found in nearshore regions of the NWMR include the fringing reefs around coastal islands and the mainland shore.			
	Kimberley East Holothuria and Long Reefs Bonaparte and Buccaneer Archipelagos Montgomery Reef Adele complex (Beagle, Mavis, Albert, Churchill reefs, Adele Island)	Dampier Archipelago Montebello, Lowendal and Barrow Island Groups	Ningaloo Reef Exmouth Gulf Shark Bay	Section 11
Seagrass and Macroalgae communities	Seagrass beds and benthic macroalgae reefs are a main food source for many marine species and also provide key habitats and nursery grounds (Heck Jr. et al., 2003; Wilson et al., 2010). In the nearshore areas of the NWMR, these habitats are restricted to sheltered and shallow waters due to large tidal movement, high turbidity, large seasonal freshwater run-off and cyclones. These areas include in bays and sounds and around reef and island groups.			
	King Sound	Roebuck Bay Dampier Archipelago Montebello, Lowendal and Barrow Island Groups	Ningaloo Reef Exmouth Gulf Shark Bay	Section 11
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water by passing the water over specialised filtration structures (DEWHA, 2007a). Filter feeders generally live in areas that have strong currents and hard substratum. Conversely, higher diversity infauna is mainly associated with soft unconsolidated sediment and infauna communities are considered widespread and well represented along the continental shelf and upper slopes of the NWMR. In nearshore areas of the NWMR, these species are generally found around reef systems.			
		Deeper habitats of Rankin Bank and Glomar Shoal	Deeper habitats of Ningaloo Reef and the protected sponge zone in the South	

Habitat/Community	Browse	NWS / Scarborough	North-west Cape	Reference
Mangroves	Mangroves grow in intertidal mud and sand, with specially adapted aerial roots (pneumatophores) that provide for gas exchange during low tide (McClatchie et al., 2006). Mangrove forests can help stabilise coastal sediments, provide a nursery ground for many species of fish and crustacean, and provide shelter or nesting areas for seabirds (McClatchie et al., 2006). Mangroves are confined to shoreline habitats, in nearshore areas of the NWMR.			
	Dampier Peninsula (including Carnot Bay, Beagle Bay and Pender Bay)	Pilbara Coastline (including; Ashburton River Delta, Coolgra Point, Robe River Delta, Yardie Landing, Yammadery Island and the Mangrove Islands) Montebello, Lowendal and Barrow Island Groups Roebuck Bay	Shark Bay Mangrove Bay, Cape Range Peninsula Exmouth Gulf	Section 11
Saltmarshes	Saltmarsh communities are confined to shoreline habitats and are typically dominated by dense stands of halophytic plants such as herbs, grasses, and low shrubs. The diversity of saltmarsh plant species increases with increasing latitude (in contrast to mangroves). The vegetation in these environments is essential to the stability of the saltmarsh, as they trap and bind sediments. The sediments are generally sandy silts and clays and can often have high organic material content.			
		Eighty Mile Beach Roebuck Bay	Shark Bay	Section 11
Sandy Beaches	Sandy beaches are dynamic environments, naturally fluctuating in response to external forcing factors (e.g. waves, currents, etc). Sandy beaches vary in length, width and gradient, and in sediment type, composition, and grain size throughout the NWMR. Sandy beaches are important for both resident and migratory seabirds and shorebirds and can also provide an important habitat for turtle nesting and breeding. They are located along many coastlines of the nearshore environments of the NWMR.			
	Cape Domett Lacrosse Island	Eighty Mile Beach Eco Beach Dampier Archipelago Inshore Pilbara Islands (Northern, Middle, and Southern)	Ningaloo Coast Muiron Islands Exmouth Gulf	Section 11

Table 4-2 Habitats within the SWMR

Location	
Offshore	
Soft sediment with infauna	Most of the SWMR seafloor is composed of soft unconsolidated sediments, but due to large variations in bathymetry there are marked differences in sedimentary composition and benthic assemblage structure across the region. Despite the prevalence of these habitats in the SWMR, very little is known about the composition or distribution of the region's sedimentary infauna (DEWHA, 2008b).
Soft sediment with hard substrate outcropping	A unique seafloor feature combining both soft sediment and hard substrates, including outcrops, terraces, continental slope, and escarpments. Perth Canyon Marine Park Ancient coastline at 90-120 m depth contour KEF Diamantina Fracture Zone Naturaliste Plateau
Coral Reef	To date, studies and understanding of the corals within the SWMR have concentrated on the shallow water areas in State waters. Within the deeper Commonwealth waters of the SWMR little is known of the distribution of corals.
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water by passing the water over specialised filtration structures (DEWR, 2007). Filter feeders generally inhabit deeper habitat (below the photic zone) that have strong currents and hard substratum Ancient coastline at 90-120 m depth Diamantina Fracture Zone Naturaliste Plateau Perth Canyon Marine Park South-west Corner Marine Park
Nearshore	
Coral Reef	The northern extent of the SWMR coincides loosely with the disappearance of abundant and diverse coral from coastal habitats. To the south of Shark Bay, abundant corals occur predominantly around offshore islands, with corals at inshore sites occurring in very isolated patches of non-reef coral communities, usually of reduced species richness. Houtman Abrolhos Islands Rottnest Island
Seagrass and Macroalgae communities	Within the SWMR, macroalgae and seagrass communities are noted for their extent, species richness and endemism. The clear waters of the region allow light to reach greater depths, with some species found at much greater depths than usual (down to 120 m) (DEWR, 2007). Of the known species there are more than 1000 species of macro-algae and 22 species of seagrass consisting of tropical and temperate species. Seagrass and macro-algae occur in areas with sheltered bays and in the inter-reef lagoons along exposed sections of the coast. Houtman Abrolhos Islands Jurien Marine Park Shoalwater Islands Marine Park Geographe Marine Park Cockburn Sound Rottnest Island

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	Location
	Commonwealth marine environment within and adjacent to the West-coast inshore lagoons KEF Commonwealth marine environment within and adjacent to Geographe Bay KEF Commonwealth marine environment surrounding the Recherche Archipelago KEF
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water by passing the water over specialised filtration structures (DEWR, 2007). Filter feeders generally live in areas that have strong currents and hard substratum.
	Houtman Abrolhos Islands Recherche Archipelago
Mangroves	Mangroves grow in intertidal mud and sand, with specially adapted aerial roots (pneumatophores) that provide for gas exchange during low tide (McClatchie et al., 2006). Mangrove forests can help stabilise coastal sediments, provide a nursery ground for many species of fish and crustacean, and provide shelter or nesting areas for seabirds (McClatchie et al., 2006). Mangroves are confined to shoreline habitats, in nearshore areas of the SWMR.
	Houtman Abrolhos Islands
Sandy Beaches	Sandy beaches within the SWMR are important for both resident and migratory seabirds and shorebirds and can also host breeding populations of the Australian sea lion. They are found along many coastlines of the nearshore environments of the SWMR. In addition to this, beaches in the SWMR provide a variety of socio-economic values including tourism, commercial and recreational fishing, and support other recreational activities.
	Houtman Abrolhos Islands Marmion Marine Park Ngari Capes Marine Park Walpole and Nornalup Inlets Marine Park

Table 4-3 Habitats and Biological Communities within the NMR

Habitat/Community	Location
Offshore habitats and biological communities	
Soft sediment with infauna	Most of the offshore environment of the NMR is characterised by relatively flat expanses of soft sediment seabed. The soft sediments of the region are characterised by moderately abundant and diverse communities of infauna and mobile epifauna dominated by polychaetes, crustaceans, molluscs, and echinoderms.
Soft sediment with hard substrate outcropping	A unique seafloor feature combining both soft sediment and hard substrates, including outcrops, terraces, continental slope, and escarpments. The variability in substrate composition may contribute to the presence of unique ecosystems. Species present include sponges, soft corals and other sessile filter feeders associated with hard substrate sediments.
	Carbonate bank and terrace system of the Van Diemen Rise KEF Pinnacles of the Bonaparte Basin KEF
Coral Reef	Offshore coral reefs within the NMR are generally associated with a series of submerged shoals and banks. The shoals/banks in the region support tropical marine biota consistent with that found on emergent reef systems of the Indo West Pacific region such as Ashmore Reef, Cartier Island, Seringapatam Reef and Scott Reef (Heyward et al., 1997).
	Pinnacles of the Bonaparte Basin KEF Evans Shoal Tassie Shoal Blackwood Shoal
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water by passing the water over specialised filtration structures (DEWHA, 2007b). Filter feeders generally live in areas that have strong currents and hard substratum and typically associated with the deeper habitats of the submerged shoals and banks, and canyon features.
	Carbonate bank and terrace system of the Van Diemen Rise KEF Pinnacles of the Bonaparte Basin KEF Tributary Canyons of the Arafura Depression KEF Evans Shoal Tassie Shoal Goodrich Bank
Nearshore	
Coral Reef	Within the NMR corals occur both as reefs and in non-reef coral communities. Nearshore reefs include patch reefs and fringing reefs sparsely distributed within the region. Coral reefs within the NMR provides breeding and aggregation areas for many fish species including mackerel and snapper and offer refuges for sea snakes and apex predators such as sharks.
	Submerged coral reefs of the Gulf of Carpentaria KEF Darwin Harbour
Seagrass and Macroalgae communities	Seagrasses provide key habitats in the NMR. They stabilise coastal sediments and trap and recycle nutrients. They provide nursery grounds for commercially harvested fish and prawns and provide feeding grounds for dugongs and green turtles. Seagrass distribution in the region is largely associated with sheltered small bays and inlets including shallow waters surrounding inshore islands.
	Field Island The mainland coastline adjacent to Kakadu National Park

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Habitat/Community	Location
Filter Feeders/ heterotrophic	<p>Filter feeder epifauna such as sponges, ascidians, soft corals, and gorgonians are animals that feed by actively filtering suspended matter and food particles from water by passing the water over specialised filtration structures (DEWHA, 2007b). Filter feeders generally inhabit areas that have strong currents and hard substratum.</p> <p>Cape Helveticus</p>
Mangroves	<p>Mangroves grow in intertidal mud and sand, with specially adapted aerial roots (pneumatophores) that provide for gas exchange during low tide (McClatchie et al., 2006). Mangroves provide habitat for waterbirds and support many commercially and recreationally important fish and crustacean species for parts of their life cycles. They buffer the coast from large tidal movements, storm surges and flooding.</p> <p>Tiwi Islands Darwin Harbour The mainland coastline adjacent to the Daly River</p>
Sandy Beaches	<p>Sandy beaches vary in length, width and gradient, and in sediment type, composition, and grain size throughout the NMR and are important for both resident and migratory seabirds and shorebirds. Sandy beaches can also provide an important habitat for turtle nesting. They are located along many coastlines of the nearshore environments of the islands and mainland shores of the NMR.</p> <p>Tiwi Islands Cobourg Peninsula Joseph Bonaparte Gulf</p>

5. FISHES, SHARKS AND RAYS

5.1 Regional Context

Western Australian waters provide important habitat for listed fishes, sharks, and rays including areas that support key life stages such as breeding, foraging, and migration routes for fish species. Pelagic and demersal fishes occupy a range of habitats throughout each of the regions, from coral reefs to open offshore waters, and are an extremely important component of ecosystems, providing a link between primary production and higher predators, with many species being of conservation value and important for commercial and recreational fishing.

The NWMR supports a wide diversity of global fish species. Of the approximately 500 shark species found worldwide, 94 are found in the region (DEWHA, 2008). Approximately 54 species of syngnathids (seahorses, seadragons, pipehorses and pipefishes) and one species of solenostomids (ghostpipefishes) are also known to occur in the NWMR or adjacent State waters (DSEWPAC, 2012a).

The fish fauna of the SWMR includes more than 900 species occupying a large variety of habitats. However, only three species of bony fishes known to occur in the region are listed under the EPBC Act as threatened or marine species, and seven listed species of shark (DSEWPAC, 2012b).

The NMR is considered an important area for the sawfish and river shark species group, with five species of sawfishes and river sharks listed under the EPBC Act known to occur in the region (DSEWPAC, 2012c). Approximately 28 species of syngnathids and two species of solenostomids are listed marine and known to occur in the NMR, however there is a paucity of knowledge on the distribution, relative abundance and habitats of these species in the region (DEWHA, 2008).

The following sections focus on the fish species (including sharks and rays) listed as threatened or migratory that are known to occur within the NWMR. In addition, listed, conservation-dependent fish and shark species for the NWMR are described. A detailed account of commercial and recreational fisheries that operate in the region is provided in **Section 12**.

Table 5-1 outlines the threatened and migratory fish species that may or are known to occur within the NWMR, with their conservation status and relevant recovery plans and/or conservation advice. **Table 5-2** includes fish species listed as conservation dependent that may occur within the NWMR, NMR and SWMR.

Table 5-1 Fish species (including sharks and rays) identified by the EPBC Act PMST that may occur within the NWMR

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report Appendix A)			Biodiversity Conservation Act 2016 (WA) ⁵	IUCN Red List of Threatened Species (non-statutory) ⁶	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<i>Rhincodon typus</i>	Whale shark	Vulnerable	Migratory	Marine	Migratory	Endangered	Conservation Advice <i>Rhincodon typus</i> whale shark. (Threatened Species Scientific Committee, 2015d)
<i>Carcharias taurus</i>	Grey nurse shark (West-coast population)	Vulnerable	N/A	Marine	Vulnerable	Critically Endangered	Recovery Plan for the Grey Nurse Shark (<i>Carcharias taurus</i>) (DOE, 2014)
<i>Carcharodon carcharias</i>	White shark	Vulnerable	Migratory	Marine	Vulnerable	Vulnerable	Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>) (DSEWPAC, 2013b)
<i>Isurus oxyrinchus</i>	Shortfin mako	N/A	Migratory	Marine	Migratory	Endangered	N/A
<i>Isurus paucus</i>	Longfin mako	N/A	Migratory	Marine	Migratory	Endangered	N/A
<i>Lamna nasus</i>	Porbeagle shark Mackerel shark	N/A	Migratory	Marine	Migratory	Vulnerable	N/A
<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	N/A	Migratory	Marine	N/A	Critically Endangered	N/A
<i>Anoxypristis cuspidata</i>	Narrow sawfish	N/A	Migratory	Marine	Migratory	Critically Endangered	N/A
<i>Pristis clavata</i>	Dwarf sawfish	Vulnerable	Migratory	Marine	Priority	Critically Endangered	Sawfish and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015b)
<i>Pristis pristis</i>	Largetooth (freshwater) sawfish	Vulnerable	Migratory	Marine	Priority	Critically Endangered	
<i>Pristis zijsron</i>	Green sawfish	Vulnerable	Migratory	Marine	Vulnerable	Critically Endangered	
<i>Glyphis garricki</i>	Northern river shark	Endangered	N/A	Marine	Priority	Vulnerable	
<i>Manta alfredi</i>	Reef manta ray	N/A	Migratory	Marine	Migratory	Vulnerable	N/A
<i>Manta birostris</i>	Giant manta ray	N/A	Migratory	Marine	Migratory	Endangered	N/A

⁵ Threatened and Priority Fauna List – April 2024 - <https://www.dbca.wa.gov.au/management/threatened-species-and-communities> (accessed on 13/08/2024)

⁶ IUCN. 2024. The IUCN Red List of Threatened Species. Version 2024-1. <https://www.iucnredlist.org> (accessed on 13/08/2024)

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Table 5-2 EPBC Act listed Conservation Dependent species of fishes and sharks that may occur in the NWMR, NMR and SWMR

Species Name	Common Name	Likely Occurrence / Distribution	Listing Advice
<i>Hoplostethus atlanticus</i>	Orange roughy, Deep-sea perch, Red roughy	SWMR	No conservation listing advice for this species. Refer to the Marine bioregional plan for the SWMR (DSEWPAC, 2012b) for further information. Managed under AFMA's Orange Roughy Stock Rebuilding Strategy (AFMA, 2014)
<i>Sphyrna lewini</i>	Scalloped hammerhead	NWMR, NMR and SWMR ⁷	Threatened Species Scientific Committee (2018)
<i>Galeorhinus galeus</i>	School shark, Eastern school shark, Snapper shark, Tope, Soupfin shark	SWMR	Threatened Species Scientific Committee (2009)
<i>Centrophorus uyato</i>	Little gulper shark	NWMR and SWMR	No conservation listing advice for this species. Refer to listing advice (Threatened Species Scientific Committee, 2013)

⁷ A recurrent aggregation of scalloped hammerheads has been recorded within the Shoalwater Islands Marine Park (32° S; 115° E), 240 km south of Jurien Bay, observed from drone footage collected during the 2019 and 2020 Austral summers. The species has rarely been recorded south of Jurien Bay previously (López et al., 2022).

5.2 Protected Sharks, Sawfishes and Rays in the NWMR

The EPBC Act Protected Matters search (**APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR) identified seven species of shark and five species of river shark or sawfish listed as threatened and/or migratory within the NWMR. In addition, two species of ray (the reef manta ray and giant manta ray) are listed as migratory within the region (refer **Table 5-3**).

5.2.1 Sharks and Sawfishes

The shark species that may or are known to occur within the NWMR include: the whale shark, grey nurse shark, white shark, shortfin mako, and longfin mako (**Table 5-3**).

Five species of river shark or sawfish that may or are known to occur in the NWMR include: the narrow sawfish, northern river shark, freshwater sawfish, green sawfish and dwarf sawfish (**Table 5-3** Error! Reference source not found.).

There are identified biologically important areas (BIAs) within the NWMR for the whale shark, freshwater sawfish, green sawfish, and dwarf sawfish (**Table 5-5**).

Table 5-3 Information on the EPBC-listed threatened shark, fish and sawfish species that may or are known to occur within the NWMR.

Species	Preferred Habitat and Diet	Habitat Location
Whale shark	Preferred habitat: They have a widespread distribution in tropical and warm temperate seas, throughout oceanic and coastal Australian waters (Last and Stevens, 2009). Diet: Whale shark are planktivorous and feed on a variety of planktonic species including krill, jellyfish, and crab larvae (Last and Stevens, 2009).	Ningaloo Reef is the main known aggregation site for whale sharks in Australian waters and has the largest density of whale sharks per kilometre in the world (Martin, 2007). Acoustically tagged whale sharks have been detected on the North-west Shelf in June, July and October-January (Thomson et al. 2021). Satellite tagging and sightings of whale sharks off the Western Australian coast indicate that whilst whale sharks aggregate in higher numbers at Ningaloo Reef seasonally, they may be present year-round (Norman et al., 2017). Refer Table 5-5 for the BIA summary for the whale shark.
Grey nurse shark (West-coast population)	Preferred habitat: Most found in temperate waters on, or close to, the bottom of the continental shelf, from close inshore to depths of about 200 m (McAuley, 2004; Kyne et al., 2021). Diet: A variety of teleost and elasmobranch fishes and some cephalopods (Gelsleichter et al., 1999; Smale, 2005).	Details of movement patterns of the western sub-population are unclear (McAuley, 2004) and key aggregation sites have not been formally identified within the NWMR (Chidlow et al., 2006). The NWMR represents the northern limit of the West-coast population. Sighting and bycatch data have indicated grey nurse sharks are present near Exmouth and Shark Bay between May - December (Hoschke et al., 2023).
White shark	Preferred habitat: The species typically occurs in temperate coastal waters between the shore and the 100 m depth contour; however, adults and juveniles have been recorded diving to depths of 1000 m (Bruce et al., 2006; Bruce, 2008). Diet: Smaller white sharks (less than 3 m length) feed primarily on teleost and elasmobranch fishes,	There are no known aggregation sites for white sharks in the NWMR, and this species is most often found south of North-west Cape, in low densities (DSEWPAC, 2012a). Given the migratory nature of the species, it most likely has a broad

Species	Preferred Habitat and Diet	Habitat Location
	broadening their diet as larger sharks to include marine mammals (Last and Stevens, 2009).	distribution within the NWMR. No BIAs identified for NWMR.
Shortfin mako	<p>Preferred habitat: The shortfin mako shark is a pelagic species with a circumglobal, wide-ranging oceanic distribution in tropical and temperate seas (Mollet et al., 2000). Tagging studies indicate shortfin makos spend most of their time in water less than 50 m deep but with occasional dives up to 880 m (Abascal et al., 2011; Stevens et al., 2010). Satellite telemetry data suggest shortfin makos have multiple movement phases, displaying both high connectivity between Australian populations and periods of residency (Corrigan et al., 2018).</p> <p>Diet: Feeds on a variety of prey, such as teleost fishes, other sharks, marine mammals, and marine turtles (Campana et al., 2005).</p>	Given the migratory nature of the species, it most likely has a broad distribution within the NWMR. No BIAs identified for NWMR.
Longfin mako	<p>Preferred habitat: A pelagic species with a wide-ranging, patchy, oceanic distribution in tropical and temperate seas (Mollet et al., 2000; Kyne et al., 2021). They have been recorded at depth ranges of 0–1,752 m (Kyne et al., 2021).</p> <p>Diet: Primarily teleost fishes and cephalopods (primarily squid) (Last and Stevens, 2009).</p>	<p>Records on longfin mako sharks are sporadic and their complete geographic range is not well known (Reardon et al., 2006).</p> <p>Given the migratory nature of the species, most likely has a broad distribution within the NWMR. No BIAs identified for NWMR.</p>
Mackerel/Porbeagle shark	<p>Preferred habitat: The porbeagle shark primarily inhabits offshore waters around the edge of the continental shelf. They occasionally move into coastal waters, but these movements are temporary (Campana and Joyce, 2004; Francis et al., 2002). The porbeagle shark is known to dive to depths exceeding 1300 m (Campana et al., 2010; Saunders et al., 2011). Depth range records are 0-370 m (Kyne et al., 2021).</p> <p>Diet: Primarily teleost fish, elasmobranchs, and cephalopods (primarily squid) (Joyce et al., 2002; Last and Stevens, 2009).</p>	In Australia, the species occurs in waters from southern Queensland to South-west Australia (Last and Stevens, 2009). Distribution within the NWMR is unknown, but there are several records for this species within the NWS (Atlas of Living Australia (ALA)).
Oceanic whitetip shark	<p>Preferred habitat: The oceanic whitetip shark is globally distributed in warm-temperate and tropical oceans (Andrzejczek et al., 2018). The species may occur in tropical and sub-tropical offshore and coastal waters around Australia. They primarily occupy pelagic waters in the upper 200 m of the water column; however, they have been observed diving to depths of around 1000 m, potentially associated with foraging behaviour (Howey-Jordan et al., 2013; D'Alberto et al., 2017). The species is highly migratory, travelling large distances between shallow reef habitats in coastal waters and oceanic waters (Howey-Jordan et al., 2013). The species does exhibit a strong preference for warm and shallow waters above 120 m.</p> <p>Diet: Opportunistic feeders and generally target a variety of finfishes and pelagic squid, depending on habitat. Targets pelagics such as tuna in open ocean as noted by the large bycatch numbers in the long line fisheries.</p>	Given the migratory nature of the species, it most likely has a broad distribution within the NWMR. No BIAs identified for NWMR.
Narrow sawfish	Preferred habitat ¹ : Shallow coastal, estuarine, and riverine habitats, however it may occur in waters up to 40 m deep (D'Anastasi et al., 2013).	Shallow coastal waters of the Pilbara and Kimberly coasts (Last and Stevens, 2009).

Species	Preferred Habitat and Diet	Habitat Location
	Diet: Shoaling fishes, such as mullet, as well as molluscs and small crustaceans (Cliff and Wilson, 1994).	
Northern river shark	Preferred habitat ¹ : Rivers, tidal sections of large tropical estuarine systems and macrotidal embayments, as well as inshore and offshore marine habitats (Pillans et al., 2009; Thorburn and Morgan, 2004). Adults have been recorded only in marine environments. Juveniles and sub-adults have been recorded in freshwater, estuarine and marine environments (Pillans et al., 2009). Depth range of up to 23 m (Kyne et al., 2021). Diet: Variety of fish and crustaceans (Stevens et al., 2005).	The northern river shark has a relatively restricted northern Australian range (although with an extent of occurrence >20,000 km ²) (Kyne et al., 2021). Within the NWMR records have come from both the West and East Kimberley, including King Sound, the Ord and King rivers, West Arm of Cambridge Gulf and also from Joseph Bonaparte Gulf (Thorburn and Morgan, 2004; Stevens et al., 2005; Thorburn, 2006; Field et al., 2008; Pillans et al., 2008, Whitty et al., 2008; Wynen et al., 2008).
Largetooth (freshwater) sawfish	Preferred habitat: Sandy or muddy bottoms of shallow coastal waters, estuaries, river mouths and freshwater rivers, and isolated water holes. Diet: Shoaling fishes, such as mullet, as well as molluscs and small crustaceans (Cliff and Wilson, 1994).	The largetooth sawfish has a wide Northern Australia range (Kyne et al., 2021). The Kimberley region, particularly the Fitzroy River, is identified as an important nursery site (Bateman et al. 2024). The Exmouth Gulf represents the approximate southern limit for the largetooth (freshwater) sawfish, although there are a few historical records further south (Bateman et al. 2024). Refer to Table 5-5 for the BIA summary for the Largetooth (freshwater) sawfish.
Green sawfish	Preferred habitat ¹ : Inshore coastal environments including estuaries, river mouths, embayments, and along sandy and muddy beaches, as well as offshore marine habitat (Stevens et al., 2005; Thorburn et al., 2003). They are found at depths of up to 70 m (Kyne et al., 2021). Diet: Schools of baitfish and prawns (Pogonoski et al., 2002), molluscs and small crustaceans (Cliff and Wilson, 1994).	An aggregation of green sawfish (<i>Pristis zijsron</i>) has been identified in the Garig Gunak Barlu National Park (Cobourg Peninsula, NMR). Davies et al., 2022) suggests this may be a nursery area. The Ashburton River Estuary (Onslow region) has been recorded as a nursery site, with juveniles also observed along the Pilbara coast and Exmouth Gulf (Bateman et al., 2024). Refer Table 5-5 for the BIA summary for the green sawfish.
Dwarf sawfish	Preferred habitat ¹ : Shallow (up to 20 m) silty coastal waters and estuarine habitats, occupying relatively restricted areas and moving only small distances (Stevens et al., 2008; Kyne et al., 2015). Diet: Shoaling fish such as mullet, molluscs, and small crustaceans (Cliff and Wilson, 1994).	Literature indicates the most southern range for the dwarf sawfish is Port Hedland (Bateman et al., 2024). Refer Table 5-5 for the BIA summary for the dwarf sawfish.

¹ Preferred habitat as described within the *Sawfish and River Sharks Multispecies Recovery Plan* (Commonwealth of Australia, 2015b).

5.2.2 Rays

Rays are commonly found in the NWMR. Two listed and migratory species of ray are known to occur within the NWMR: the reef manta ray and giant manta ray.

No BIAs for either the reef or giant manta ray species have been identified in the NWMR.

Table 5-4 Information on migratory ray species within the NWMR

Species	Preferred Habitat and Diet	Habitat Location
Reef manta ray	Preferred habitat: The reef manta ray is commonly sighted within productive nearshore environments, such as island groups, atolls or continental coastlines. However, the species has also been recorded at offshore coral reefs, rocky reefs, and seamounts (Marshall et al., 2009). Recorded depth range of 0-432 m (Kyne et al., 2021). Diet: Feed on planktonic organisms including krill and crab larvae.	A resident population of reef manta rays has been recorded at Ningaloo Reef. No BIAs identified for NWMR.
Giant manta ray	Preferred habitat: The species primarily inhabits near-shore environments along productive coastlines with regular upwelling, but they appear to be seasonal visitors to coastal or offshore sites including offshore island groups, offshore pinnacles and seamounts (Marshall et al., 2011). Recorded depth range of up to 1000 m (Kyne et al., 2021). Diet: Feed on planktonic organisms including krill and crab larvae.	The Ningaloo coast is an important area for giant manta rays from March to August (Preen et al., 1997). No BIAs identified for NWMR.

5.3 Fish, Shark and Sawfish Biological Important Areas in the NWMR

A review of The Australian Marine Spatial Information System (GA, 2024) identified Biologically Important Areas (BIAs) for four species of fish, shark and sawfish (whale shark, largetooth (freshwater) sawfish, green sawfish and dwarf sawfish) within the NWMR. The BIAs for the whale shark and the sawfish species include foraging, nursing, juvenile and pupping areas. These are described in **Table 5-5**.

Table 5-5 Fish, whale shark and sawfish BIAs within the NWMR (source: AMSIS, accessed 14/08/2024)

	Woodside Activity Area			BIAs			
	Browse	NWS/S	NWC	Reproduction - Pupping	Reproduction - Nursing	Juvenile	Foraging
Whale shark	✓	✓	✓	No pupping BIA identified within the NWMR	No nursing BIA identified within the NWMR	N/A	Foraging (high density) in Ningaloo Marine Park and adjacent Commonwealth waters (March–July) Foraging northward from Ningaloo along the 200 m isobath (July – Nov).
Green sawfish	✓	✓	-	Pupping in Cape Keraudren (pupping occurs in summer in a narrow area adjacent to shoreline) Pupping in Willie Creek Pupping in Roebuck Bay Pupping in Cape Leveque Pupping in waters adjacent to Eighty Mile Beach Pupping (likely) in Camden Sound	Nursing in Cape Keraudren Nursing in waters adjacent to Eighty Mile Beach	No juvenile BIA identified within the NWMR.	Foraging in Cape Keraudren Foraging in Roebuck Bay Foraging in Cape Leveque Foraging in Camden Sound
Large-tooth (freshwater) sawfish	✓	✓	-	Pupping in the mouth of the Fitzroy River (January to May) Roebuck Bay (Jan – May) Pupping likely in waters adjacent to Eighty Mile Beach (Jan- May)	Nursing (likely) in King Sound	Waters adjacent to Eighty Mile Beach Roebuck Bay	Foraging in the mouth of the Fitzroy River (January to May) Foraging in King Sound Roebuck Bay (Jan – May) Foraging in waters adjacent to Eighty Mile Beach
Dwarf sawfish	✓	✓	-	Pupping in King Sound Pupping in waters adjacent to Eighty Mile Beach	Nursing in King Sound Nursing waters adjacent to Eighty Mile Beach	King Sound	Foraging in King Sound Foraging in Camden Sound

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	Woodside Activity Area			BIAs			
	Browse	NWS/S	NWC	Reproduction - Pupping	Reproduction - Nursing	Juvenile	Foraging
							Foraging in waters adjacent to Eighty Mile Beach

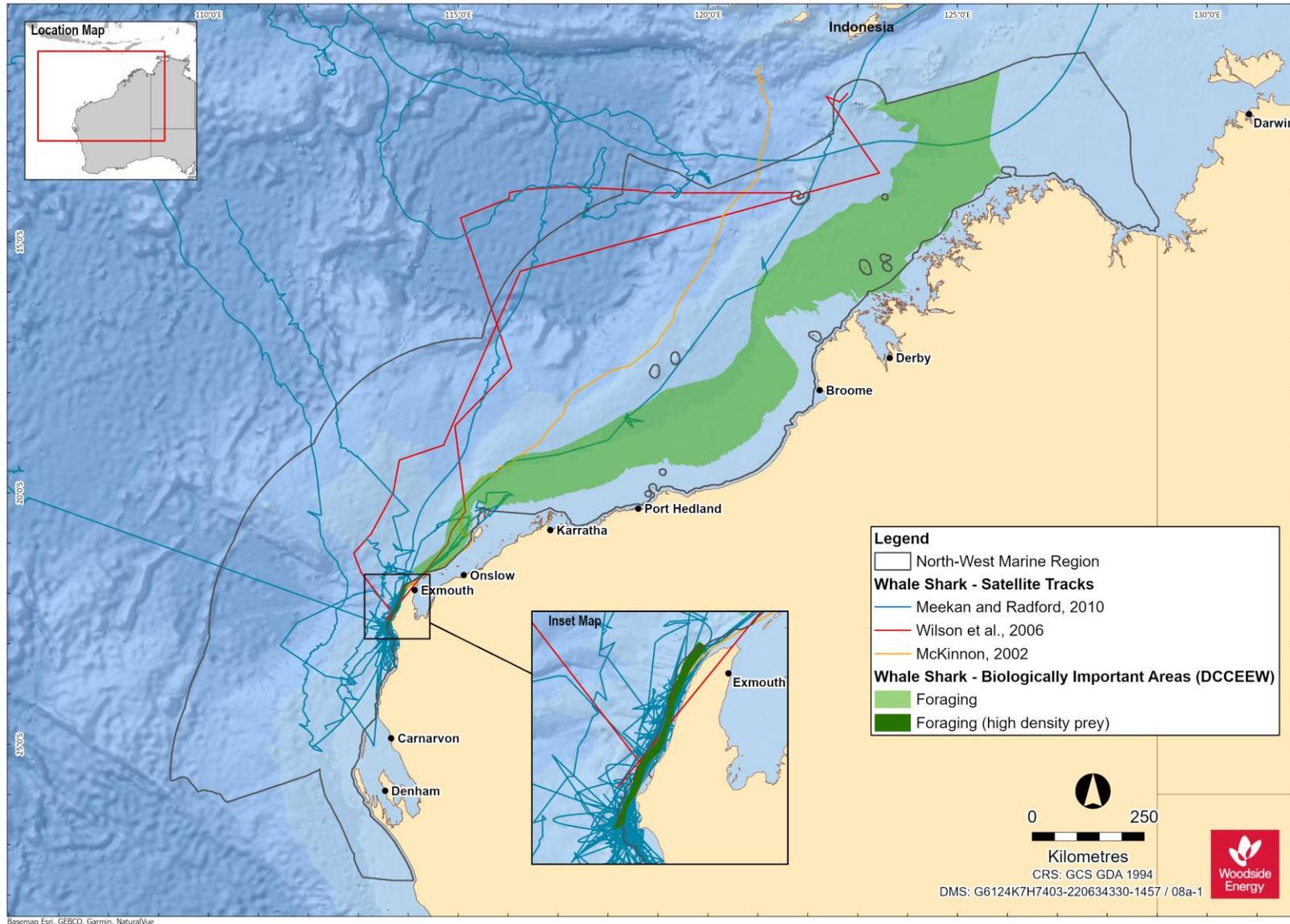


Figure 5-1 Whale shark BIAs for the NWMR and tagged whale shark satellite tracks (data source for BIAs: DCCEEW, 2024b)

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Page 67 of 379

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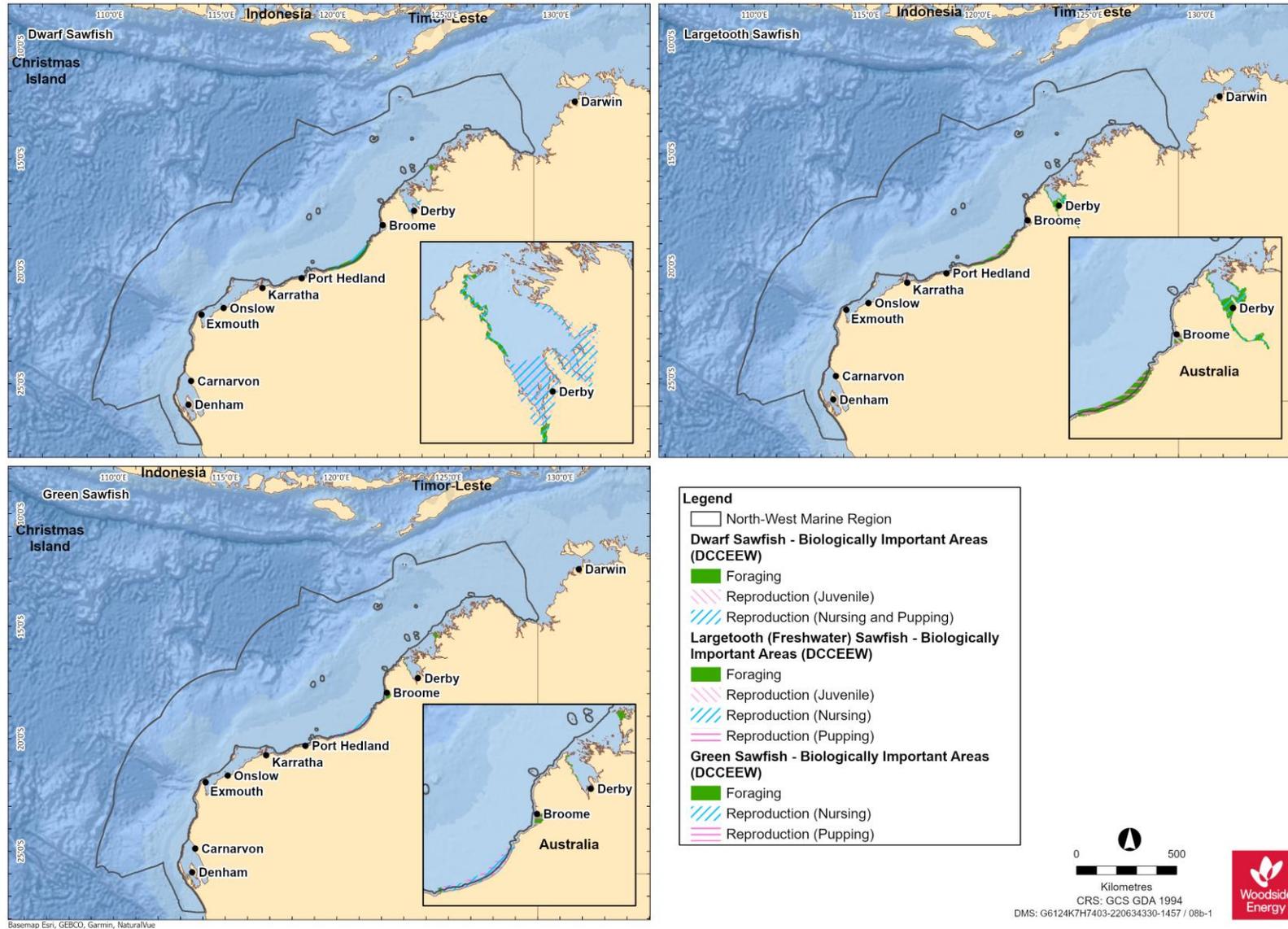


Figure 5-2 Sawfish BIAs for the NWMR (data source: DCCEEW, 2024b)

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5.4 Fish Assemblages of the NWMR

5.4.1 Regional Context for Fish Assemblages of NWMR

The NWMR contains a diverse range of fishes of tropical Indo-west Pacific affinity (Allen et al., 1988). The region is characterised by the highest level of endemism and species diversity compared with other areas of the Australian continental slope. Last et al. (2005) recorded 1,431 species from the three bioregions encompassing the continental slope, whilst also acknowledging some information gaps. A study of fish assemblages of the Dampier Archipelago found habitat type and complexity influenced fish abundance, with significantly higher abundance in mangrove and coral habitats (Moustaka, et al. 2024).

The NWMR is known for its demersal slope fish assemblages; the continental slope of the Timor Province and the North-west Transition supports more than 418 and 505 species of demersal fishes respectively, of which 64 are considered to be endemic. This is the second richest area for demersal fish species across the entire Australian continental slope. Conversely, the broad Southern Province, which covers most of southern Australia, supports 463 species with only 26 possibly being endemic. The continental slope demersal fish assemblages of the NWMR have been identified as a KEF (DEWHA, 2008), as described in **Section 10**.

The ancient coastline at 125m depth contour KEF within the NWMR is thought to support enhanced diversity. Drivers of fish species richness, biodiversity and assemblage composition have been assessed, finding that depth, seafloor complexity and habitat type explain richness and abundance of fish assemblages (Currey-Randall et al., 2021). This study also found that fish communities along the ancient coastline KEF are similar to other mesophotic areas on the NWS. Most of the surveyed feature was characterised by soft sediment and highly mobile fish species (Currey-Randall et al., 2021).

The NWMR also features a diversity of pelagic fishes (those living in the pelagic zone) and benthopelagic fishes, including tuna, billfish, bramids, lutjanids, serranids and some sharks (DEWHA, 2007a). These species feed on salps and jellyfish, and more often on secondary consumers such as squid and bait fish. Water depth provides an indication of the level of interaction between pelagic and benthic communities within the NWMR; in waters deeper than 1000 m, for instance, the trophic system is pelagically-driven and benthic communities rely on particulates that fall to the seafloor (DEWHA, 2007a).

Pelagic fishes play an important ecological role within the NWMR; small pelagic fishes, such as lantern fish, inhabit a range of marine environments, including inshore and continental shelf waters and form a vital link in and between many of the region's trophic systems, feeding on pelagic phytoplankton and zooplankton and providing a food source for a wide variety of predators including large pelagic fishes, sharks, seabirds and marine mammals (Bulman, 2006; Mackie et al., 2007). Large pelagic fishes, such as tuna, mackerel, swordfish, sailfish and marlin are found mainly in oceanic waters and occasionally on the continental shelf (Brewer et al., 2007). Both juvenile and adult phases of the large pelagic species are highly mobile and have a wide geographic distribution, although the juveniles more frequently inhabit warmer or coastal waters (DEWHA, 2008).

5.4.2 Listed Fish Species in the NWMR

The family Syngnathidae is a group of bony fishes that includes seahorses, pipefishes, pipehorses and seadragons. Along with syngnathids, members of the related Solenostomidae family (ghost pipefishes) are also found in the NWMR (DSEWPAC, 2012a).

There are 55 solenostomid and syngnathid species that are listed marine species that may occur within the NWMR, although no species is currently listed as threatened or migratory, according to the PMST report (**APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR).

Syngnathids live in nearshore and inner shelf habitats, usually in shallow coastal waters, among seagrasses, mangroves, coral reefs, macroalgae dominated reefs, and sand or rubble habitats (Dawson, 1985; Lourie et al., 1999, Lourie et al., 2004; Vincent, 1996). Two species, the winged seahorse (*Hippocampus alatus*) and western pipehorse (*Solegnathus sp. 2*) have been identified in deeper waters of the NWMR (up to 200 m) (DSEWPAC, 2012a), however, these species were not identified by the Protected Matters search of the NWMR.

Knowledge about the distribution, abundance and ecology of both syngnathids and solenostomids in the NWMR is limited. No BIAs for syngnathids and solenostomids have been identified in the NWMR.

5.4.3 Browse

The proposed Browse activity area includes biologically important habitat for the whale shark and three sawfish species:

- whale shark (foraging northward from Ningaloo along the 200 m isobath (July - November) (**Table 9-1**))
- Largetooth (freshwater) sawfish (pupping, nursing and foraging areas),
- green sawfish (pupping, nursing and foraging areas); and
- dwarf sawfish (pupping, nursing and foraging areas).

BIAs for the shark and sawfish species are outlined in **Table 5-5** and **Figure 5-**.

The proposed Browse activity area has partial overlap with the continental slope demersal fish communities KEF.

5.4.4 NWS / Scarborough

The NWS / Scarborough activity area includes biologically important habitat for the whale shark and three sawfish species:

- whale shark (foraging northward from Ningaloo along the 200 m isobath (July - November) (**Table 9-1**))
- freshwater sawfish (pupping, nursing and foraging areas),
- green sawfish (pupping, nursing and foraging areas); and
- dwarf sawfish (pupping, nursing and foraging areas).

BIAs for the whale shark and sawfish species are outlined in **Table 5-5** and **Figure 5-**.

The NWS / Scarborough activity area has partial overlap with the continental slope demersal fish communities KEF. The continental slope between North-west Cape and the Montebello Trough has more than 500 fish species, 76 of which are endemic, which makes it the most diverse slope bioregion in Australia (Last et al., 2005).

5.4.5 North-west Cape

The North-west Cape activity area includes biologically important foraging habitat for the whale shark:

- Foraging (high density) in Ningaloo Marine Park and adjacent Commonwealth waters (March- July) (**Table 9-1**); and
- Foraging northward from Ningaloo along the 200 m isobath (July- November) (**Table 9-1**)
 - BIAs for the whale shark are outlined in **Table 5-5** and **Figure 5-**.

The North-west Cape activity area coincides with part of the continental slope demersal fish communities KEF.

6. MARINE REPTILES

6.1 Regional Context for Marine Reptiles

The NWMR contains important habitat for listed marine reptiles, including areas that support key life stages such as nesting, internesting, migration and foraging for marine turtle species, and habitats supporting resident sea snake and crocodile populations.

Six of the seven marine turtle species occur in Australian waters, and all six (the green turtle, hawksbill turtle, loggerhead turtle, flatback turtle, leatherback turtle and olive ridley turtle) occur in the NWMR and NMR, with four species of marine turtles occurring in the SWMR (see Protected Matters reports in APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR).

There are 25 listed species of sea snake reported within or adjacent to the NWMR (Guinea, 2007a; Udyawer et al., 2016), of which four are endemic to reef habitats in the remote parts of the region (see NWMR Protected Matters report in **APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR).

There are significantly fewer marine reptile species that frequently occur within the SWMR and presently include four species of listed marine turtle and six sea snake species. Other species of sea snake may occur because of the southward-flowing Leeuwin Current as vagrants in the region (DSEWPAC, 2012b) (see SWMR Protected Matters report in **APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR).

28 listed sea snake species 'may' occur in the NMR, as reported in the Protected Matters report in APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR.

The following sections focus on the listed marine reptile species known to occur within the NWMR.

Table 6-1 outlines the threatened and migratory marine reptile species that may or are known to occur within the NWMR, with their conservation status and relevant recovery plans and/or conservation advice.

Table 6-1 Marine reptile species identified by the EPBC Act PMST that may occur within or utilise habitats in the NWMR for key life cycle stages

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report Appendix A)			Biodiversity Conservation Act 2016 (WA) ⁸	IUCN ¹ Red List of Threatened Species (non-statutory) ⁹	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<i>Caretta caretta</i>	Loggerhead turtle	Endangered	Migratory	Marine	Endangered	Vulnerable	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)
<i>Chelonia mydas</i>	Green turtle	Vulnerable	Migratory	Marine	Vulnerable	Endangered	
<i>Dermochelys coriacea</i>	Leatherback turtle	Endangered	Migratory	Marine	Vulnerable	Vulnerable	
<i>Eretmochelys imbricata</i>	Hawksbill turtle	Vulnerable	Migratory	Marine	Vulnerable	Critically Endangered	
<i>Natator depressus</i>	Flatback turtle	Vulnerable	Migratory	Marine	Vulnerable	Data Deficient	
<i>Lepidochelys olivacea</i>	Olive Ridley turtle	Endangered	Migratory	Marine	Endangered	Vulnerable	
<i>Varanus mitchelli</i>	Mitchell's water monitor	Critically endangered	N/A	N/A	N/A	Critically Endangered	Conservation Advice for <i>Varanus mitchelli</i> (Mitchell's water monitor) (DCCEEW, 2023c)
<i>Aipysurus apraefrontalis</i>	Short-nosed sea snake	Critically endangered	N/A	Marine	Critically endangered	Data Deficient	Approved Conservation Advice for <i>Aipysurus apraefrontalis</i> (Short-nosed Sea Snake) (DSEWPAC, 2011a)
<i>Aipysurus foliosquama</i>	Leaf-scaled sea snake	Critically endangered	N/A	Marine	Critically endangered	Data Deficient	Approved Conservation Advice for <i>Aipysurus foliosquama</i> (Leaf-scaled Sea Snake) (DSEWPAC, 2011b)
<i>Aipysurus fuscus</i>	Dusky sea snake	Under listing assessment ¹⁰	N/A	Marine	N/A	Endangered	Conservation Advice for <i>Aipysurus fuscus</i> (dusky sea snake) (DCCEEW, 2023e) ⁷
<i>Crocodylus porosus</i>	Salt-water crocodile	N/A	Migratory	Marine	Migratory	Least Concern	N/A

⁸ Threatened and Priority Fauna List – April 2024 - <https://www.dbca.wa.gov.au/management/threatened-species-and-communities> (accessed on 13/08/2024)

⁹ IUCN. 2024. The IUCN Red List of Threatened Species. Version 2024-1. <https://www.iucnredlist.org> (accessed on 13/08/2024)

¹⁰ At time of writing (August 2024), Dusky sea snake proposed for inclusion on the EPBC Act threatened species list in the Endangered category (DCCEEW, 2023e).

6.2 Marine Turtles in the NWMR, SWMR and NMR Bioregions

According to the Protected Matters search (**APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR) six species of marine turtle known to occur within the NWMR are listed as threatened and migratory (three Vulnerable and three Endangered) under the EPBC Act—the green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), flatback (*Natator depressus*), loggerhead (*Caretta caretta*), leatherback (*Dermochelys coriacea*) and olive ridley (*Lepidochelys olivacea*) turtles (DSEWPAC, 2012a) (refer **Table 6-1**).

The NWMR supports globally significant breeding populations of four marine turtle species: the green, hawksbill, flatback and loggerhead turtle. Olive ridley turtles are known to forage within the NWMR, but there are only occasional records of the species nesting in the region. Leatherback turtles regularly forage over Australian continental shelf waters within the NWMR but there are also no records of the species nesting in the region (DSEWPAC, 2012a).

The six marine turtle species reported for the NWMR also occur within the NMR.

Four marine turtle species; the green, loggerhead, flatback, and leatherback turtle, have presumed feeding areas within the SWMR; however, no known nesting areas exist within the region (DSEWPAC, 2012b).

Discrete genetic stocks have evolved within each marine turtle species. This is the result of marine turtles returning to the location where they hatched. These genetically distinct stocks are defined by the presence of regional breeding aggregations. Stocks are composed of multiple rookeries in a region and are delineated by where there is little or no migration of individuals between nesting areas. Turtles from different stocks typically overlap at feeding grounds (Commonwealth of Australia, 2017). There are 17 genetic stocks across both the NWMR and NMR (nine in the NWMR, six in the NMR, and two overlapping both regions). Of these 17 genetic stocks, nine are known to occur within Woodside's three areas of activity (**Table 6-2**).

6.2.1 Life Cycle Stages

Marine turtles are highly migratory during non-reproductive life phases and have high site fidelity during breeding and nesting life phases. The majority of their lives are spent in the ocean, with only adult female marine turtles coming ashore to lay eggs in the sand above the high-water mark on natal beaches (Commonwealth of Australia, 2017). **Figure 6-1** summarises the generalised life cycle of marine turtles. Species-specific life cycle information is outlined within the Recovery Plan for Marine Turtles of Australia (Commonwealth of Australia, 2017).

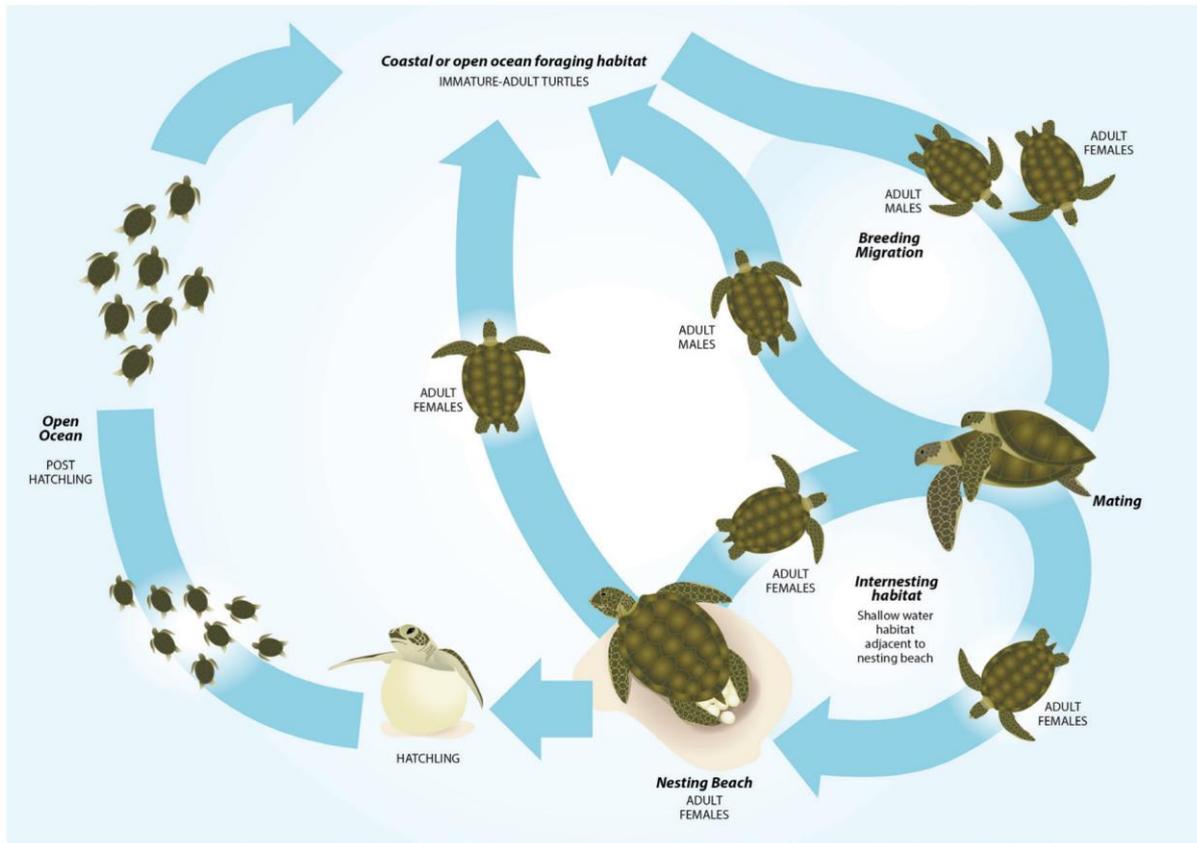


Figure 6-1 Generalised life cycle of marine turtles (Commonwealth of Australia, 2017)

6.2.2 Habitat Critical to Survival for Marine Turtles in the NWMR

The Recovery Plan for Marine Turtles of Australia (Commonwealth of Australia, 2017) identifies habitat critical to the survival of a species for marine turtle stocks under the EPBC Act. Habitat critical to survival is defined by the EPBC Act *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* as areas necessary:

- for activities such as foraging, breeding or dispersal;
- for the long-term maintenance of the species (including the maintenance of species essential to the survival of the species);
- to maintain genetic diversity and long-term evolutionary development; and
- for the reintroduction of populations or recovery of the species.

The Recovery Plan for Marine Turtles of Australia (Commonwealth of Australia, 2017) has identified nesting locations and associated internesting areas as habitat critical to survival for four marine turtle species within the NWMR and these are identified, described and mapped in **Table 6-2** and **Figure 6-2**. No habitat critical to survival has been identified within the NWMR for olive ridley or leatherback turtles.

Table 6-2 outlines the relevant genetic stock, habitat critical to survival and key life cycle stage seasonality of the four species of marine turtles within the NWMR.

Table 6-2 Genetic stock, habitat critical to survival and key life cycle stage seasonality of the four species of marine turtles within the NWMR

Species	Woodside Activity Area			Habitat Critical to Survival			
	Browse	NWS/S	NWC	Nesting (*Major Rookery ¹)	Internesting Buffer	Seasonality-Nesting	Preferred Habitat ²
Green Turtle							
NWS Stock (G-NWS)	✓	✓	✓	Adele Island Maret Island Cassini Island Lacepede Islands* Barrow Island* Montebello Islands (all with sandy beaches)* Serrurier Island Dampier Archipelago Thevenard Island Northwest Cape* Ningaloo Coast	20 km radius	Nov-Mar	Nearshore reef habitats in the photic zone.
Ashmore Reef Stock (G-AR)	✓	-	-	Ashmore Reef* Cartier Reef*		All year (peak: Dec-Jan)	
Scott Reef-Browse Island Stock (G-ScBr)	✓	-	-	Scott Reef (Sandy Islet)* Browse Island*		Nov-Mar	
Hawksbill Turtle							
Western Australia Stock (H-WA)	-	✓	-	Dampier Archipelago (including Rosemary Island and Delambre Island)* Montebello Islands (including Ah Chong Island, South East Island and Trimouille Island)* Lowendal Islands (including Varanus Island, Beacon Island and Bridled Island) Sholl Island	20 km radius	Oct-Feb	Nearshore and offshore reef habitats.

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Species	Woodside Activity Area			Habitat Critical to Survival			
	Browse	NWS/S	NWC	Nesting (*Major Rookery ¹)	Internesting Buffer	Seasonality-Nesting	Preferred Habitat ²
Flatback Turtle							
Cape Domett Stock (F-CD)	✓	-	-	Cape Domett* Lacrosse Island	60 km radius	All year (peak: Jul-Sep)	Nearshore and offshore sub-tidal and soft bottomed habitats of offshore islands.
South-west Kimberley Stock (F-swKim)	-	✓	-	Eighty Mile Beach* Eco Beach* Lacepede Islands		Oct-Mar	
Pilbara Stock (F-Pil)	-	✓	-	Montebello Islands Mundabullangana Beach* Barrow Island* Cemetery Beach Dampier Archipelago (including Delambre Island* and Huay Island) Coastal islands from Cape Preston to Locker Island		Oct-Mar	
Unknown genetic stock Kimberley, Western Australia	✓	✓	-	Maret Islands Montilivet Islands Cassini Island Coronation Islands (includes Lamarck Island) Napier-Broome Bay Islands (West Governor Island, Sir Graham Moore Island – near Kalumbaru) Champagny, Darcy and Augustus Islands (Camden Sound)		May-July	

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Species	Woodside Activity Area			Habitat Critical to Survival			
	Browse	NWS/S	NWC	Nesting (*Major Rookery ¹)	Internesting Buffer	Seasonality-Nesting	Preferred Habitat ²
Loggerhead Turtle							
Western Australia Stock (LH-WA)	-	-	✓	Dirk Hartog Island* Muiron Islands* Gnaraloo Bay* Ningaloo Coast	20 km radius	Nov-May	Nearshore and island coral reefs, bays and estuaries in tropical and warm temperate latitudes.

¹ Major rookeries as outlined in the Recovery Plan (Commonwealth of Australia, 2017)

² Preferred habitat as outlined in the Recovery Plan (Commonwealth of Australia, 2017)

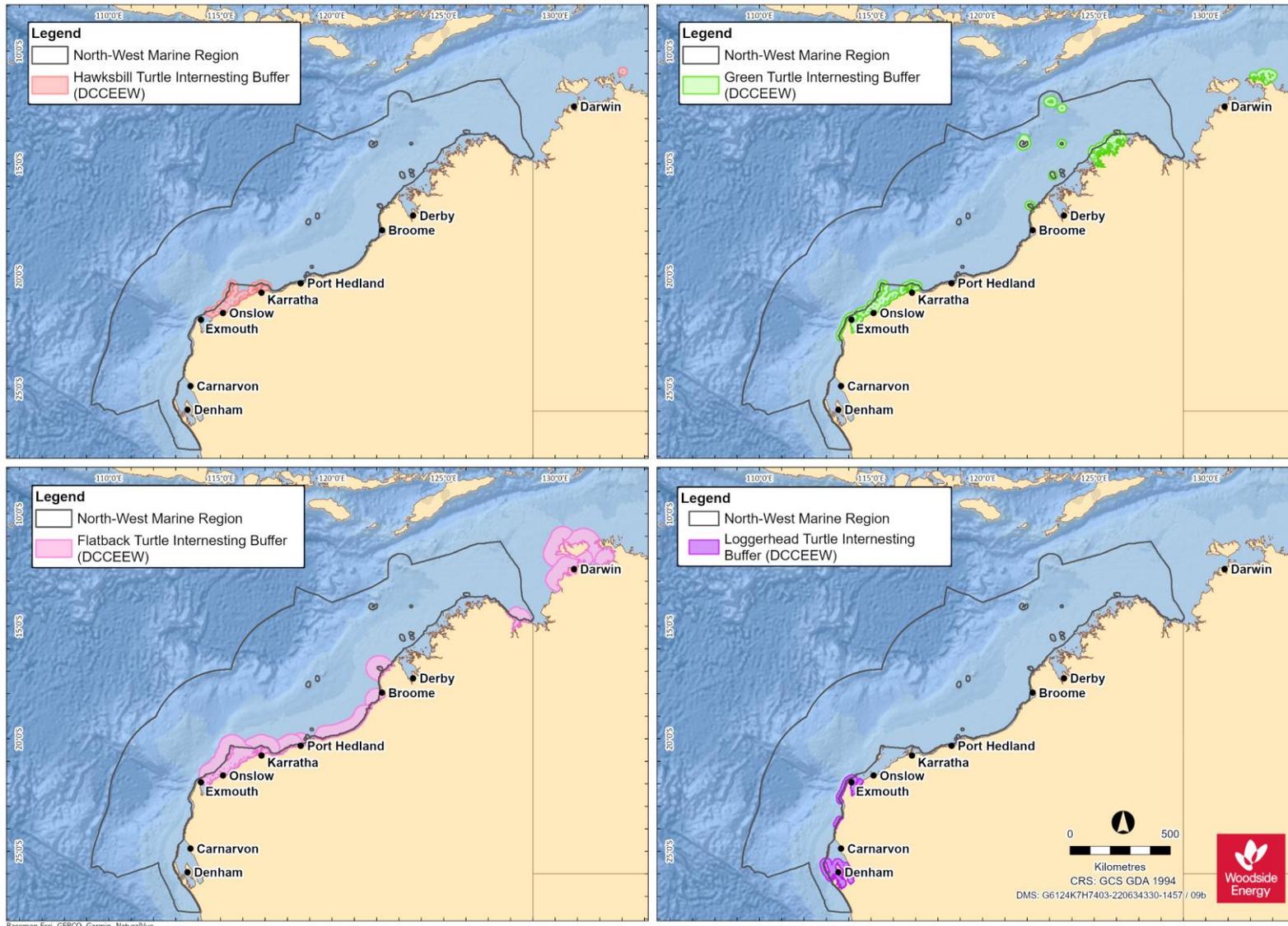


Figure 6-2 Marine turtle species habitat critical to survival (nesting beaches and interesting buffers) for the NWMR (data source: DCCEEW, 2024b)

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6.3 Marine Turtle Biological Important Areas in the NWMR

A review of the Australian Marine Spatial Information System (GA, 2024), the Marine Bioregional Plan for the North-west Marine Region (DSEWPAC, 2012a) and the Recovery Plan for Marine Turtles in Australia (CoA, 2017) identified BIAs for the four marine turtle species that occur within the NWMR. These are described in **Table 6-3**.

Table 6-3 Marine turtle BIAs within the NWMR

Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Mating	Nesting	Internesting	Foraging	Migration ¹¹
Green turtle	✓	✓	✓	Barrow Island Montebello Islands (including Hermite Island, North West Island, Trimouille Island) Dampier Archipelago (islands to the west of the Burrup Peninsula) Ashmore Reef	Barrow Island Montebello Islands (including Hermite Island, North West Island, Trimouille Island) Middle Island Dampier Archipelago (islands to the west of the Burrup Peninsula) North and South Muiron Islands North West Cape Delambre Island Legendre Island and Huay Island Lacepede Islands Scott reef- Sandy Island Ashmore Reef Cartier Island Cassini Island	Locations of 20 km internesting buffer BIAs for green turtles are described in the Marine Bioregional Plan for the North-west Marine Region (DSEWPAC, 2012a). Year round and seasonal 20 km internesting buffer BIAs are located around nesting sites. Habitat critical to survival internesting buffer (Table 6-2) is the legally recognised area of protection under the EPBC Act	Foraging inshore areas of Barrow Island Foraging at Montgomery Reef Foraging at Montebello Islands Foraging at Dixon Island Foraging around Ashmore Reef Foraging at Seringapatam Reef and Scott Reef Foraging in the De Grey River area to Bedout Island Foraging around the Islands between Cape Preston and Onslow and inshore of Barrow Island Foraging around Dampier Archipelago (islands to the west of the Burrup Peninsula) Foraging at Legendre Island and Huay Island Foraging around Delambre Island Foraging in the Joseph Bonaparte Gulf	Migration corridor at Dampier Archipelago (islands to the west of the Burrup Peninsula). Green turtles can migrate more than 2600 km between their feeding and nesting grounds. Individual turtles foraging in the same area do not necessarily take the same migration route (Limpus et al., 1992). Ferreira et al. (2021) broadly identified two migratory corridors, one used by the NWS stock-Pilbara and another used by the NWS stock-Kimberley and the Scott-Browse stock with some overlap at the northern and southern extents respectively. This study showed that the foraging distribution of green turtles from two stocks in WA expands throughout North-west and northern Australian coastal waters, including the NT and Queensland.

¹¹ Migration BIA included in AMSIS (GA, 2024). General information for migratory behaviours also provided.

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Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Mating	Nesting	Interesting	Foraging	Migration ¹¹
Hawksbill turtle	✓	✓	✓	Montebello Islands Barrow Island Lowendal Island Group Dampier Archipelago (to the west of the Burrup Peninsula)	Lowendal Island Group Montebello Islands (including Ah Chong and South East islands) Rosemary Island Delambre Island Barrow Island Varanus Island and Thevenard Island Dampier Archipelago (to the west of the Burrup Peninsula) Ningaloo Coast and Jurabi coast Sandy Islet at Scott Reef	Locations of 20 km interesting buffer BIAs for hawksbill turtles are described in the Marine Bioregional Plan for the North-west Marine Region (DSEWPAC, 2012a). Year round and seasonal 20 km interesting buffer BIAs are located around nesting sites. Habitat critical to survival interesting buffer (Table 6-2) is the legally recognised area of protection under the EPBC Act	Foraging in waters adjacent to James Price Point Recent data shows foraging ranges from the north of Exmouth Gulf to offshore Broome (Fossette et al., 2021a). Foraging around the Lowendal Island group Foraging at Delambre Island Foraging around Dixon Island Foraging in the De Grey River area to Bedout Island Foraging around the islands between Cape Preston and Onslow and inshore of Barrow Island Foraging around the islands of the Dampier Archipelago (to the west of the Burrup Peninsula) Foraging at Ashmore Reef	Migration corridor at Dampier Archipelago (islands to the West of the Burrup Peninsula). Individuals may migrate up to 2400 km between their nesting and foraging grounds (DSEWPAC, 2012a), although reproductive migration distances over 1000 km appear less common in Hawksbill turtles than other species (Fossette et al., 2021a). Recent satellite tracking data shows turtles migrating from WA rookeries remained on the continental shelf, with the majority following the coastline and dispersing in a North-easterly direction, with some turtles from the Montebello Archipelago and Lowendals moving in a South-westerly direction and some stopping around Barrow Island. A migratory corridor was

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Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Mating	Nesting	Interesting	Foraging	Migration ¹¹
								observed from Cape Preston to De Grey River (Fossette et al., 2021a)
Flatback turtle	✓	✓	-	Lacepede Islands Montebello Islands Dampier Archipelago (islands to the West of the Burrup Peninsula) Mating at Barrow Island	Thevenard Island - South coast (summer) high use on beaches with high dune height Barrow Island Montebello Islands (including Hermite Island, North West Island, Trimouille Island) Dampier Archipelago (islands to the west of the Burrup Peninsula) Delambre Island Legendre Island and Huay Island Dixon Island Intercourse Island West of Cape Lambert Various locations along the Pilbara coast between Karratha and Broome, including Cape Thouin, Mundabullangana, Cowrie Beach, Port Hedland (Cemetery Beach, Paradise Beach) and 80 Mile Beach	Locations of 80 km interesting buffer BIAs for flatback turtles are described in the Marine Bioregional Plan for the North-west Marine Region (DSEWPAC, 2012a). Year-round and seasonal interesting buffer BIAs of 80 km are located around nesting sites, extending 20 km further than the habitat critical to survival. Habitat critical to survival interesting buffer (Table 6-2) is the legally recognised area of protection under the EPBC Act	Foraging at the islands between Cape Preston and Onslow and inshore of Barrow Island. Foraging at Montebello Islands Foraging at Dampier Archipelago (islands to the West of the Burrup Peninsula) Foraging at Legendre Island and Huay Island Foraging at Delambre Island Foraging in the Joseph Bonaparte Depression Foraging in waters adjacent to James Price Point	Migration corridor at Dampier Archipelago (islands to the West of the Burrup Peninsula). The flatback turtle is a resident to Australian waters and spends 99% of its time within the Australian EEZ. A migratory corridor connects the coastlines between the Kimberley and Pilbara (Peel et al., 2024). There is evidence that some flatback turtles undertake long-distance migrations between breeding and feeding grounds (Limpus et al., 1983). However, flatback turtles generally do not have a pelagic phase to their lifecycle. Instead, hatchlings grow to maturity in shallow coastal waters thought to be close to their natal beaches (DSEWPAC, 2012a). A study predicting the dispersal of flatback turtle hatchlings found

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Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Mating	Nesting	Interesting	Foraging	Migration ¹¹
					Lacepede Islands			that core areas were predominantly on the continental shelf (<200 m depth contour) during all dispersal phases, indicating that flatback turtles remain in neritic areas (Wilson et al., 2023).
Loggerhead turtle	✓	✓	-	No mating BIA identified within the NWMR	Dirk Hartog Island Muiron Islands Ningaloo and Jurabi coasts Montebello Islands Lowendal Island Rosemary Island Gnaraloo Station	Locations of 20 km interesting buffer BIAs for loggerhead turtles are described in the Marine Bioregional Plan for the North-west Marine Region (DSEWPAC, 2012a). Year-round and seasonal 20 km interesting buffer BIAs are located around nesting sites. Habitat critical to survival interesting buffer (Table 6-2) is the legally recognised area of protection under the EPBC Act	Foraging in the De Grey River area to Bedout Island Foraging on the Western Joseph Bonaparte Depression Foraging in the waters adjacent to James Price Point	No migration BIA identified within the NWMR Adult loggerhead turtles dispersing from Dirk Hartog Island beaches (near Shark Bay) have remained within WA waters from southern WA to the Kimberley. Turtles dispersing from the North-west Cape–Muiron Islands nesting area have ranged north as far as the Java Sea and the North-western Gulf of Carpentaria, and to South-west WA (DSEWPAC, 2012a)
Olive ridley turtle	✓	✓	-	No mating BIA identified within the NWMR	No nesting BIA identified within the NWMR	No interesting BIA identified within the NWMR	No foraging BIA identified within the NWMR, however may forage at the following locations: The Western Joseph Bonaparte Depression and Gulf	No migration BIA identified within the NWMR. Migration routes and distances between nesting beaches and foraging areas are not

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Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Mating	Nesting	Interesting	Foraging	Migration ¹¹
							Dampier Archipelago (islands to the West of the Burrup Peninsula)	known for Australian olive ridley turtles

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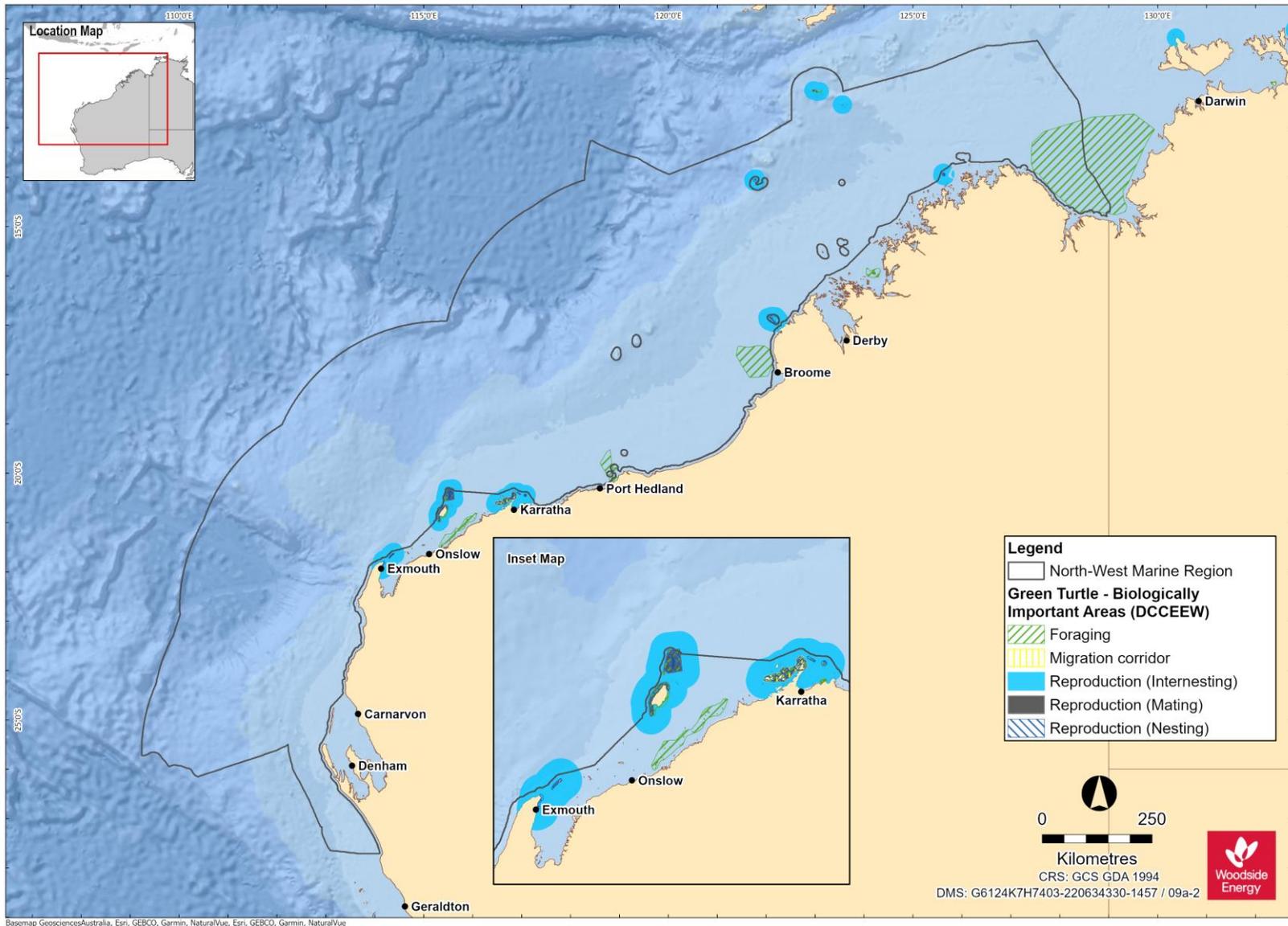


Figure 6-3 Green turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

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Page 86 of 379

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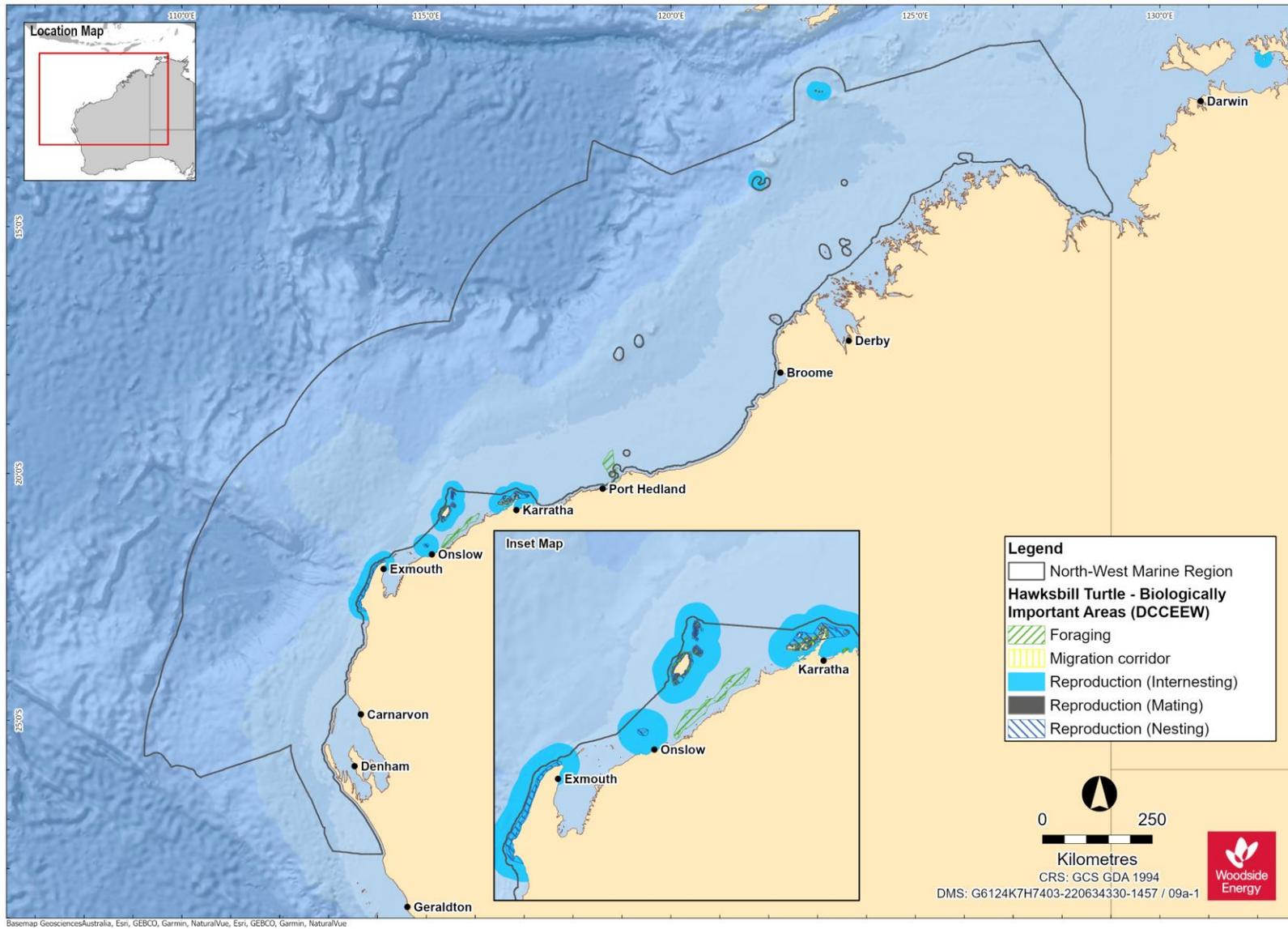


Figure - Hawksbill turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

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Page 87 of 379

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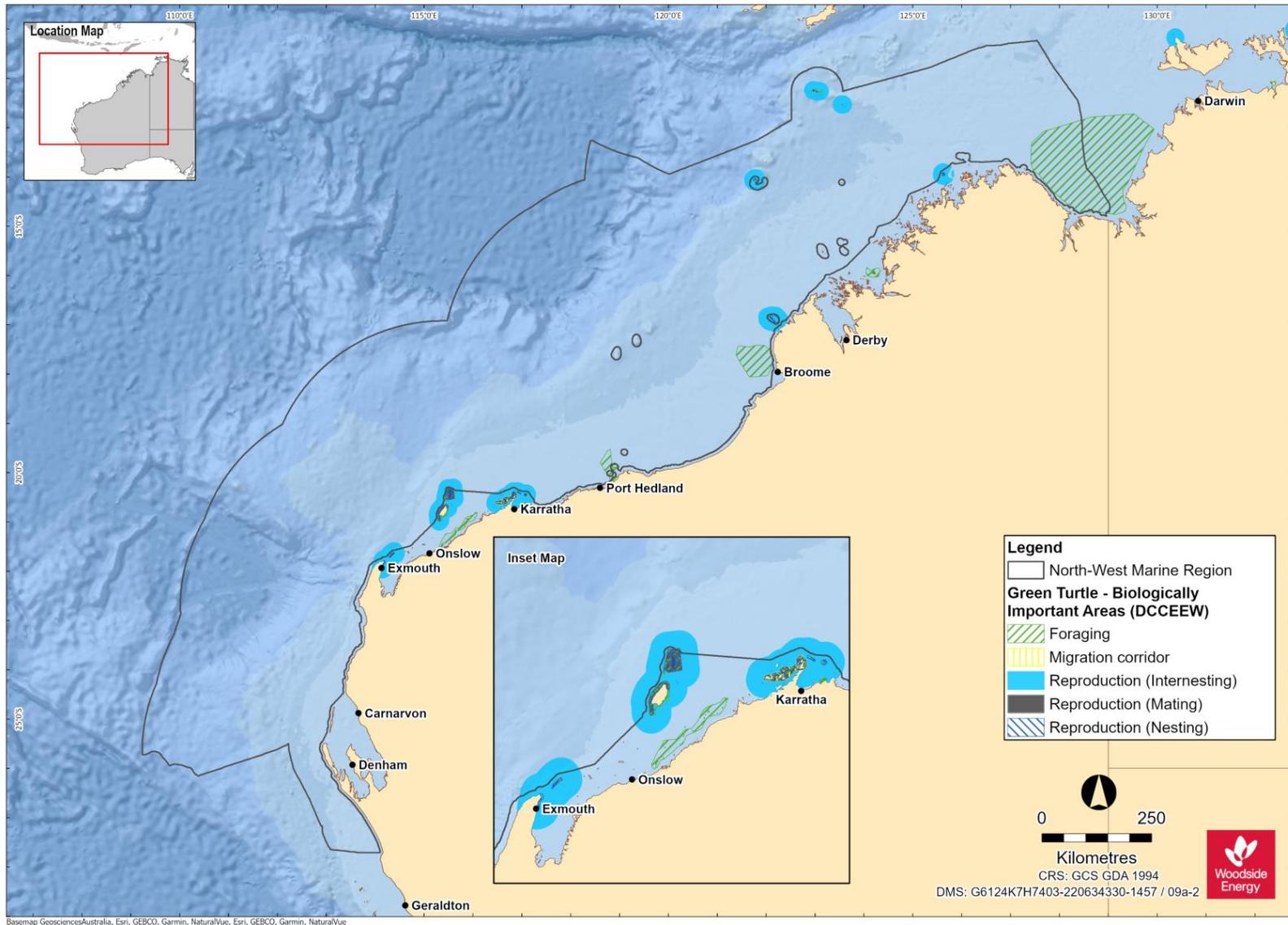


Figure 6-4 Flatback turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

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Page 88 of 379

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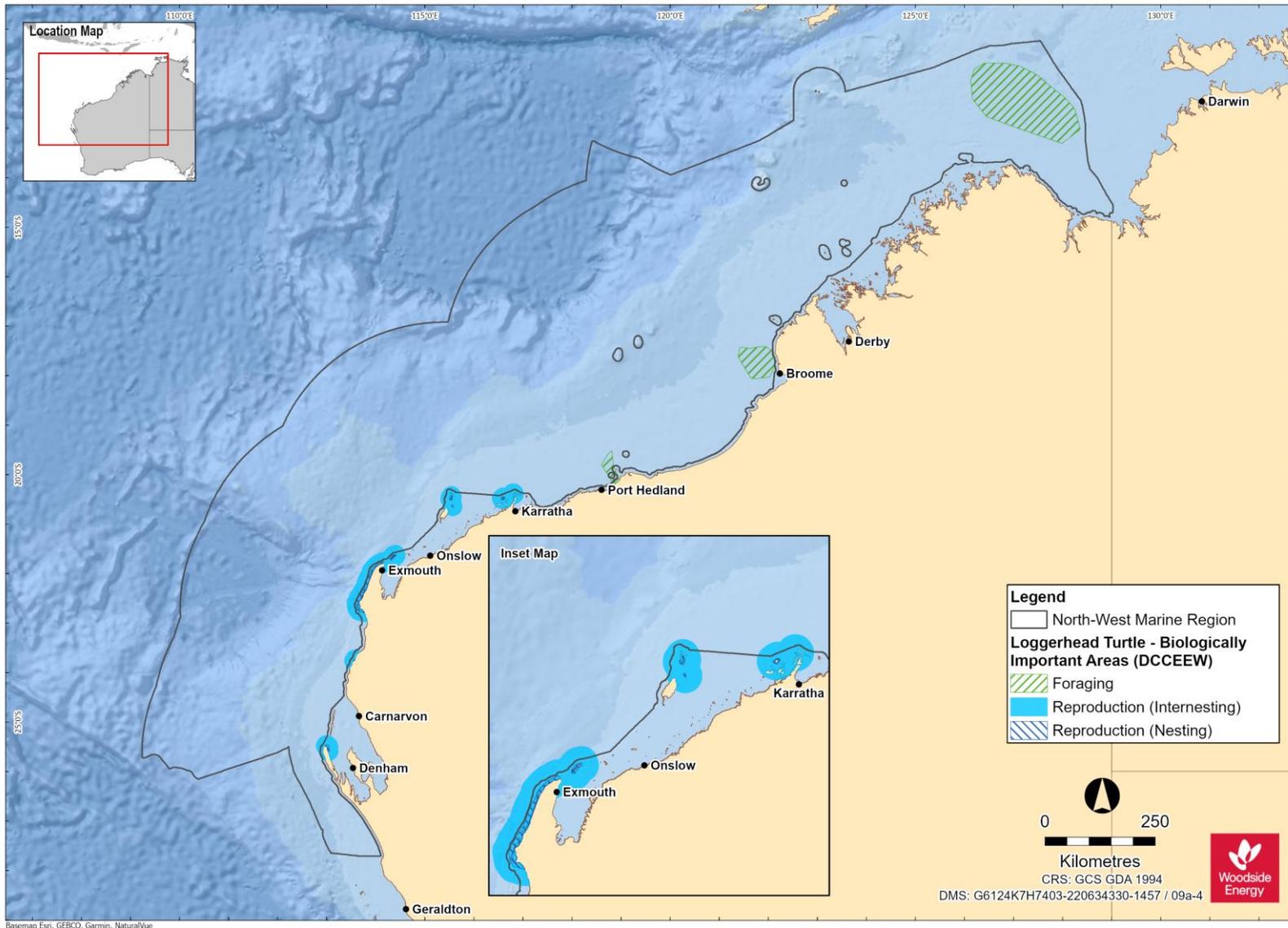


Figure 6-5 Loggerhead turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

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Revision: 2

Woodside ID: 1401743486

Page 89 of 379

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6.4 Marine Turtle Summary for NWMR

Six of the seven marine turtle species occur within the Woodside activity areas. Across all three areas, globally significant breeding populations of four marine turtle species; the green, hawksbill, flatback and loggerhead turtle, have been recorded.

However, offshore waters do not represent biologically important habitat for marine turtles in any of the three Woodside activity areas. Isolated records of transient individuals (on post-nesting migration) are expected, but there is no evidence of important habitat or behaviours for marine turtles in the offshore, open water environment of the NWS, in general.

6.4.1 Browse

The proposed Browse activity area includes major nesting areas that support globally significant breeding populations of two marine turtle species:

- the green turtle, including two distinct genetic stocks (Ashmore Reef and Scott Reef-Browse Island); and
- the flatback turtle, Cape Domett genetic stock.

Locations of habitat critical for each of the two species are outlined in **Table 6-2** and **Figure 6-2**.

BIAs for the green and flatback turtle are outlined in **Table 6-3** and **Figure 6-3** Green turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

Figure -.

Table 6-4 Marine turtle key information for Browse activity area.

Species / Genetic Stock	Key Information
Green Turtle	
Ashmore Reef Stock (G-AR)	<p>The G-AR stock nests in a localised area of the Indian Ocean in the Ashmore Reef and Cartier Island Australian Marine Park (AMP) areas. Population estimates are not available for Ashmore Reef, although annual breeding numbers are thought to be in the low hundreds (Whiting, 2000).</p> <p>Designated habitat critical for the G-AR stock are the nesting locations of Ashmore Reef and Cartier Reef, and an internesting buffer of 20 km radius around these rookeries, year-round with peak internesting activity occurring December to January (refer Table 6 of the Recovery Plan).</p> <p>Juvenile and adult turtles forage within the tidal/sub-tidal habitats of offshore islands and coastal waters with coral reef, mangrove, sand, rocky reefs, and mudflats where there are algal turfs or seagrass meadows present (Commonwealth of Australia, 2017).</p>
Scott Reef-Browse Island Stock (G-ScBr)	<p>The G-ScBr stock is a discrete unit known to nest at only two locations within the North-east Indian Ocean—Sandy Islet and Browse Island. There is currently very limited data available for the G-ScBr stock, therefore population numbers are not known.</p> <p>Designated habitat critical for the G-ScBr stock are the nesting locations of Sandy Islet and Browse Island, and an internesting buffer of 20 km radius around these rookeries, for the period November to March (refer Table 6 of the Recovery Plan).</p> <p>Surveys conducted at Scott Reef in 2006, 2008 and 2009 indicate that the summer months from late November to February are the preferred breeding season for green turtles at Sandy Islet (Guinea, 2009).</p> <p>Satellite tagging studies (Pendoley, 2005; Guinea, 2011) have provided an indication of the behaviour and migratory routes of adult green turtles leaving Scott Reef. Most animals appear to swim through South Reef lagoon and disperse toward the Western Australian mainland via two distinct post-nesting migration pathways; travelling east and north toward the Bonaparte Archipelago and then north along the coast to foraging areas in NT waters or travelling south to Cape Leveque and then south along the coast to the Turtle Islands off the mouth of the De Grey River in the Pilbara region (Ferreira et al., 2021).</p>

Species / Genetic Stock	Key Information
Flatback Turtle	
Cape Domett Stock (F-CD)	<p>Cape Domett is an important high density nesting area (Tucker et al., 2021). Combined with a smaller site at Lacrosse Island, the F-CD stock is one of the largest flatback turtle stocks in Australia. Average nesting abundance at Cape Domett is estimated at 3,250 females per year (Whiting et al., 2008).</p> <p>Designated habitat critical for the F-CD stock are the nesting locations of Cape Domett and Lacrosse Island, and an internesting buffer of 60 km radius around these rookeries, year-round with peak internesting activity occurring July to September.</p> <p>Extending further than the habitat critical internesting buffer, an internesting buffer BIA of 80 km is located at Cape Domett and Lacrosse Island.</p>

6.4.2 North-west Shelf / Scarborough

The NWS / Scarborough activity area includes major nesting areas that support globally significant breeding populations of three marine turtle species, representing four discrete genetic stocks:

- the green turtle, NWS genetic stock;
- the hawksbill turtle, WA genetic stock; and
- the flatback turtle, South-west Kimberley stock and Pilbara genetic stock.

Locations of habitat critical for each of the four species are outlined in **Table 6-2** and **Figure 6-2**.

BIAs for the green, hawksbill, and flatback turtles are outlined in **Table 6-3** and **Figure 6-3** Green turtle BIAs within the NWMR (data source: DCCEE, 2024b)

Figure -.

Table 6-5 Marine turtle key information for NWS / Scarborough activity area

Species / Genetic Stock	Key Information
Green Turtle	
NWS Stock (G-NWS)	<p>The G-NWS stock is one of the largest green turtle stocks in the world and the largest in the Indian Ocean. The G-NWS stock is estimated at approximately 20,000 individuals (DSEWPAC, 2012a) and the trend for the stock is reported as stable (Commonwealth of Australia, 2017).</p> <p>Major rookeries of the NWS stock within the NWS / Scarborough activity area are located at Lacepede Islands, Montebello Islands, Barrow Island (Tucker <i>et.al.</i>, 2021), Bells Beach, Delambre Island, Mundabullangana, Port Hedland, and Thevenard Island. These areas are designated habitat critical for survival of the stock and include an interesting buffer of 20 km radius around these rookeries from November to March.</p>
Hawksbill Turtle	
Western Australia Stock (H-WA)	<p>The H-WA stock is the largest in the Indian Ocean. The majority of the nesting for this stock is located in the Pilbara. The Dampier Archipelago has the largest nesting aggregation recorded. In particular, Rosemary Island supports the most significant hawksbill turtle rookery in the WA region and one of the largest in the Indian Ocean; approximately 500-1000 females nest on the island annually, more than at any other WA rookery (Pendoley, 2005; Pendoley et al., 2016).</p> <p>Major rookeries of the H-WA stock within the NWS / Scarborough activity area are located at Rosemary Island, Delambre Island and the Montebello Islands. These areas are designated habitat critical for the stock and include an interesting buffer of 20 km radius around these rookeries from October to February.</p>
Flatback Turtle	
South-west Kimberley Stock (F-swKim)	<p>The genetic relationship between this nesting aggregation and the Cape Domett and Pilbara stocks is currently under review. Population numbers of the F-swKim stock are unknown.</p> <p>Major rookeries of the F-swKim stock are located at Eighty Mile Beach and Eco Beach. These areas are designated habitat critical for the stock and include an interesting buffer of 60 km radius around these rookeries from October to March.</p>
Pilbara Stock (F-Pil)	<p>The extent of genetic relatedness of flatback turtles along the WA coast is currently under review. Population numbers of the F-Pil stock are unknown.</p>

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Species / Genetic Stock	Key Information
	<p>This stock nests on many islands in the Pilbara and southern Kimberley, with major rookeries at Mundabullangana Beach, Delambre Island, Rosemary Island and Barrow Island. These areas are designated habitat critical for the F-Pil stock and include an interesting buffer of 60 km radius around these rookeries from October to March. A study using aerial photogrammetry showed nesting beaches were spread across the Pilbara from Y Island (Exmouth Gulf) in the southwest, to Bedout Island in the north and Mulla Mulla Downs Creek in the east (Fossette et al., 2021b).</p> <p>Other large flatback rookeries include Legendre Island and Thevenard Island. The Dampier Archipelago has been identified as a high-use area for flatback nesting (i.e., > 50% of the stock) (Fossette et al., 2021b).</p> <p>Extending further than the habitat critical interesting buffer, a year-round interesting buffer BIA of 80 km is located north and north-west of the Montebello Islands. However, use level for this BIA has been defined as very low (Commonwealth of Australia, 2017) and the habitat critical interesting buffer is the legally recognised area of protection under the EPBC Act <i>Significant Impact Guidelines 1.1 – Matters of National Environmental Significance</i>.</p> <p>Post-nesting satellite tracking indicates foraging occurs along the WA coast in water shallower than 130 m and within 315 km of shore (Commonwealth of Australia, 2017). Flatbacks exhibit high fidelity to nesting beaches during periods of nesting attempts (Peel et al., 2024).</p>

6.4.3 North-west Cape

The North-west Cape activity area includes major nesting areas that support globally significant breeding populations of two marine turtle species, representing two discrete genetic stocks:

- the green turtle, NWS genetic stock; and
- the loggerhead turtle, Western Australia genetic stock.

Locations of habitat critical for each of the two species are outlined in **Table 6-2** and **Figure 6-2**.

BIAs for the green and loggerhead turtles are outlined in **Table 6-3** and **Figure 6-3** Green turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

Figure -.

A 2018 survey, including on-beach monitoring of the Muiron Islands and Ningaloo Coast from North-west Cape to Bungelup (Rob et al., 2019), supports the concept that North-west Cape and the Muiron Islands are major important nesting areas for green and loggerhead turtles, as identified in the Recovery Plan (Commonwealth of Australia, 2017).

Table 6-6 Marine turtle key information for North-west Cape activity area

Species / Genetic Stock	Key Information
Green Turtle	
NWS Stock (G-NWS)	<p>The G-NWS stock is one of the largest green turtle stocks in the world and the largest in the Indian Ocean. The G-NWS stock is estimated at approximately 20,000 individuals (DSEWPAC, 2012a) and the trend for the stock is reported as stable (Commonwealth of Australia, 2017).</p> <p>There is one major rookery of the G-NWS stock located within the North-west Cape activity area. Located on the mainland coast of the North-west Cape, this area is designated habitat critical for the stock and includes an internesting buffer of 20 km radius around the rookery from November to March.</p> <p>For the 2022-23 Ningaloo Turtle Program season, green turtles were the most active species in the NW Cape division, with 91.2% of total turtle activity (DBCA, 2023a). The number of green turtle nests has varied largely among years since commencement of the program in 2002 (range of 1.06 to 18.13 nests per subsection per day) with an average of 5.69. The average number of green turtle nests in the 2022-23 peak season were below average, with 4.07 nests per subsection per day (DBCA, 2023a). There have been two clear peaks (2011-12 and 2020-21) in activity since the beginning of the Ningaloo Turtle Program, where activity has been approximately 2.5 to 11 times greater than other seasons (DBCA, 2023a). Both seasons coincided with La Niña weather patterns (DBCA, 2021a).</p>
Loggerhead Turtle	
Western Australia Stock (LH-WA)	<p>The LH-WA stock is one of the largest in the world (Limpus, 2009). The trend for the stock is reported as stable (Commonwealth of Australia, 2017).</p> <p>Major rookeries of the LH-WA stock are located at Dirk Hartog Island, Muiron Islands and Gnaraloo Bay. These areas are designated habitat critical for the stock and include an internesting buffer of 20 km radius around these rookeries from November to May.</p> <p>Dirk Hartog Island in the Shark Bay Marine Park, with an average of 122 nests per day over 2.1 km (Reinhold and Whiting, 2014), is recognised as the most important loggerhead turtle rookery in WA (Commonwealth of Australia, 2016; as cited in Rob et al., 2019).</p> <p>The standardised level of loggerhead turtle nesting along the North-west Cape was above the long-term average (0.36) for the 2022-23 season and the third highest since the Ningaloo Turtle Program began (2002), with 0.46 nests per subsection per day (DBCA, 2021a).</p>

6.5 Sea Snakes

Sea snakes are commonly found in the NWMR and NMR, but less so in the SWMR, and occupy three broad habitat types: shallow water coral reef and seagrass habitats, deepwater soft bottom habitats away from reefs, and surface water pelagic habitats (Guinea, 2007a).

There are 25 listed species of sea snake reported within or adjacent to the NWMR (Guinea, 2007a; Udyawer et al., 2016), of which four are endemic to reef habitats in the remote parts of the region:

- dusky sea snake (*Aipysurus fuscus*);
- large headed sea snake (*Hydrophis pacificus*);
- short-nosed sea snake (*Aipysurus apraefrontalis*); and
- leaf-scaled sea snake (*Aipysurus foliosquama*).

The short-nosed sea snake and the leaf-scaled sea snake are listed threatened species (Critically Endangered) under the EPBC Act and the dusky sea snake is currently under assessment for inclusion on the EPBC Act threatened species list as Endangered (**Table 6-7**).

The Kimberley coast has the world's highest diversity of sea snakes, supporting over one third of all known species (Somaweera and Saunders, 2015). There is currently limited knowledge about the ranges and distribution patterns of sea snake species in the NWMR, in addition to a lack of understanding of population status and threats. Recent findings of *A. apraefrontalis* and *A. foliosquama* in locations outside of their previously defined ranges have highlighted the lack of information on species distributions in the NWMR (Udyawer et al., 2016). Udyawer et al. (2020) used a correlative modelling approach to understand habitat associations and identify suitable habitats for five sea snake species (*A. apraefrontalis*, *A. foliosquama*, *A. fuscus*, *A. l. pooleorum* and *A. tenuis*). Species-specific habitat suitability was modelled across 804,244 km² of coastal waters along the NWS, and the resulting habitat suitability maps enabled the identification of key locations of suitable habitat for these five species (refer **Table 6-6**).

No habitat critical to survival or BIAs for sea snake species have been identified in the NWMR. While the Ashmore Reef and Cartier Island AMPs have been recognised for their high diversity and density of sea snakes (DSEWPAC, 2012a), surveys have revealed a steep decline in sea snake numbers at Ashmore Reef (Guinea, 2007b; Lukoschek et al., 2013). Leaf-scaled and short-nosed sea snakes have been absent from surveys at Ashmore Reef since 2001, despite an increase in survey intensity (Guinea, 2006, 2007b; Guinea and Whiting, 2005; Lukoschek et al., 2013). The reason for the decline is unknown.

Table 6-7 Information on the two threatened sea snake species within the NWMR

Species	Preferred Habitat and Diet	Habitat Location
Short-nosed sea snake	Preferred habitat: Primarily on reef flats or in shallow waters of outer reef edges to depths of 10 m (Minton et al., 1975). Typically, movement is restricted to within 50 m of reef flat habitat (Guinea and Whiting, 2005). Diet: Primarily fishes and eels.	The short-nosed sea snake has been recorded from Exmouth Gulf to the reefs of the Sahul Shelf, although most records come from Ashmore and Hibernia reefs (Guinea and Whiting, 2005). Key locations of suitable habitat: Ashmore Reef, Exmouth Gulf and coral habitat fringing the Muiron Islands and the Montebello Islands (Udyawer et al., 2020).
Leaf-scaled sea snake	Preferred habitat: The leaf-scaled sea snake occurs in shallow protected areas of reef flats, typically in water depth less than 10 m. Diet: Primarily shallow water coral-associated wrasse, gudgeons, clinids and eels (McCosker, 1975; Voris, 1972; Voris and Voris, 1983).	The leaf-scaled sea snake has only been recorded at Ashmore and Hibernia reefs (Guinea and Whiting, 2005), indicating it has a very limited distribution. Key locations of suitable habitat: Ashmore Reef, Shark Bay, Exmouth Gulf, Barrow Island and Montebello Islands (Udyawer et al., 2020).

6.6 Crocodiles

The salt-water crocodile (*Crocodylus porosus*) is a listed migratory species under the EPBC Act known to occur within the NWMR. The species is found in most major river systems of the Kimberley, including the Ord, Patrick, Forrest, Durack, King, Pentecost, Prince Regent, Lawley, Mitchell, Hunter, Roe and Glenelg rivers. The largest populations occur in the rivers draining into the Cambridge Gulf and the Prince Regent River and Roe River systems. There have also been isolated records in rivers of the Pilbara region, around Derby near Broome and as far south as Carnarvon on the mid-west coast. No BIAs for salt-water crocodile have been identified in the NWMR.

6.7 Water Monitor

Mitchell's water monitor (*Varanus mitchelli*) is listed as critically endangered under the EPBC Act. The species is known to occur in wetlands and coastal floodplains in the northern extent of the NWMR, with distribution from Yampi Sound Training Area, across the Kimberley and into the Top End of the Northern Territory and far northwest Queensland (DCCEEW, 2023c). The species inhabits freshwater and saline wetlands that range from seasonal gorges in upper catchments to large rivers and coastal floodplains. It has been recorded in rivers, creeks, riffle zones, gorges, springs, lagoons, swamps, mangroves, and foreshores (DCCEEW, 2023c).

Habitat critical to the survival of the species has not been mapped however includes all areas where the species persists following the establishment of cane toads and areas within known distribution where habitat occurs or can be restored (terrestrial) (DCCEEW, 2023c). No BIAs for Mitchell's water monitor have been identified in the NWMR.

7. MARINE MAMMALS

7.1 Regional Context

The offshore waters of WA include important habitat for marine mammals, including areas that support key life stages such as breeding, calving, foraging, and migration. Of the 45 species of cetacean occurring in Australian waters, 27 species occur regularly in the waters of the NWMR, nine species in the waters of the NMR and 33 species in the SWMR. The waters of the NWMR and the NMR support globally significant dugong populations (DSEWPAC, 2012a, 2012c).

The NWMR is an important migratory pathway between feeding grounds in the Southern Ocean and breeding grounds in tropical waters of the NWMR for several cetacean species (DSEWPAC, 2012a). Numerous large mysticetes (baleen whale) species, in particular the humpback whale, are known to utilise the region for migration and calving, and the pygmy blue whale is known to utilise the region for foraging and as a migration pathway between southern feeding and northern breeding/feeding areas north of the equator.

The SWMR is an important area for numerous marine mammal species including pinniped species, large, migratory whale species and resident coastal whale and dolphin species (DSEWPAC, 2012b).

The NMR and adjacent areas are important for several species of cetacean, particularly inshore dolphin species. These species, and other marine mammals, rely on the waters of the NMR and adjacent coastal areas for breeding and foraging (DSEWPAC, 2012c).

Table 7-1 outlines the threatened and migratory marine mammal species that may occur within the NWMR, with their conservation status and relevant recovery plans and/or conservation advice.

Table 7-1 Marine mammal species identified by the EPBC Act PMST that may occur within the NWMR.

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR)			Biodiversity Conservation Act 2016 (WA) ¹²	IUCN Red List of Threatened Species (non-statutory) ¹³	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
Cetaceans - Mysticeti							
<i>Balaenoptera musculus</i>	Blue whale	Endangered	Migratory	Cetacean	Endangered	Endangered	Conservation Management Plan for the Blue Whale - A Recovery Plan under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> 2015-2025 (Commonwealth of Australia, 2015a)
<i>Eubalaena australis</i>	Southern right whale	Endangered	Migratory	Cetacean	Vulnerable	Least Concern	National Recovery Plan for the Southern Right Whale <i>Eubalaena australis</i> (DCCEEW, 2024a)
<i>Balaenoptera borealis</i>	Sei whale	Vulnerable	Migratory	Cetacean	Endangered	Endangered	Conservation Advice <i>Balaenoptera borealis</i> sei whale (Threatened Species Scientific Committee, 2015a)
<i>Megaptera novaeangliae</i>	Humpback whale	N/A	Migratory	Cetacean	Conservation dependent	Least Concern	Listing Advice <i>Megaptera novaeangliae</i> Humpback Whale (DAWE, 2022)
<i>Balaenoptera physalus</i>	Fin whale	Vulnerable	Migratory	Cetacean	Endangered	Vulnerable	Conservation Advice <i>Balaenoptera physalus</i> fin whale (Threatened Species Scientific Committee, 2015c)
<i>Balaenoptera edeni</i>	Bryde's whale	N/A	Migratory	Cetacean	Migratory	Least Concern	N/A
<i>Balaenoptera bonaerensis</i>	Antarctic minke whale	N/A	Migratory	Cetacean	Migratory	Near Threatened	N/A
<i>Balaenoptera omurai</i>	Omura's whale	N/A	N/A	Cetacean	N/A	Data Deficient	N/A
Cetaceans - Odontoceti							
<i>Physeter macrocephalus</i>	Sperm whale	N/A	Migratory	Cetacean	Vulnerable	Vulnerable	N/A
<i>Orcinus orca</i>	Killer whale	N/A	Migratory	Cetacean	Migratory	Data Deficient	N/A

¹² Threatened and Priority Fauna List – April 2024 - <https://www.dbca.wa.gov.au/management/threatened-species-and-communities> (accessed on 13/08/2024)

¹³ IUCN. 2024. The IUCN Red List of Threatened Species. Version 2024-1. <https://www.iucnredlist.org> (accessed on 13/08/2024)

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR)			Biodiversity Conservation Act 2016 (WA) ¹²	IUCN Red List of Threatened Species (non-statutory) ¹³	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<i>Orcaella heinsohni</i>	Australian snubfin dolphin	N/A	Migratory	Cetacean	Priority	Vulnerable	N/A
<i>Sousa chinensis</i>	Indo-Pacific humpback dolphin (Australian humpback dolphin)	N/A	Migratory	Cetacean	Priority	Vulnerable	N/A
<i>Tursiops aduncus</i>	Spotted bottlenose dolphin (Arafura/ Timor Sea populations)	N/A	Migratory	Cetacean	N/A	N/A	N/A
Sirenians and Pinnipeds							
<i>Dugong dugon</i>	Dugong	N/A	Migratory	Marine	Migratory	Vulnerable	N/A
<i>Neophoca cinerea</i>	Australian sea lion	Endangered	N/A	Marine	Endangered	Endangered	Recovery Plan for the Australian Sea Lion (<i>Neophoca cinerea</i>) 2013 (DSEWPAC, 2013a) Conservation Advice <i>Neophoca cinerea</i> Australian Sea Lion (Threatened Species Scientific Committee, 2020a) (in effect under the EPBC Act from 23-Dec-2020)

7.2 Cetaceans in the NWMR

Cetaceans are generally widely distributed and highly mobile. In general, distribution patterns reflect seasonal feeding and breeding areas, characterised by high productivity, and migration routes associated with reproductive patterns. The NWMR is an important migratory pathway between feeding grounds in the Southern Ocean and breeding grounds in tropical waters for several cetacean species (DSEWPAC, 2012a).

From the Protected Matters search, 34 EPBC Act listed species were recorded as potentially occurring or having habitat within the NWMR (**APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR). Of those, 12 cetacean species are listed as threatened and/or migratory, including baleen whales, toothed whales and dolphins that occur within the NWMR (**Table 7-2**).

7.3 Dugongs in the NWMR

The dugong is listed as migratory under the EPBC Act. Dugongs inhabit seagrass meadows in coastal waters, estuarine creeks and streams, and reef systems (DSEWPAC, 2012a).

Some of the coastal waters adjacent to the NWMR support significant populations of dugongs, including Shark Bay, Exmouth Gulf, in and adjacent to Ningaloo Reef, in coastal waters along the Kimberley coast, and on the edge of the continental shelf at Ashmore Reef (DEWHA, 2008).

Although the patterns of dugong movement in WA are not well understood, it is thought that dugongs move in response to availability of seagrass (Marsh et al., 1994; Preen et al., 1997) and water temperature. Cleguer and Marsh (2023) present the most contemporary data on dugongs and population estimates via an inventory of dugong aerial surveys of Australia, including northwest Australia (Shark Bay, Ningaloo, Exmouth Gulf and Pilbara, the Kimberley Region).

There are a number of BIAs for dugong within and adjacent to waters of the NWMR (refer **Section 7.5**).

7.4 Pinnipeds in the NWMR

The Australian sea lion is listed as a species that may occur or may have habitat within the NWMR (Protected Matters search - **APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR). It is included here as the Australian sea lion is the only pinniped endemic to Australia (Strahan, 1983) and has been recorded within the southern extent of the NWMR at Shark Bay, WA (Kirkwood et al., 1992). The most northern known breeding colony is at the Houtman Abrolhos Islands in the SWMR. The Australian sea lion's breeding range extends from the Houtman Abrolhos Islands, WA to The Pages Island, east of Kangaroo Island, SA. The Australian sea lion was listed as endangered in 2020 (Threatened Species Scientific Committee, 2020a). An assessment of the status and trends in abundance of this endemic, coastal pinniped species (Goldsworthy et al. 2021) documented an overall reduction in pup abundance over three generations, providing strong evidence that the species meets IUCN endangered criteria.

There are no BIAs for the Australian sea lion in the NWMR.

7.5 Marine Mammals in the NWMR

Marine mammal descriptions within the NWMR including baleen whales, toothed whales and dolphins and dugongs are presented in **Table 7-2**.

Table 7-2 Information on the threatened/migratory marine mammal species within the NWMR

Species	Key Information
Baleen whales (Mysticeti) – Low Frequency hearing	
Humpback whale	<p>In Australian waters, there are two genetically distinct populations of humpback whales that migrate annually along the west (Group IV/ Group D) and east (Group V) coasts between May and November (Jenner et al., 2001). The population of humpback whales (<i>Megaptera novaeangliae</i>) known as Group IV/D migrate annually from Antarctic feeding grounds passing along the coast of Western Australia to warm tropical waters including the Kimberley, North West Cape, and Exmouth Gulf for breeding and calving (Russell et al., 2024). The biannual migration of humpback whales through the NWMR occurs in winter (June to August) for northbound migrating whales and southbound in early spring (September to November). Population data for the West Australian sub-population is considerably variable (DAWE, 2022). The population has been increasing in size at a rate of approximately 10% per annum since the cessation of whaling in Western Australian waters by 1963 (Thums et al., 2018) and population numbers have increased from approximately 2,000 to 3,000 individuals in 1991 to between 19,200–33,850 individuals in 2008 (Bannister and Hedley, 2001; Bejder et al., 2019; Hedley et al., 2011). Aerial surveys off the WA coast undertaken between 2000 and 2008 produced a population estimate for the Group IV population of 26,100 individuals (Salgado Kent et al., 2012) and the predicted increasing trend in abundance predicted by modelling (Thums et al., 2018). The International Whaling Commission (IWC) estimated that in 2012 the Western Australian subpopulation had recovered to 90% (74-98% 90% PI) of its pre-whaling levels and projected that by 2020 it would have reached 98% (88-100% PI) (IWC 2015 cited in (DAWE, 2022)). Due to the unprecedented population recovery the humpback whale was removed from the EPBC Act threatened species list as it was deemed no longer eligible for inclusion (DAWE, 2022) after a previous listing as Vulnerable for many decades.</p> <p>The Group IV population migrates northward from their Antarctic feeding grounds around May each year, reaching the NWMR around early June. The southward migration subsequently starts in mid-September, after time for breeding and calving (typically within August and September) (Threatened Species Scientific Committee, 2015b). Within the NWMR there are key calving areas between Broome and the northern end of Camden Sound, and resting areas in the southern Kimberley region, Exmouth Gulf and Shark Bay. In particular, high numbers of humpback whales are observed in Camden Sound and Pender Bay from June to September each year (Threatened Species Scientific Committee, 2015b) and as far south as Gourdon Bay in the Kimberley (Thums et al., 2018). There are reports of neonates present further south, suggesting that the calving areas may be poorly defined, expanding or returning to pre-whaling patterns as the population recovers. Aerial photogrammetric surveys in 2013 and 2015 recorded large numbers of humpback whale calves along the North-west Cape, with estimated minimum relative calf abundance of 463–603 in 2013 and 557–725 in 2015 (Irvine et al., 2018). The majority of calves sighted in both years (85% in 2013; 94% in 2015) were neonates, and these observations indicate that a minimum of approximately 20% of the expected number of calves of this population are born near, or south of the North-west Cape. Thus, the calving grounds for the Group IV population extend south from Camden Sound to at least North-west Cape, 1000 km South-west of the currently recognized calving area (Irvine et al., 2018) and further south, as reported for Geographe Bay and Flinders Bay (in July and August) in south-west, Western Australia (Jolliffe et al. 2024).</p> <p>The seasonal presence of humpback whales is presented in Table 9-1.</p> <p>Migration, breeding and calving BIAs for the humpback whale within the NWMR are presented in Table 7-3 and Figure 7-2.</p>
Blue whale	<p>There are two recognised sub-species of blue whale in the Southern Hemisphere, both of which are recorded in Australian waters. These are the southern (or 'true') blue whale (<i>Balaenoptera musculus</i>) and the 'pygmy' blue whale (<i>Balaenoptera musculus brevicauda</i>) (Commonwealth of Australia, 2015a). In general, southern blue whales occur in waters south of 60°S and pygmy blue whales occur in waters north of 55°S (i.e., not in the Antarctic). On this basis, it is reasonably assumed all blue whales sighted in the NWMR are likely to be pygmy blue whales.</p> <p>The migratory population, known as the East Indian Ocean (EIO) pygmy blue whale population, migrate biannually through the NWMR. This population is seasonally distributed from Indonesia (a potential breeding ground) to south-west of Australia and east across the Great Australian Bight and Bonney Upwelling to beyond the Bass Strait (Blue Planet Marine, 2020 and McCauley et al. (2018)). Migration seems to be variable, with some individuals appearing as resident to areas of high productivity and others undertaking migrations across long distances (Commonwealth of Australia, 2015a). McCauley et al. (2018) describe three migratory stages around Australia for the EIO pygmy blue whale population, based on collated passive acoustic</p>

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Species	Key Information
	<p>data: a ‘southbound migratory stage’ where whales travel southwards from Indonesian waters offshore from the WA coastline, mostly from October to December but possibly into January of the following year; a protracted ‘southern Australian stage’ (January to June) where animals spread across southern waters of the Indian Ocean and south of Australia (with movement as far south as the Southern Subtropical Convergence Zone); and a ‘northbound migratory stage’ (April to August) where animals travel north back to Indonesia again.</p> <p>Extensive passive acoustic monitoring throughout the NWMR indicates migratory timing and distribution of pygmy blue whales (noting this survey method detects vocalising whales):</p> <ul style="list-style-type: none"> • Acoustic monitoring conducted by McCauley and Jenner (2010) in the Exmouth and northern Montebello Islands region identified a peak period in the northern migration of pygmy blue whales from April to August, and from November through to late December during the southern migration. • Northbound migration between mid-April and early August and southbound migration between October to December and possibly into January for the Scott Reef area 2006-2009 (McCauley 2011) (noting the absence of any southbound detection in 2007). • Noise loggers deployed for a full year period in 2019 detected pygmy blue whales on their northern and southern migration. The noise loggers were located at various locations ~40–50 km west of the project area, and in ~ 1300 m water depth. The majority of pygmy blue whales detected on their northern migration occurred from mid-April to the end July, then again on their southern migration in November through to early-December (Chevron Australia, 2019) • Gavrilov et al. (2018) analysed acoustic data from an array of ocean bottom seismographs (recorded in December 2014) to detect pygmy blue whales and showed the southbound migration was over an extended offshore corridor traversing an area up to 400 km to the northwest of the North-west Cape. • A targeted passive acoustic monitoring program to detect southbound migratory pygmy blue whales ran from late October 2021 to March 2022 with a deepwater ALTO lander (900 m depth) to the west of the Montebello Trough and C-lander (190 m depth) at the outer edge of the NWS (Warren et al. 2023). Despite vessel noise dominating low frequencies throughout the recording periods at both recording locations, pygmy blue whale song vocalisations and D-calls were detected from the start of the recording period through November and early December 2021. • An offshore trial of Distributed Acoustic Sensing (DAS) using fibre optic cables (submarine telecommunications cable) to detect low-frequency whales recorded vocalising pygmy blue whales within 12 km detection range within a 50 km long area on the outer edge of NWS (Debens et al. 2024). Pygmy blue whale detections were made from mid-November (commencement of the trial) through to mid-December 2023 and a couple of detections in early January 2024. <p>The first satellite tracks of pygmy blue whales for this population documented northbound migration between Western Australia and Indonesia (Double et al. 2014) and identified areas where whales had highest occupancy, such as Perth Canyon, Naturalist Plateau, North-west Cape region and the Banda Sea. Pygmy blue whales tagged in the Bonney Upwelling region of South Australia in 2015 showed that most of the tagged whales remained in South Australian waters during the tracking period but one documented the migration to Indonesia via Western Australian waters and a return journey (albeit via intermittent data) of the southbound migration to the southern coast of Western Australia (Möller et al., 2020).</p> <p>Thums et al. (2022) used passive acoustic monitoring and satellite telemetry data (a combination of existing data and tag tracking data collected for Western Australia 2019-2022) to assess the spatial extent of the distribution, migration and foraging areas for pygmy blue whales in the South-east Indian Ocean associated with the northbound migration. The tag tracking results highlighted extensive use of slope habitat off Western Australia and minimal use of shelf habitat by pygmy blue whales. Additionally, pygmy blue whales off Western Australia were mostly engaged in migration, with short periods of foraging. Whale density was highest in the southern part of the North-west Australian coast and whales were there between April-June, and November-December. This study also compared foraging and migration areas to described areas of importance (BIAs), some aligned such as migratory BIA for northbound pygmy blue whales whilst some had less than 10% overlap (Thums et al., 2022). The timing, distribution and behaviour of southbound pygmy blue whales is less well documented with reference to satellite tagging. Limited tagged whale data from Double et al. (2014), Möller et al. (2020) and Thums et al. (2022) indicated connectivity of migrating pygmy blue whales from South Australia through Western Australia to and back from Indonesia. Mustika et al. (2024), satellite tag tracking data for two southbound pygmy blue whales (tagged in Indonesia) suggest varying migratory</p>

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Species	Key Information
	<p>pathways from the Savu Sea to subantarctic waters as well as extended time in the Southern Subtropical Convergence Zone. One tagged whale traversed a migratory path through offshore waters of Western Australia towards Heard and McDonalds Islands covering a distance of almost 6,000 km and travelling at 100 km per day. In contrast a second tagged whale took a migratory journey similar to the documented northbound route to the North-west Cape before heading out into offshore waters and spending time in the Subantarctic Front before looping back up through the Perth Canyon, North-west Cape and towards Savu Sea (Mustika et al., 2024).</p> <p>There is currently insufficient data to accurately estimate population numbers of the pygmy blue whale in Australian waters (Blue Planet Marine, 2020; Commonwealth of Australia, 2015a). There are, however, two estimates of population size of the EIO pygmy blue whale for WA. McCauley and Jenner (2010) calculated the population to be between 662 and 1559 individuals in 2004 based on passive acoustics (whale vocalisations), and Jenner et al. (2008) (based on photographic mark and recapture) calculated between 712 and 1754 individuals, but both estimates did not account for animals travelling further west into the Indian Ocean (McCauley et al., 2018). More recent passive acoustic data estimates a 4.3% growth rate that applies to the proportion of EIO pygmy blue whales seasonally present in offshore water off south-eastern Australia and may not reflect the full population but does imply an increasing population (McCauley et al., 2018).</p> <p>Thums et al., (2022) identified the most important foraging (and/ or resting/ breeding) areas from south to north as: (1) the Perth Canyon and vicinity; (2) the shelf edge off Geraldton; (3) the shelf edge from Ningaloo Reef to the Rowley Shoals (not continuous) and including a couple of small areas near the shelf edge off approx. 25°S; and (4) the Banda Sea. The Foraging BIA off the South-west of Western Australia encompassed 83% of the most important areas in that region (Thums et al., 2022).</p> <p>The pygmy blue whale is typically present in the Perth Canyon from November to June, with an observed peak between March and May (Commonwealth of Australia, 2015a; Blue Planet Marine, 2020). The pygmy blue whale feeds in the Perth Canyon at depths of 200 to 300 m, which overlaps the typical distribution of krill (200–500 m water depth (day) to surface (night)) (McCauley et al., 2004; Commonwealth of Australia, 2015a). Other possible feeding grounds off the WA coast include the wider area around the Perth Canyon, and possible foraging areas off the Ningaloo Coast and at Scott Reef (Commonwealth of Australia, 2015a).</p> <p>The seasonal presence of pygmy blue whales is presented in Table 9-1.</p> <p>Refer Table 7-3 and Figure 7-4 for the location and type of BIAs for blue whales in the NWMR. There is a migratory BIA for the pygmy blue whale within WA waters, which extends for most of the length of the NWMR within offshore waters.</p>
Bryde's whale	<p>The Bryde's whale is the least migratory of its genus and is restricted geographically from the equator to approximately 40°N and S, or the 20° isotherm (Bannister et al., 1996). The species is known to exhibit inshore and offshore forms varying in morphology and migratory behaviours in other international locations (Bannister et al., 1996). This appears to also be the case within Australian waters. Bryde's whales have been identified as occurring in both oceanic and inshore waters, with the only key localities recognised in WA being in the Houtman Abrolhos Islands and north of Shark Bay (Bannister et al., 1996). Data suggests offshore whales migrate seasonally, heading towards warmer tropical waters during the winter; however, information about migration within the NWMR is not well known (McCauley and Duncan, 2011). McCauley (2011b) detected Bryde's whales using acoustic loggers deployed in and around Scott Reef from 2006 to 2009. Other acoustic logger data of Bryde's whale vocalisations recorded between Ningaloo and north of Darwin showed no apparent trends or seasonality (McCauley, 2011a).</p> <p>There are no identified BIAs for this species in the NWMR.</p>
Southern right whale	<p>The southern right whale occurs primarily in waters between about 20°S and 60°S and moves from high latitude feeding grounds in summer to warmer, low latitude, coastal locations in winter (Bannister et al., 1996). Two populations of southern right whale occur in Australian waters: the western and eastern (DCCEEW, 2024a). Southern right whales in Australian waters predominantly occur in aggregations in coastal water reproductive areas where they calve and nurse their young from May to October, primarily occupying shallow waters (< 10m depth) within 1 km of the coastline (Charlton et al., 2019 and Smith et al., 2022; cited in DCCEEW, 2024a). Peak period of abundance is late July to August, with seasonal variability. Females accompanied by a calf generally occupy the calving ground for 2 to 3 months between June and September (DCCEEW, 2024a). For the western population, breeding occurs in Exmouth Gulf and in calving areas along the south coast of WA outside of the NWMR (DCCEEW, 2023). A stranding record exists for the far north Kimberley coast (ALA, 2006). Known females have rarely been observed on the Australian coastline in the year prior to</p>

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Species	Key Information
	<p>calving, suggesting mating and conception may predominantly occur away from calving grounds, potentially on feeding grounds (Watson et al., 2021 cited in DCCEEW, 2024a). There is a significant energetic cost to the mother in the late stages of gestation (i.e. last trimester) and calf growth rate has been found to be dependent on the maternal body size and condition of the mother (Christiansen et al. 2018 and Christiansen et al. 2022 cited in DCCEEW, 2024a). Foraging ecology of southern right whales is poorly understood and observations of foraging whales are rare (DCCEEW, 2024a). There is evidence of a population increase of the western population, whereas there is greater uncertainty of the population status and trends of the eastern population (DCCEEW, 2024a). Southern right whale abundance in Australian waters is still far below estimated historic abundance (>20%) (DCCEEW, 2024a).</p> <p>There is a reproduction BIA and habitat critical to survival (HCTS) for the southern right whale located within Exmouth Gulf (DCCEEW, 2024a). A migration BIA extends 3 nautical miles out from the coastline from Ningaloo and spans down the Western Australian coastline and across the south and south-east coast of Australia (DCCEEW, 2024a). Nursing and calving behaviours are known to occur within reproductive BIAs. HCTS for the southern right whale has been identified as all reproductive BIAs across the species range (DCCEEW, 2024a). Refer Figure 7-1 and Section 7.6 for HCTS for southern right whale in the NWMR. Refer to Table 7-3 and Figure 7-5 for BIAs for southern right whales in the NWMR</p>
Antarctic minke whale	<p>The Antarctic minke whale have a circumpolar distribution south of 60°S during summer (Risch et al., 2019) and has been recorded off all Australian States (apart from the NT) in winter (refer to DCCEWE SPRAT profile). Their seasonal distribution and migration patterns are poorly understood (Risch et al., 2019). The species is highly associated with sea ice and feeds in cold Antarctic waters over the summer. It is thought that the Antarctic minke whale migrates through offshore waters of Western Australia to about 20°S to feed and possibly breed (Bannister et al., 1996). Information about timing and distribution, behaviour (migration and breeding) within the NWMR, however, is presently not known. In the high latitudinal winter breeding grounds in other regions, the species appears to be distributed off the continental shelf edge. No population estimates are available for Antarctic minke whales in Australian waters. Acoustic detection has been recorded for the Perth Canyon and Exmouth Plateau (McCauley, 2011) and more recently acoustic detection indicated presence in offshore waters of NWS in late October and all of November and was absent (based on no vocalisation and detection) in December 2021 to March 2022 (over a monitoring period from October 2021 to March 2022) (Warren et al., 2023)).</p> <p>There are no identified BIAs for this species in the NWMR.</p>
Sei whale	<p>The sei whale is a baleen whale with a worldwide oceanic distribution and is expected to seasonally migrate between low latitude wintering areas and high latitude summer feeding grounds (Bannister et al., 1996; Prieto et al., 2012). There are no known mating or calving areas in Australian waters. The species has a preference for deep waters, typically occurs in oceanic basins and continental slopes (Prieto et al., 2012), and exhibits a migration pathway influenced by seasonal feeding and breeding patterns. Sei whales have been infrequently recorded in Australian waters (Bannister et al., 1996). Reliable estimates of the sei whale population size in Australian waters are currently not possible due to a lack of dedicated surveys and their elusive characteristics. Similarly, the extent of occurrence and area of occupancy of sei whales in Australian waters cannot be calculated due to the rarity of sighting records. They will typically travel in small pods of three to five individuals, with some segregation by age, sex and reproductive status. Calving grounds are presumed to exist in low latitudes with mating and calving potentially occurring during winter months (Threatened Species Scientific Committee, 2015a).</p> <p>There are no known mating or calving areas in Australian waters, and there are no identified BIAs for this species in the NWMR.</p>
Fin whale	<p>The fin whale is a large baleen whale distributed worldwide. Fin whales migrate annually between high latitude summer feeding grounds and lower latitude over-wintering areas (Bannister et al., 1996) and follow oceanic migration paths. The species is uncommonly encountered in coastal or continental shelf waters. Australian Antarctic waters are important feeding grounds for fin whales but there are no known mating or calving areas in Australian waters (Morrice et al., 2004). The species has been observed in groups of six to 10 individuals, as well as in pairs and alone (Threatened Species Scientific Committee, 2015c). Accurate distribution patterns are not known within Australian waters and the majority of data is from stranding events.</p> <p>Fin whales have been recorded vocalising off the Perth Canyon, WA, between January and April 2000 (McCauley et al., 2000). It is currently not possible to accurately estimate the population size of fin whales in Australian waters predominantly due to the species' behaviour and local ecology, as</p>

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Species	Key Information
	<p>the proportion of time they spend at the surface varies greatly depending on these factors. In addition, natural fluctuations of fin whales in Australian waters are unknown; however, long-range movements do appear to be prey-related (Aulich et al., 2022). A recent study by Aulich et al. (2022) used passive acoustic monitoring as a tool to identify the migratory movements of fin whales in Australian waters. On the west coast, the earliest arrival of these animals from Antarctica occurred at Cape Leeuwin in April, and between May and October they migrated along the WA coastline to the Perth Canyon, which likely acts as a feeding zone for migratory whales (Aulich et al., 2022). Some whales were found to continue migrating northwards along the WA coastline with vocalisation presence recorded as far north as Dampier between August and late October (Aulich et al., 2022). There are no identified BIAs for this species in the NWMR.</p>
<p>Omura's whale</p>	<p>Omura's whale is a species of baleen whale that was first described in 2003. Previously specimens of Omura's whale were identified as pygmy/dwarf Bryde's whales, however morphological and molecular evidence identified Omura's whale as a distinct species not closely related to Bryde's whale in 2003 (Ottewell et al., 2016).</p> <p>It was believed that the range of Omura's whale was restricted to the eastern Indo-Pacific, however recent discoveries suggest the species may have a more widespread distribution (Ottewell et al., 2016; Cerchio et al, 2019). In Australia, presence of this species was confirmed in 2015 when, what was later determined to be an Omura's whale, was stranded on the northwest coast of Australia, near Exmouth (Ottewell et al., 2016). An in-depth review conducted by Cerchio et al. (2019) concluded that Omura's whale can primarily be found in tropical and warm-temperate waters and is currently known from all ocean basins excluding the central and eastern Pacific. Further, a strong tendency toward a coastal and neritic water distribution was found, although there were several pelagic water records, the majority of which were on the continental shelf and within shallow seas throughout the documented range (Cerchio et al, 2019).</p> <p>Omura's whales were detected by passive acoustic monitoring:</p> <ul style="list-style-type: none"> • Warren et al. (2023) targeted passive acoustic monitoring program to detect southbound migratory pygmy blue whales ran from late October 2021 to March 2022 with a deepwater ALTO lander (900 m depth) to the west of the Montebello Trough and C-lander (190 m depth) at the outer edge of the NWS. Calls of the Omura's whales were detected at both recording locations throughout the recording period. Detections were, however, more common at the deeper water location, in terms of both number of detection days and number of detection hours per day (Warren et al., 2023). The shelf edge location showed Omura's present primary in December, however this lander malfunctioned and stopped recording in mid-January 2022. • An offshore trial of Distributed Acoustic Sensing (DAS) using fibre optic cables (submarine telecommunications cable) to detect low-frequency whales recorded vocalising Omura's whales within 12 km detection range along a 50 km long area on the outer edge of NWS (Debens et al. 2024). Omura's whale detections were made from at the beginning of December 2023 through to mid-January 2024 (and the end of the trial). <p>Currently little is known about the ecology and lifestyle characteristics of Omura's whale resulting in an IUCN listing of Data Deficient. There are no identified BIAs for this species in the NWMR.</p>
<p>Toothed whales (Odontoceti) – High Frequency hearing</p>	
<p>Sperm whale</p>	<p>Sperm whales are the largest of the toothed whales and are distributed worldwide in deep waters (greater than 200 m) off continental shelves and sometimes near shelf edges (Bannister et al., 1996). The species tends to inhabit offshore areas at depths of 600 m or more and is uncommon in waters less than 300 m deep (Ceccarelli et al., 2011). There is limited information about sperm whale distribution in Australian waters, however, they are usually found in deep offshore waters, with more dense populations close to continental shelves and canyons. In the open ocean, there is a generalised movement of sperm whales southwards in summer, and corresponding movement northwards in winter, particularly for males. Detailed information about the distribution and migration patterns of sperm whales off the WA coast is not available. Females with young may reside within the NWMR all year round, males may migrate through the region and the species may be associated with canyon habitats (Ceccarelli et al., 2011).</p> <p>Sperm whales have been recorded in deep waters off North-west Cape and appear to occasionally venture into shallower waters in other areas. 23 sightings of sperm whales (variable pod sizes, ranging from one to six animals) were recorded by marine mammal observers (MMOs) during the North-west Cape MC3D marine seismic survey (December 2016 to April 2017) (Woodside, 2020). These animals were observed in deep, continental slope</p>

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Species	Key Information
	<p>waters of the Montebello Saddle (maximum distance of approximately 90 km from North-west Cape), and the waters overlying the Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF. The deep waters above the gully/saddle on the inner edge of the plateau (the Montebello Saddle) are thought to be important for sperm whales that may feed in the region (based on 19th Century whaling records; Townsend, 1935).</p> <p>Recent studies such as acoustic detection indicated sperm whale presence in deep, offshore waters but not at the edge of the NWS (over a monitoring period of October 2021 to March 2022, for the deepwater location). However, while sperm whales were detected every month, occurring in bouts, there was no evidence for lasting use of the area around this recording location (Warren et al., 2023), Ferriera et al. (2024) reported sperm whale sightings off the North-west Cape in May 2023. A total of 26 individual sperm whales were sighted about 30 km offshore in groups up to ten individuals. The sperm whales were observed displaying surface logging behaviour with frequent and numerous blows prior to flukes up dives (indicative of deep feeding behaviour). Such aggregations appear to be an annual occurrence and at the same time as migratory pygmy blue whale feed and move through the same area, to the west and offshore of Ningaloo and North-west Cape.</p> <p>There are no identified BIAs for this species in the NWMR.</p>
Orca (killer whale)	<p>The preferred habitat of killer whales includes oceanic, pelagic and neritic (relatively shallow waters over the continental shelf) regions, in both warm and cold waters. Killer whales appear to be more common in cold, deep waters; however, they have been observed along the continental slope and shelf, particularly near seal colonies, as well as in shallow coastal areas of WA (Bannister et al., 1996; Thiele and Gill, 1999). The total number of killer whales in Australian waters is unknown, however, it may be that the total number of mature animals within waters around the continent is less than 10,000. Killer whales are known to make seasonal movements, and probably follow regular migratory routes, but no information is available for the species in Australian waters. Killer whales are top-level carnivores, and there are reports from around Australia of attacks on dolphins, juvenile humpback whales, blue whales, sperm whales, dugongs and Australian sea lions (Bannister et al., 1996). Killer whales are known to target humpback whales, particularly calves, off Ningaloo Reef during the humpback southern migration season (Pitman et al., 2015). Overall, observations suggest that humpback calves are a predictable, plentiful, and readily taken prey source for killer whales off Ningaloo Reef for at least five months of the year. Additionally, there are records of killer whales attacking dugongs in Shark Bay (Anderson and Prince, 1985). However, there are no recognised key localities or important habitats for killer whales within the NWMR (DSEWPAC, 2012a).</p> <p>There are no identified BIAs for this species in the NWMR.</p>
Australian snubfin dolphin	<p>Stranding and museum specimen records indicate that Australian snubfin dolphins occur only in waters off northern Australia, from approximately Broome on the west coast to the Brisbane River on the east coast (Parra et al., 2002). Aerial and boat-based surveys indicate that Australian snubfin dolphins occur mostly in protected shallow waters close to the coast, and close to river and creek mouths (Parra, 2006; Parra et al., 2006; Parra et al., 2002). Within the NWMR, this species has been found in the shallow coastal waters and estuaries along the Kimberley coast. Beagle and Pender bays on the Dampier Peninsula, and tidal creeks around Yampi Sound and between Kuri Bay and Cape Londonderry are important areas for Australian snubfin dolphins (DEWHA, 2008). Roebuck Bay has generally been considered the south-western limit of snubfin dolphin distribution across northern Australia, but the species has been recorded in Port Hedland harbour, the Dampier Archipelago, Montebello Islands, Exmouth Gulf and off North-west Cape (Allen et al., 2012). Roebuck Bay supports one of the largest known populations of Australian snubfin dolphins (D’Cruz et al., 2022). A first comprehensive catalogue of snubfin dolphin sightings has been compiled for the Kimberley, north-west Western Australia (Bouchet et al. 2021) and documented that snubfin dolphins are consistently encountered in shallow water (<21 m depth) close to (<15 km) freshwater inputs with high detection rates in known hotspots such as Roebuck Bay and Cygnet Bay as well as suitable coastal habitat in the wider Kimberley region.</p> <p>Refer Table 7-3 and Figure 7-6 for the location and type of BIAs for Australian snubfin dolphins in the NWMR.</p>
Indo-Pacific humpback dolphin (Australian humpback dolphin)	<p>Previously included with <i>Sousa chinensis</i>, the Australian humpback dolphin (<i>S. sahalensis</i>) was elevated to a species in 2014. <i>S. chinensis</i> is now applied for humpback dolphins in the eastern Indian and western Pacific Oceans and <i>S. sahalensis</i> for humpback dolphins in the waters of the Sahul Shelf from northern Australia to southern New Guinea (Jefferson and Rosenbaum, 2014). The Australian humpback dolphin is listed as <i>S. chinensis</i> under the EPBC Act.</p> <p>The Australian humpback dolphin (referred to as ‘humpback dolphin’ hereafter) inhabits the tropical/subtropical waters of the Sahul Shelf across northern Australia and southern Papua New Guinea (Jefferson and Rosenbaum, 2014). Based on historical stranding data, museum specimens and</p>

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Species	Key Information
	<p>opportunistic sightings collected during aerial and boat-based surveys for other fauna it has been inferred that humpback dolphins occur from the WA/NT border south-west to Shark Bay (Hanf et al., 2016). Allen et al. (2012) suggested that humpback dolphins use a range of inshore habitats, including both clear and turbid coastal waters across northern WA. The waters surrounding North-west Cape are an important area for the species. Boat-based surveys up to 5 km out from the coast (Brown et al., 2012) recorded humpback dolphins from 0.3 to 4.5 km away from shore and in depths ranging from 1.2 to 20 m, with a mean of ~8 m. Other studies around North-west Cape, surveying waters up to 5 km from the coast, recorded humpback dolphins in water depths of up to 40 m (Hanf et al., 2016). Based on density, site fidelity and residence patterns, North-west Cape is clearly an important habitat toward the south-western limit of this species' range (Hunt et al., 2017). Humpback dolphins do not appear to undergo large-scale seasonal migrations, although seasonal shifts in abundance have been observed (Parra & Cagnazzi 2016 cited in DCCEEW, 2023a).</p> <p>Aerial transect surveys conducted in the Kimberley region show the abundance for humpback dolphins was estimated to be 1,546 in 2016 and 2,690 in 2017 (Raudino et al., 2023). Dolphin densities were greatest in inshore waters, with greatest densities in Exmouth Gulf, Dampier Archipelago, and Great Sandy Islets (Raudino et al., 2023). Aerial surveys targeting dugongs over the western Pilbara have recorded humpback dolphins more than 60 km from the mainland in shallow shelf waters (i.e. <30 m deep) near Barrow Island and the western Lowendal Islands (Hanf, 2015). The species has also been recorded in fringing coral reef and shallow, sheltered sandy lagoons at the Montebello Islands (Raudino et al., 2018). Over the past ten years a number of studies have focused on populations of humpback dolphins along the Kimberley coast, including Roebuck Bay, the Dampier Peninsula, Cone Bay, Yampi Sound, Prince Regent River and the Cambridge Gulf (Brown et al., 2016).</p> <p>Refer Table 7-3 and Figure 7-7 for the location and type of BIAs for Indo-Pacific humpback dolphins in the NWMR.</p>
Indo-Pacific bottlenose dolphin (Spotted bottlenose dolphin)	<p>There are four known sub-populations of spotted bottlenose dolphins, of which the Arafura/Timor Sea populations were identified as potentially occurring within the NWMR. The species is restricted to inshore areas such as bays and estuaries, nearshore waters, open coast environments, and shallow offshore waters including coastal areas around oceanic islands, from Shark Bay to the western edge of the Gulf of Carpentaria. The species forages in a range of habitats but is generally restricted to water depths of less than 200 m (DSEWPAC, 2012a). Important foraging/breeding areas include the shallow coastal waters and estuaries along the Kimberley coast and Roebuck Bay. Aerial transect surveys conducted in the Kimberley region showed the abundance for the bottlenose dolphins has been declining with estimated abundance of 3,713 in 2015, 2,638 in 2016 and 1,635 in 2017. Dolphin densities were greatest in inshore waters, with greatest densities in Exmouth Gulf, Dampier Archipelago, and Great Sandy Islets (Raudino et al., 2023). A study at North-west Cape (NWC) found that during Winter months, presence in coastal lagoons west of the NWC was more likely than other seasons. In spring, probability of spotted bottlenose dolphin occurrence was higher outside of the Ningaloo Marine Park (noting summer data was not included in this study) (Haughey et al. 2021).</p> <p>Refer Table 7-3 and Figure - the location and type of BIAs for spotted bottlenose dolphins in the NWMR.</p>
Sirenians	
Dugong	<p>Dugongs are distributed along the WA coast throughout the Gascoyne, Pilbara and Kimberley. Specific areas supporting dugong populations include: Shark Bay; Ningaloo and Exmouth Gulf; the Pilbara coast (Exmouth Gulf to De Grey River [Marsh et al., 2002]); and Eighty Mile Beach and the Kimberley coast, including Roebuck Bay (Brown et al., 2014). Dugong distribution is correlated with the seagrass habitats upon which it feeds, although water temperature has also been correlated with dugong movements and distribution (Preen et al., 1997; Preen, 2004). Dugongs are known to migrate between seagrass habitats (hundreds of kilometres) (Sheppard et al., 2006), and in Shark Bay they exhibit seasonal movements as a behavioural thermoregulatory response to winter water temperatures (Holley et al., 2006; Marsh et al., 2011). Abundance aerial surveys have been conducted in Australian dugong habitat areas since the early 1980s. These surveys indicate that dugong populations are now stable at a regional scale in Shark Bay and in the Exmouth and Ningaloo Reef area. The entire Kimberley region has only been surveyed in 2015 and 2017, so only baseline information on dugong distribution and abundance is available for this area (Cleguer & Marsh, 2023).</p> <p>Refer Table 7-3 and Figure 7-8 for the location and type of BIAs for dugong in the NWMR.</p>

Species	Key Information
Pinnipeds	
Australian sea lion	<p>The Australian sea lion is the only endemic pinniped (true seals, fur seals and sea lions) in Australian waters. It is a member of the Otariidae (eared seals) family. The birth interval in Australian sea lions is around 17–18 months. The Australian sea lion is unique among pinnipeds in being the only species that has a non-annual breeding cycle that is also temporally asynchronous across its range (DSEWPAC, 2013a; Threatened Species Scientific Committee, 2020a). This means the breeding period (copulation and birthing) in one colony will occur at different times to breeding in another colony. The Australian sea lion is a specialised benthic forager—that is, it feeds primarily on the sea floor. Studies have shown that the species will eat a range of prey, including fish, cephalopods (squid, cuttlefish and octopus), sharks, rays, rock lobsters and penguins (DSEWPAC, 2013a; Threatened Species Scientific Committee, 2020a). The Australian sea lion feeds on the continental shelf, most commonly in depths of 20–100 m, and they typically travel up to about 60 km from their colony on each foraging trip, with a maximum distance of around 190 km when over shelf waters.</p> <p>The current breeding distribution of the Australian sea lion extends from the Houtman Abrolhos Islands on the west coast of WA to the Pages Islands in SA. Sites for the 58 breeding colonies occurring in WA and SA are designated as habitat critical to the survival of the species under the Recovery Plan for the Australian sea lion (DSEWPAC, 2013a). Of these, four are located in the SWMR along the west coast of WA: Abrolhos Islands (Easter Group), Beagle Island, North Fisherman Island and Buller Island. There are also a number of foraging BIAs for both males and females along the west coast, extending from the Abrolhos Islands south to Rockingham.</p> <p>There is no designated habitat critical to survival or identified BIAs for this species in the NWMR. Figure 7-9 shows the foraging BIAs for the Australian sea lion to the south of the NWMR in the northern extent of the SWMR.</p>

7.6 Habitat Critical to the Survival for Marine Mammals in the NWMR

The southern right whale is the only marine mammal which has habitat critical to the survival (HCTS) of a species defined.

The National Recovery Plan for the Southern Right Whale (DCCEEW, 2024a) identifies HCTS under the EPBC Act. The *EPBC Act Significant Impact Guidelines 1.1 – Matters of National Environmental Significance 2013* state that “An action is likely to have a significant impact on a threatened species if there is a real chance or possibility that it will: adversely affect habitat critical to the survival of a species.” The definition of HCTS for a species are areas necessary:

- for activities such as foraging, breeding, roosting, or dispersal,
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators),
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community.

HCTS for the southern right whale has been identified as all reproductive BIAs across the species range (**Figure 7-1**). The identification of HCTS reflects that southern right whales display strong site fidelity to calving areas in Australian coastal waters, within and between years, over decadal time spans (Bannister, 2001; Charlton et al. 2021 and Watson et al. 2021 cited in DCCEEW, 2024a). Reproductive areas have been identified as HCTS for the species: [:

- they meet the species’ essential life cycle requirements for reproduction (e.g., mating, calving, and nursing) and reproduction is known to occur at that location,
- there is a level of occupancy by individual breeding females at these locations of multiple days in any given year, and across multiple years, for long-term maintenance of the species, and
- they are critical for recovery of the southern right whale in terms of expanding habitat occupancy and contributing to the maintenance of genetic diversity as site fidelity may lead to small-scale genetic differences.

No ‘Critical Habitat’ as defined under section 207A of the EPBC Act has been identified for the southern right whale (DCCEEW, 2024a).

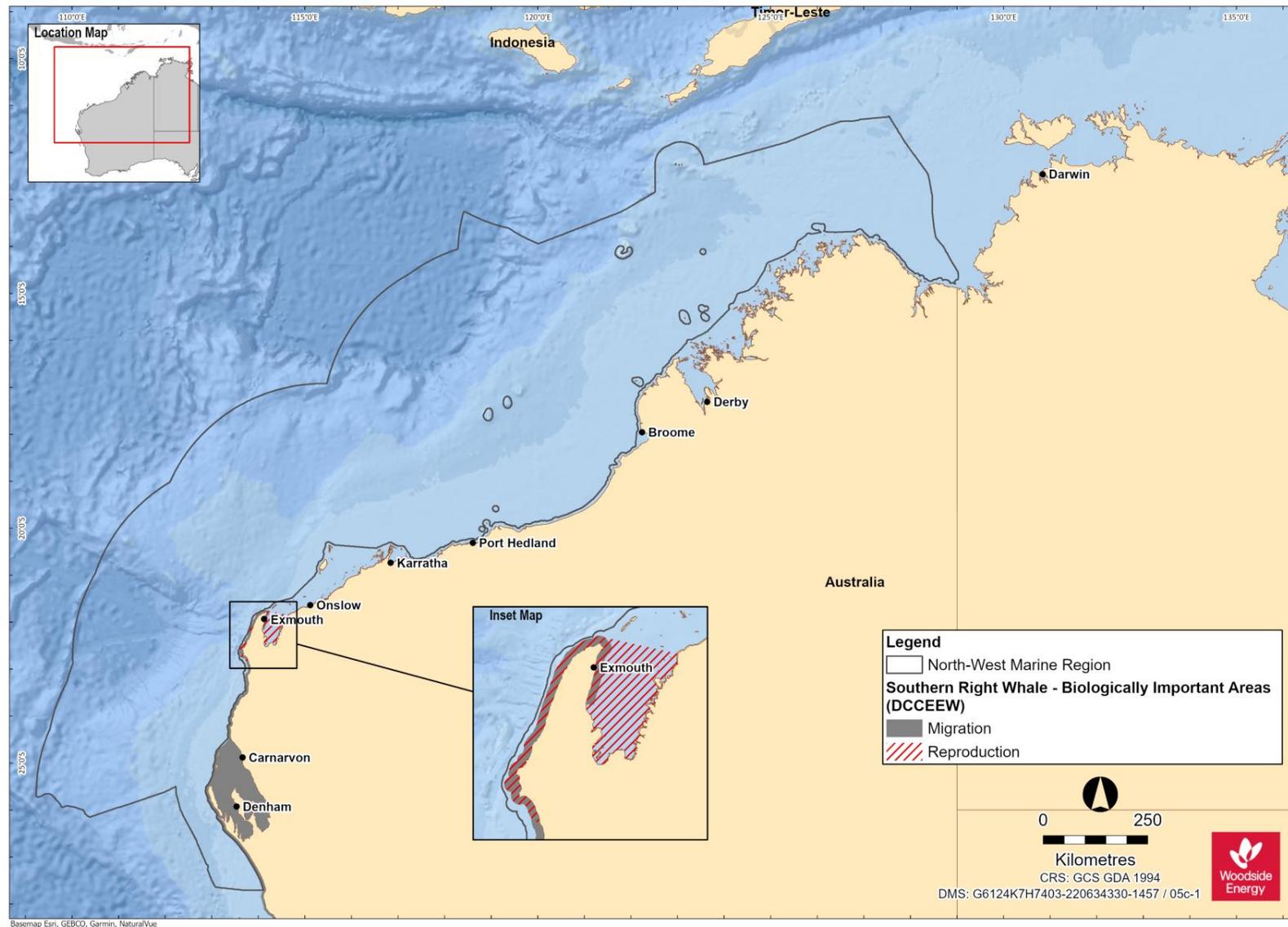


Figure 7-1 Habitat critical to the survival for the southern right whale in the NWMR (DCCEW, 2024a)

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Revision: 2

Woodside ID: 1401743486

Page 111 of 379

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7.7 Biological Important Areas in the NWMR

A review of the Australian Marine Spatial Information System (GA, 2024) identified BIAs representing important life cycle stages and behaviours for six species of marine mammal in the NWMR: the humpback whale, the pygmy blue whale, Australian snubfin dolphin, Australian humpback dolphin, spotted bottlenose dolphin and dugong, are presented in **Table 7-3**.

Table 7-3 Marine mammal BIAs within the NWMR.

Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Resting	Foraging ¹⁴	Reproduction		Migration
						Breeding	Calving	
Humpback whale ¹²	✓	✓	✓	Shark Bay Exmouth Gulf (north migration – early June) (south migration – late Aug to Oct) Southern Kimberley region	No foraging BIA identified within the NWMR	Nursing Kimberley coast from the Lacepede Islands to north of Camden Sound (mid Aug – early Sept)	Core calving in waters off the Kimberley coast from the Lacepede Islands to north of Camden Sound (mid Aug – early Sept)	Southern border of the NWMR to north of the Kimberley (arrive June)
Blue whale and pygmy blue whale ^{15 16}	✓	✓	✓	No resting BIA identified within the NWMR	Possible foraging areas off Ningaloo and Scott Reef	No breeding BIA identified within the NWMR	No calving BIA identified within the NWMR	Augusta to Derby. Along the shelf edge at depths of 500 m to 1000 m; appear close to Ningaloo Coast Montebello Islands area on southern migration (north: April – Aug) (south: Oct – late Dec). Potentially still present January (McCauley et al., 2018).
Southern right whale ¹⁷	-	-	✓	No resting BIA identified within the NWMR	No foraging BIA identified within the NWMR	Exmouth Gulf	No calving BIA identified within the NWMR	Migration along Australian coastline between April to October extending up to the Exmouth Gulf breeding BIA

¹⁴ Includes areas defined as ‘foraging’, ‘foraging likely’ and ‘foraging (high density prey)’ as per AMSIS (GA, 2024). These areas are shown in the BIA figures.

¹⁵ DSEWPAC (2012a)

¹⁶ Commonwealth of Australia (2015a)

¹⁷ Revised BIAs (October 2023) - <https://www.dcceew.gov.au/environment/marine/bias>

Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Resting	Foraging ¹⁴	Reproduction		Migration
						Breeding	Calving	
Australian snubfin dolphin ¹²	✓	✓	-	Cambridge Gulf Camden Sound area Prince Regent River Admiralty Gulf Parry Harbour Bougainville Peninsula Vansittart Bay Anjo Peninsula Napier Broome Bay Deep Bay King George River Cape Londonderry Ord River	Roebuck Bay Cambridge Gulf Camden Sound area King Sound (south) King Sound (north) Yampi Sound Talbot Bay Maret Islands Bigge Island Admiralty Gulf Parry Harbour Bougainville Peninsula Vansittart Bay, Anjo Peninsula Napier Broome Bay Deep Bay Prince Regent River King George River Cape Londonderry Ord River	Roebuck Bay Cambridge Gulf Camden Sound area King Sound (south) King Sound (north) Yampi Sound Talbot Bay Maret Islands Bigge Island Admiralty Gulf Parry Harbour Bougainville Peninsula Vansittart Bay, Anjo Peninsula Napier Broome Bay Deep Bay Prince Regent River King George River Cape Londonderry Ord River	Roebuck Bay Cambridge Gulf Camden Sound area King Sound (south) King Sound (north) Yampi Sound Talbot Bay Maret Islands Bigge Island Admiralty Gulf Parry Harbour Bougainville Peninsula Vansittart Bay Anjo Peninsula Napier Broome Bay Deep Bay Prince Regent River King George River Cape Londonderry Ord River	No migration BIA identified within the NWMR
Indo-Pacific humpback dolphin	✓	✓	-	No resting BIA identified within the NWMR	Roebuck Bay Willie Creek Prince Regent River King Sound (north) Yampi Sound	Roebuck Bay Willie Creek Prince Regent River King Sound (north) Yampi Sound Talbot Bay Walcott Inlet	Roebuck Bay Willie Creek Prince Regent River	No migration BIA identified within the NWMR

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Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Resting	Foraging ¹⁴	Reproduction		Migration
						Breeding	Calving	
					Talbot Bay Walcott Inlet Doubtful Bay Deception Bay Augustus Island Maret Islands Bigge Island King Sound, southern sector Vansittart Bay, Anjo Peninsula	Doubtful Bay Deception Bay Augustus Island		
Spotted bottlenose dolphin	✓	✓	✓	No resting BIA identified within the NWMR	Roebuck Bay Camden Sound area King Sound (south) King Sound (north) Yampi Sound	Roebuck Bay King Sound (south) King Sound (north) Yampi Sound	Roebuck Bay Camden Sound area King Sound (south) King Sound (north) Yampi Sound	Dampier Peninsula
Dugong ¹²	✓	✓	✓	No resting BIA identified within the NWMR	Exmouth Gulf Ningaloo Reef Shark Bay Roebuck Bay Dampier Peninsula	Eastern side of Dirk Hartog Island May - September Exmouth Gulf and Ningaloo year-round	Exmouth Gulf Ningaloo Reef Shark Bay	Within Shark Bay June - November and within Roebuck Bay year-round

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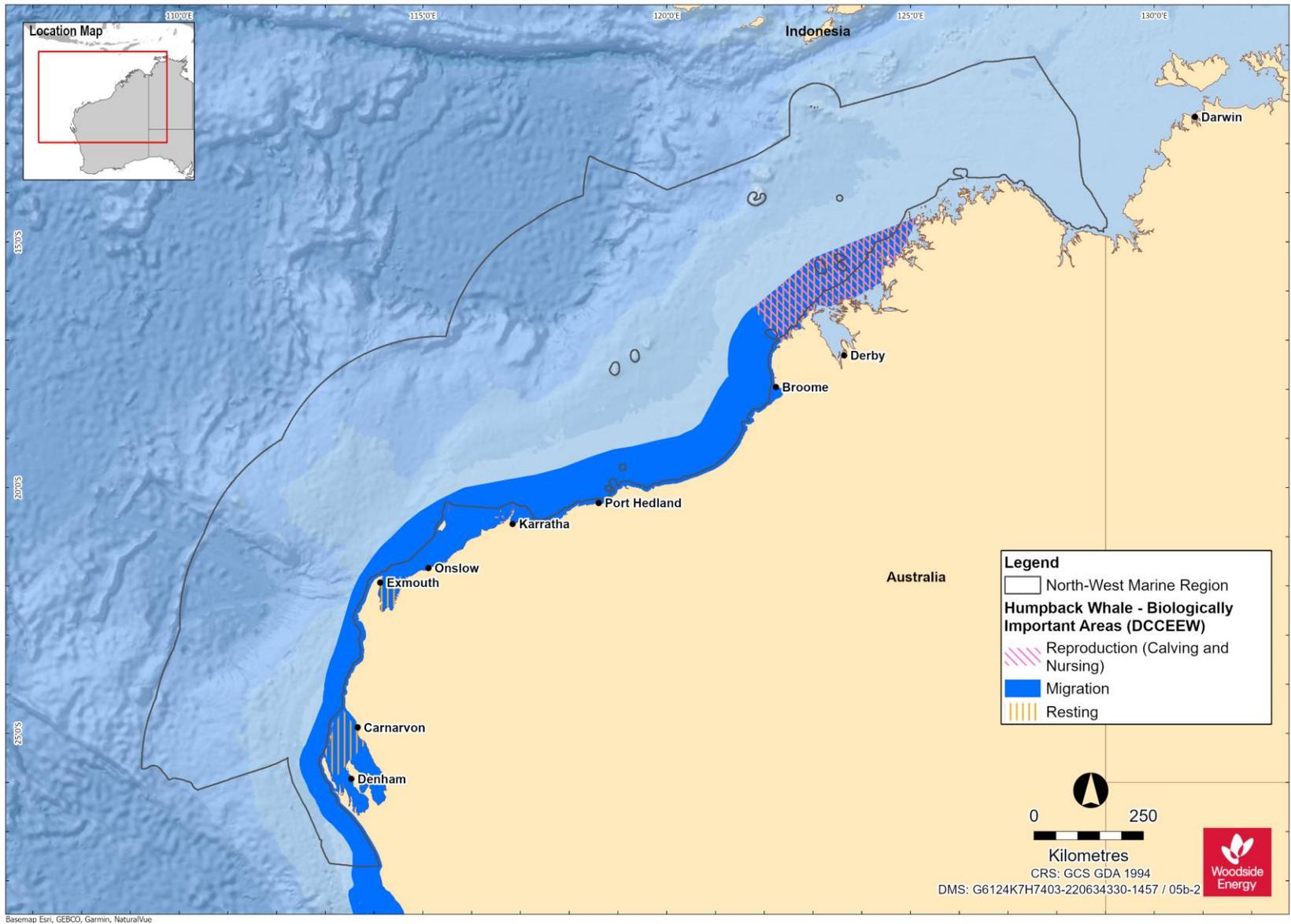


Figure 7-2 Humpback whale BIAs for the NWMR (data source: DCCEEW, 2024b)

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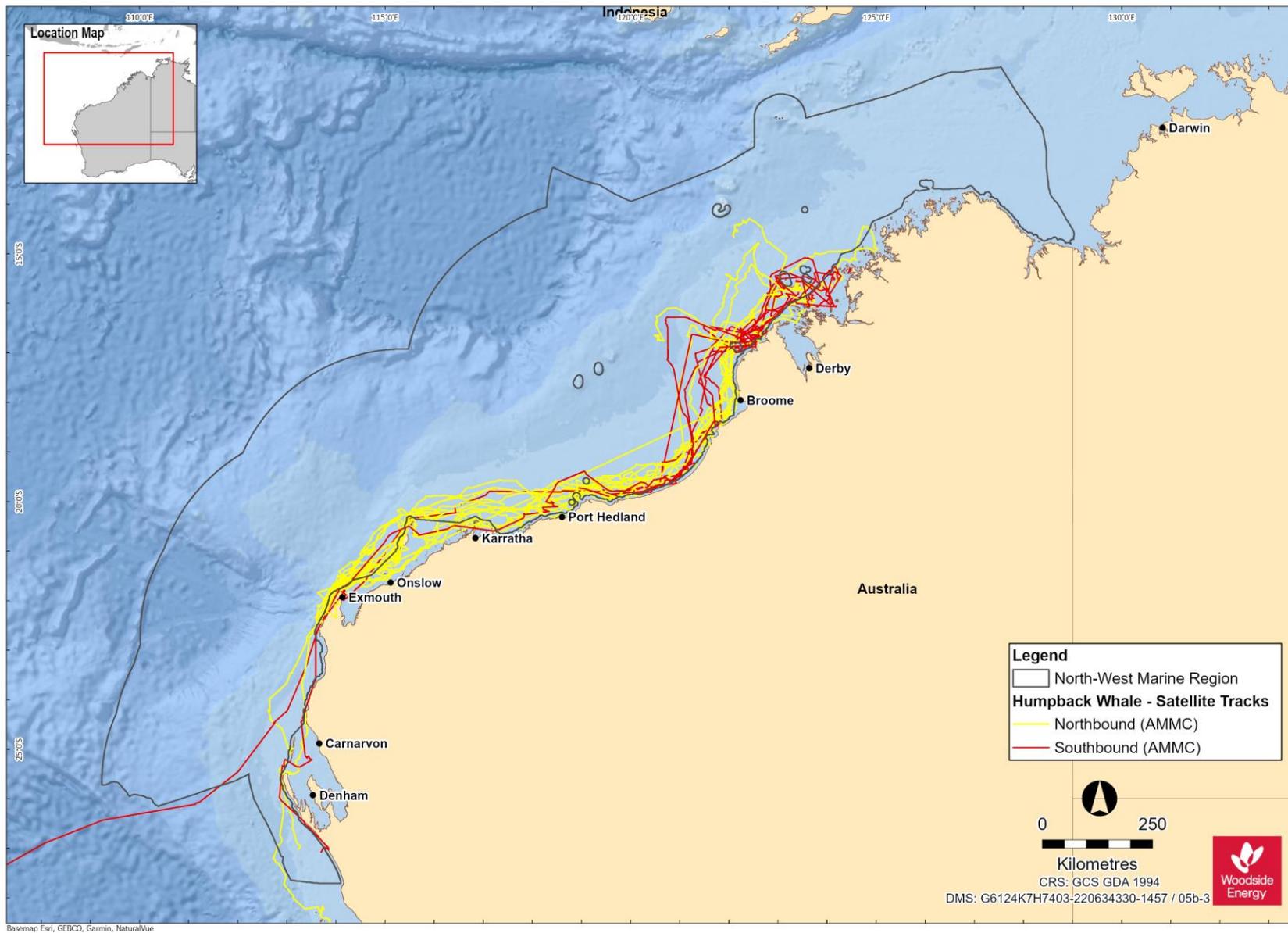


Figure 7-3 Humpback whale tagged tracks for north and south bound migrations (AMMC as published in Double et al. 2010 and 2012)

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Page 117 of 379

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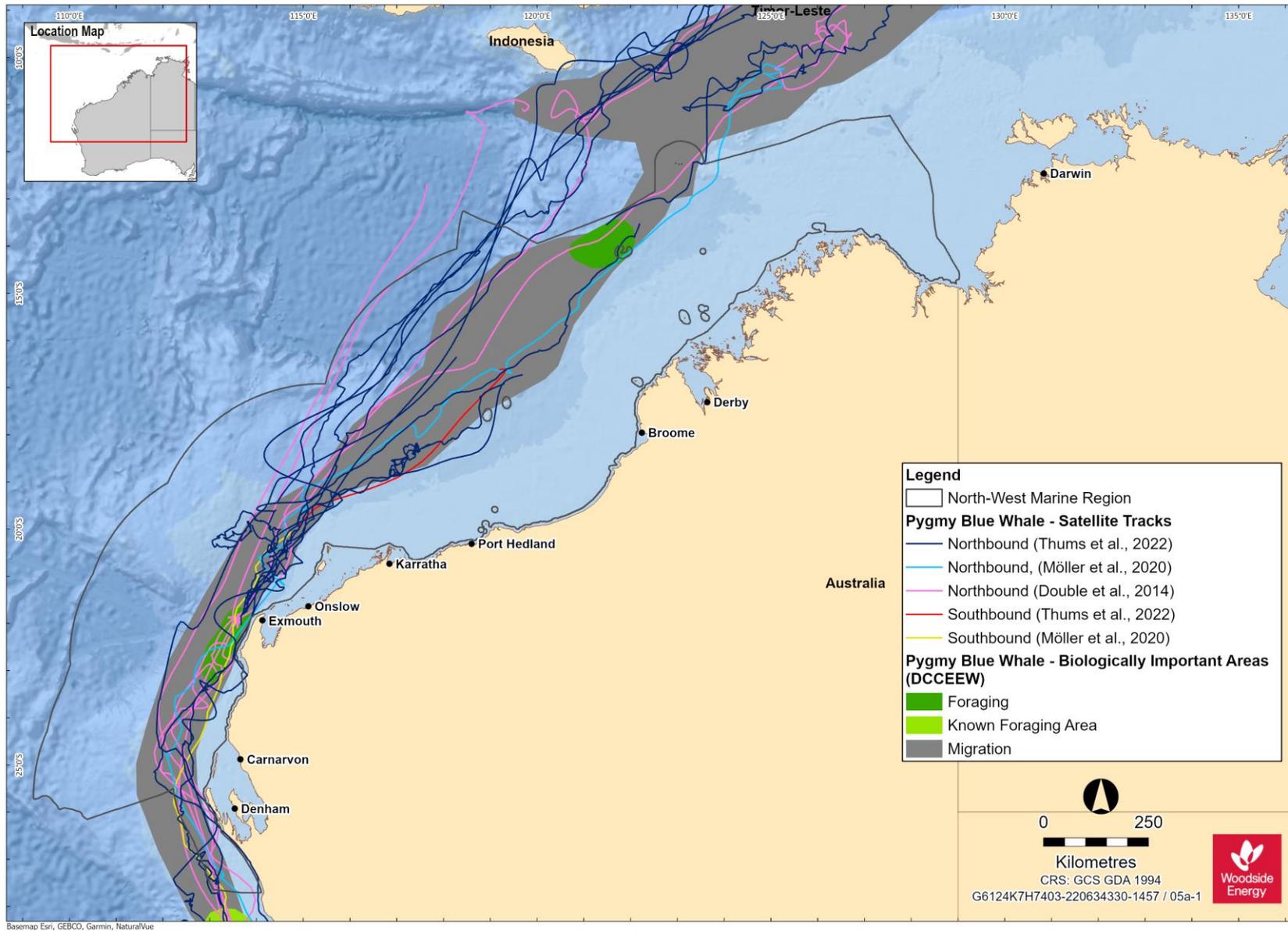


Figure 7-4 Pygmy blue whale BIAs for the NWMR and tagged whale tracks for northbound migration (data source for BIAs: DCCEE, 2024b)

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Page 118 of 379

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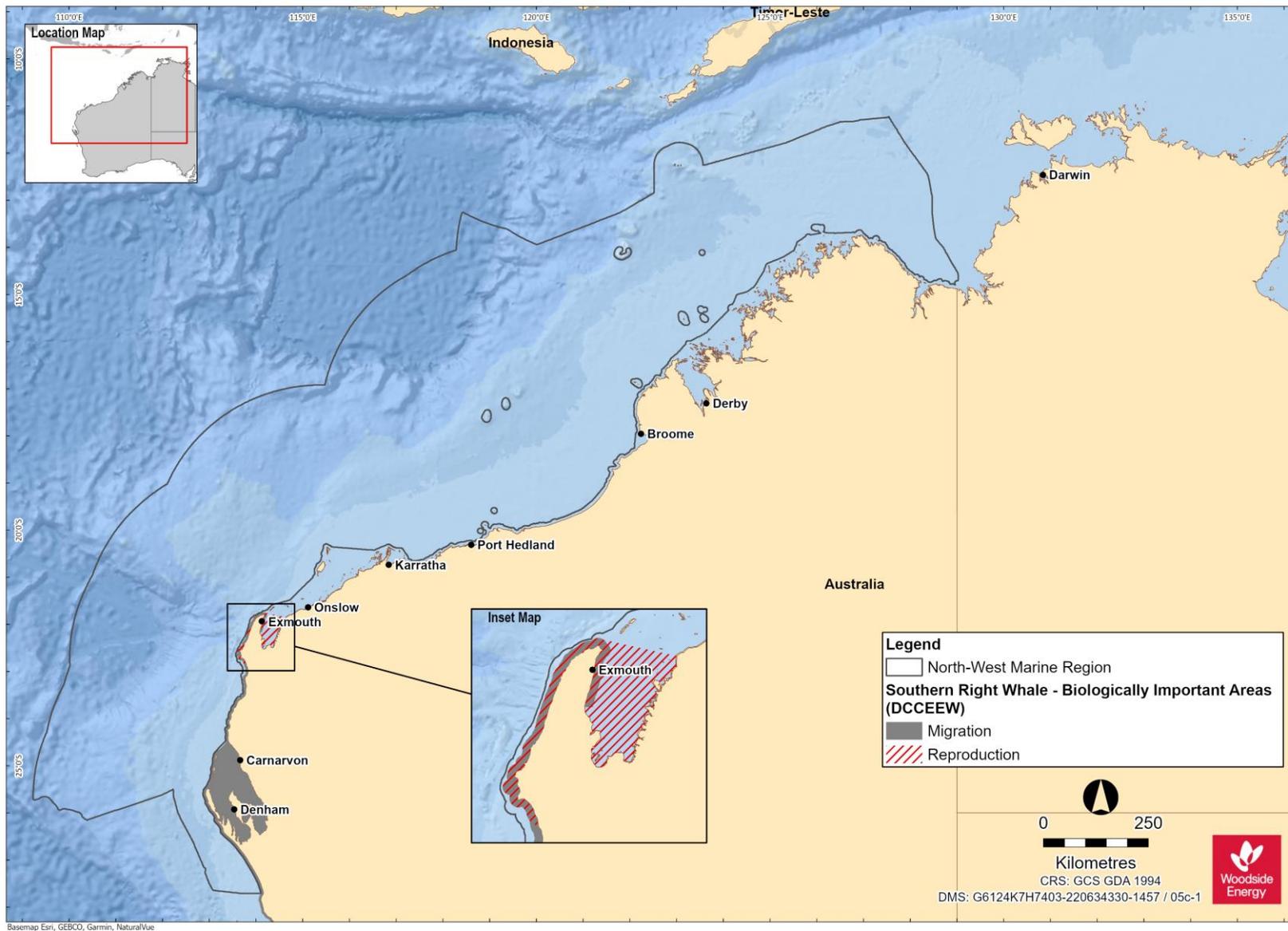


Figure 7-5 Southern right whale BIAs for the NWMR. Migration and reproduction BIAs along the coast extend to 3 nm (data source: DCCEEW, 2024b)

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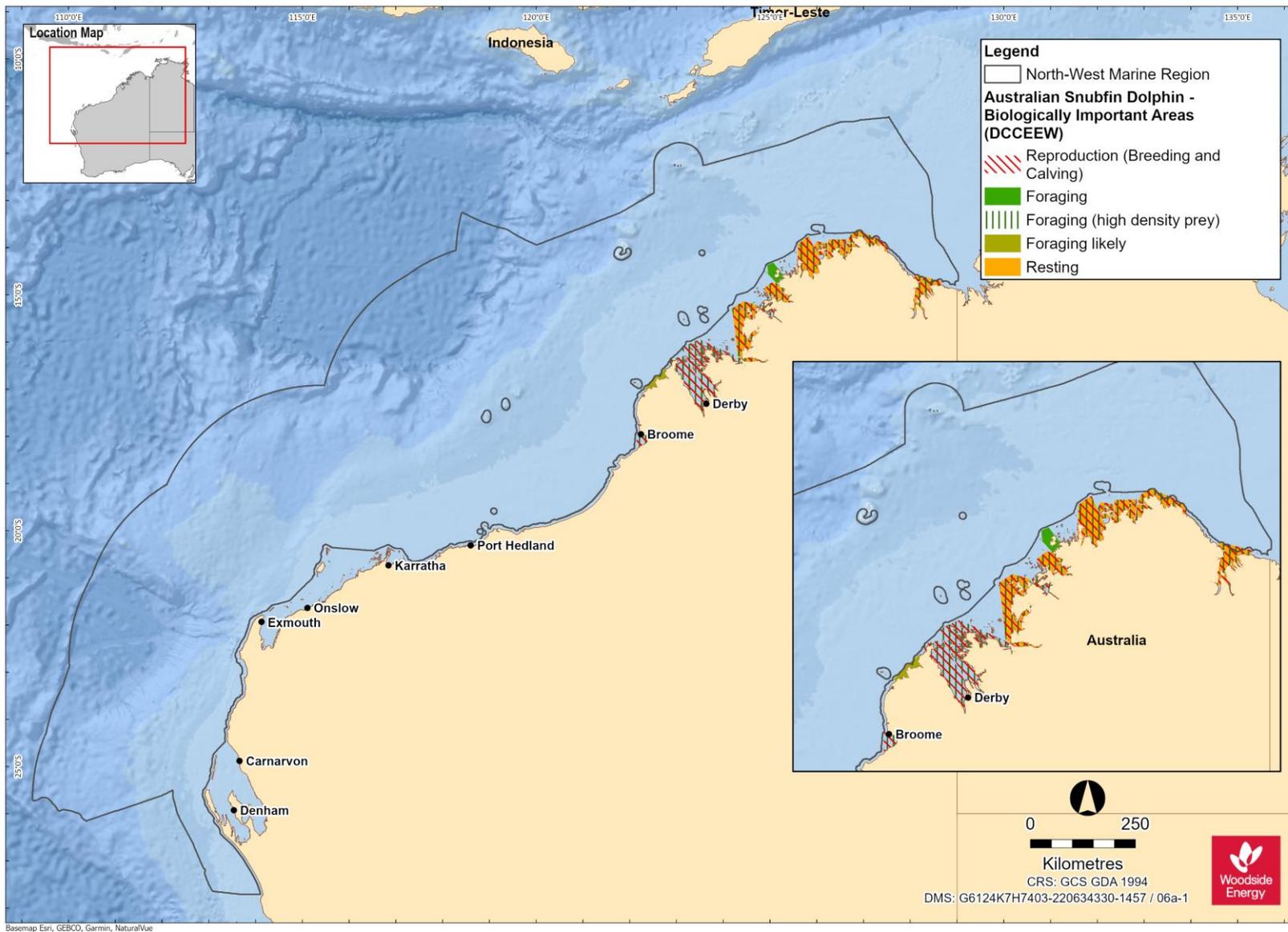


Figure 7-6 Australian snubfin dolphin BIA for the NWMR (data source: DCCEEW, 2024b)

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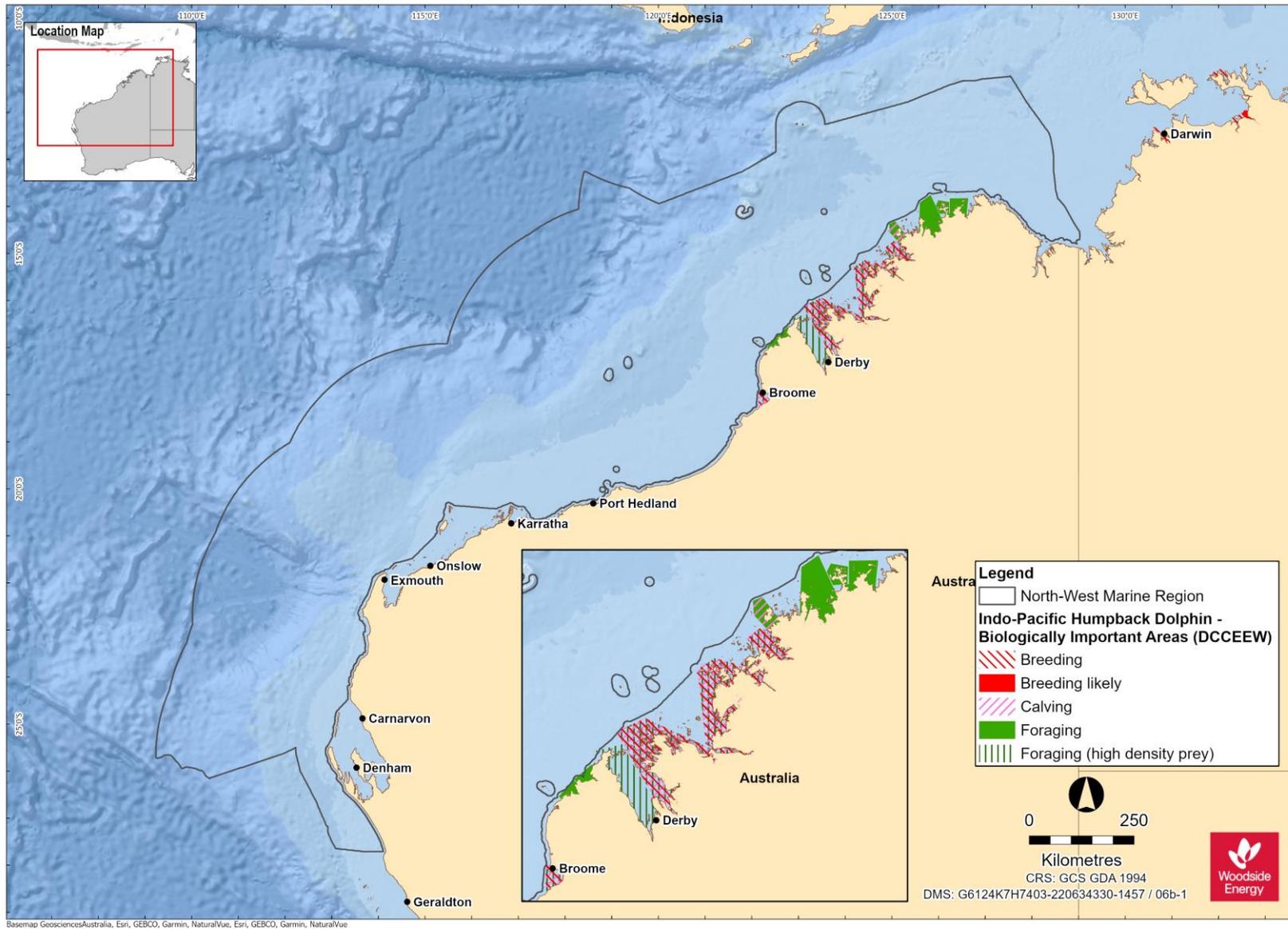


Figure 7-7 Indo-Pacific humpback dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)

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Page 121 of 379

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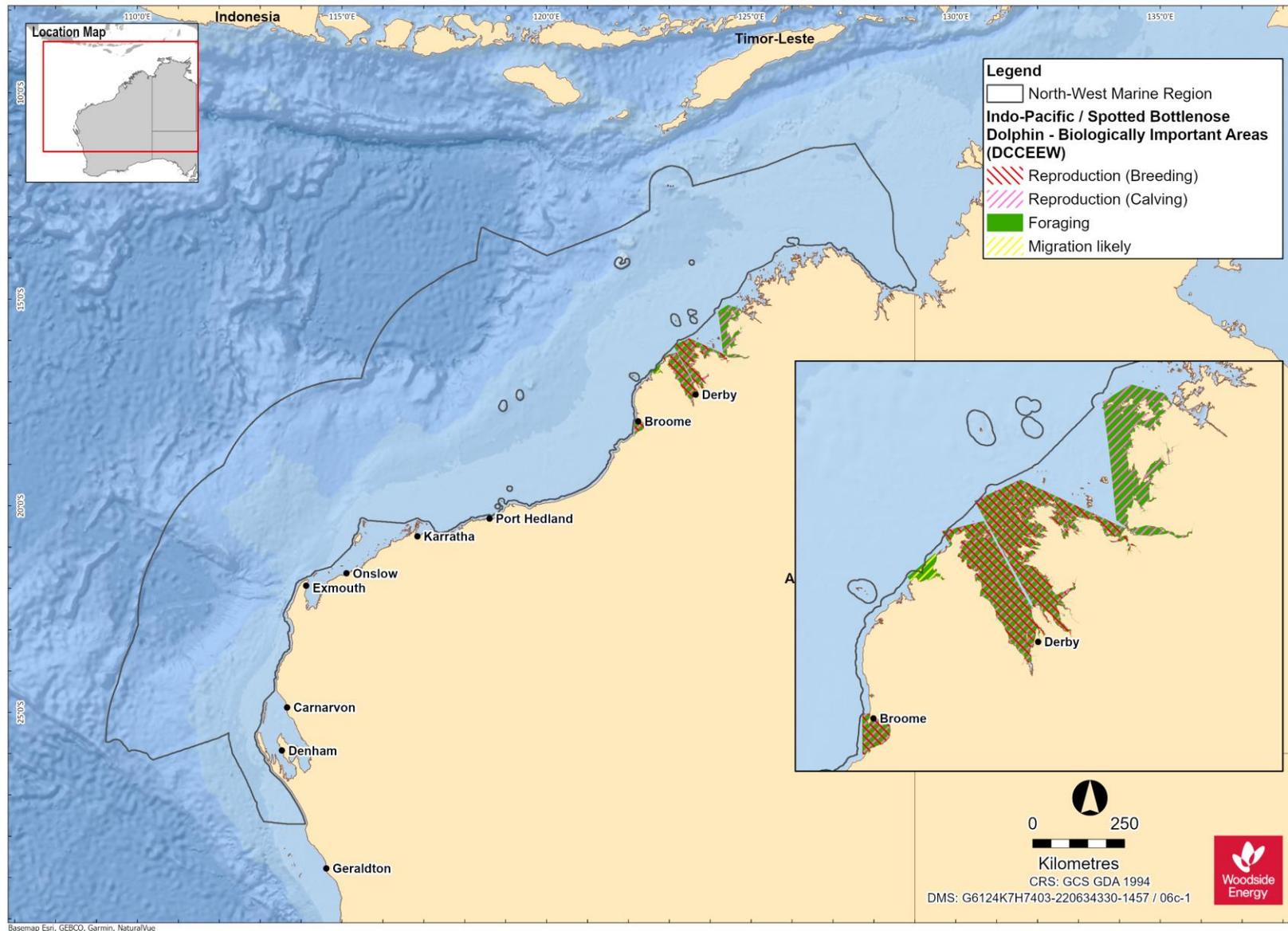


Figure - Spotted bottlenose dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)

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Page 122 of 379

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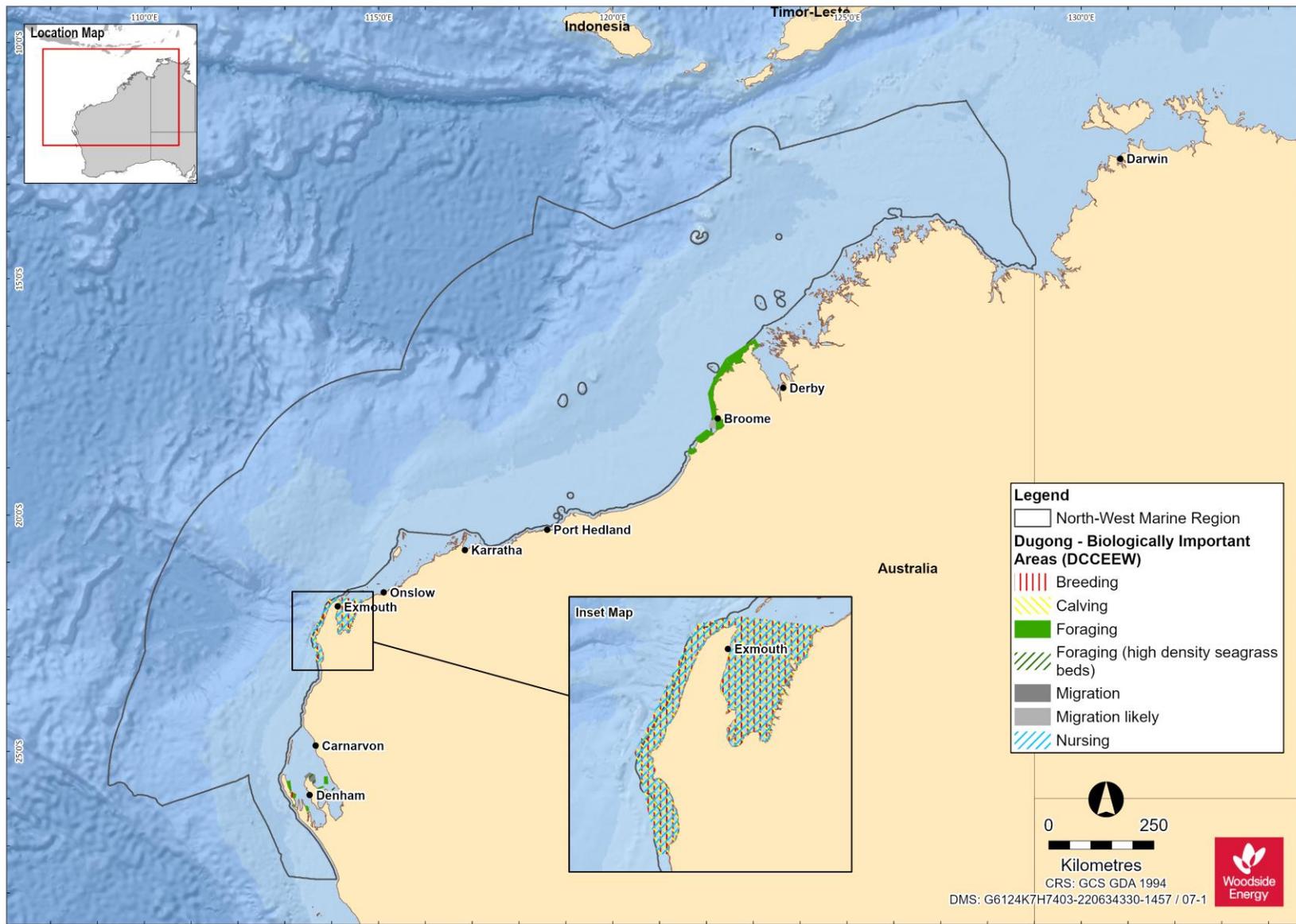


Figure 7-8 Dugong BIAs for the NWMR (data source: DCCEEW, 2024b)

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Page 123 of 379

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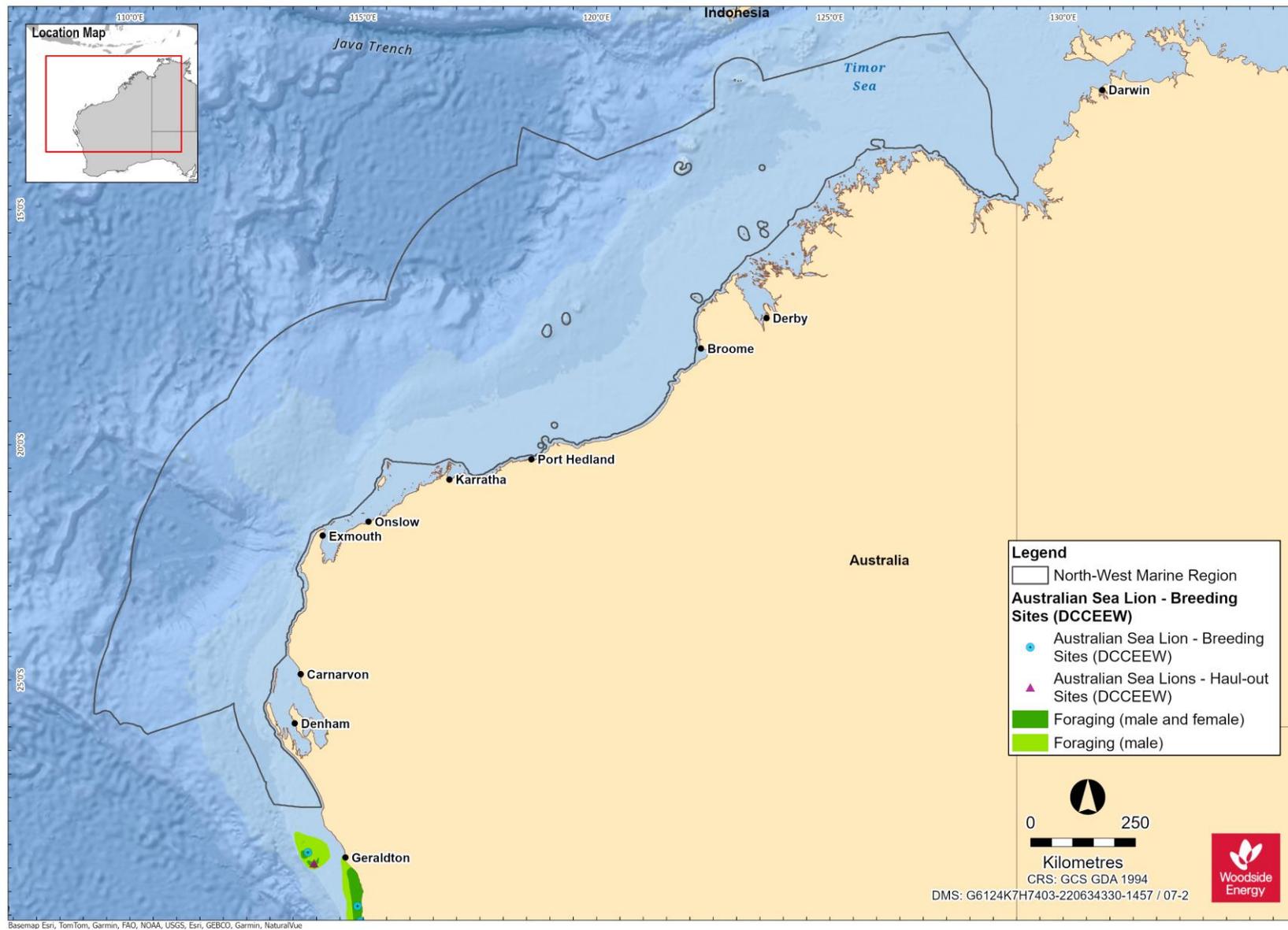


Figure 7-9 Australian sea lion BIAs in the northern extent of the SWMR closest to the NWMR (data source: DCCEEW, 2024b)

7.8 Marine Mammal Summary for the NWMR

7.8.1 Browse

The Browse activity area includes biologically important habitat for six threatened and/or migratory marine mammal species:

- blue whale and pygmy blue whale (foraging and migration areas);
- humpback whale (breeding, calving and migration areas);
- Indo-Pacific humpback dolphin (foraging, breeding and calving areas);
- Australian snubfin dolphin (foraging, breeding and calving areas);
- spotted bottlenose dolphin (foraging, breeding and calving areas); and
- dugong (foraging).

BIAs for the marine mammal species are outlined in **Table 7-3**.

7.8.2 North-west Shelf / Scarborough

The NWS / Scarborough activity area includes biologically important habitat for six threatened and/or migratory marine mammal species:

- blue whale and pygmy blue whale (foraging and migration areas);
- humpback whale (resting and migration areas);
- Indo-Pacific humpback dolphin (foraging, breeding and calving areas);
- Australian snubfin dolphin (foraging, breeding and calving areas);
- spotted bottlenose dolphin (present but no BIAs); and
- dugong (foraging and calving areas).

BIAs for the marine mammal species are outlined in **Table 7-3**.

7.8.3 North-west Cape

The North-west Cape activity area includes biologically important habitat for four threatened and/or migratory marine mammal species:

- blue whale and pygmy blue whale (foraging and migration areas);
- southern right whale (reproduction area);
- humpback whale (resting and migration areas);
- spotted bottlenose dolphin (present but no BIAs); and
- dugong (foraging and breeding/ calving areas).

BIAs for the marine mammal species are outlined in **Table 7-3**.

8. SEABIRDS AND MIGRATORY SHOREBIRDS OF THE NWMR

8.1 Regional Context

The NWMR supports high numbers and species diversity of seabirds and migratory shorebirds including many that are EPBC Act listed, threatened and migratory. The NWMR marine bioregional plan reported 34 seabird species (listed as threatened, migratory and/or marine) that are known to occur, and 30 of 37 species of migratory shorebird species that regularly occur in Australia, are recorded at Ashmore Reef in the NWMR (DSEWPAC, 2012d). The NWMR marine bioregional plan also noted that Roebuck Bay and Eighty Mile Beach are internationally significant and recognised migratory shorebird locations.

A 'Seabird and Shorebird Existing Knowledge and Threats' report was prepared (2022) and updated in 2024 (Worley, 2024) to identify key bird species (categorised: pelagic seabirds, nearshore seabirds, shorebirds and others) and their threats in the NWMR (Advisian, 2024). The high and moderate occurrence species for the NWMR were informed from this report, as well as from PMST results. The report identified 92 species.

Each species was assigned to one of three frequency of occurrence levels:

- High – breeding and foraging aggregations known to occur.
- Moderate – known or likely presence.
- Low – may occur, or at limits of species range.

Table 8-1 includes those considered key species, i.e., high or moderate occurrence (Worley, 2024), and listed threatened and/or migratory under the EPBC Act with a total of 56 key species identified (comprising 22 seabirds and 34 shorebirds).

Many migratory seabirds and shorebirds are protected through bilateral agreements between Australia and Japan (JAMBA), China (CAMBA) and the Republic of Korea (ROKAMBA), recognising the migratory route and important stopover and resting habitats of the East Asian-Australasian Flyway (EAAF). Important migratory bird habitats are also recognised as part of protected wetlands of international significance under the Ramsar Convention. Important Bird Areas (IBAs) for the NWMR, which are also recognised as global Key Biodiversity Areas (KBAs) (BirdLife Australia¹⁸), include:

- Roebuck Bay KBA (and Ramsar site): Internationally significant migratory shorebird species.
- Mandora Marsh and Anna Plains KBA (adjacent to Eighty Mile Beach, Ramsar site): Internationally significant migratory shorebird species.
- Dampier Saltworks KBA: Internationally significant migratory shorebird species.
- Montebello Islands KBA: Shorebird and seabird species.
- Barrow Island KBA: Shorebird and seabird species.
- Exmouth Gulf Mangroves KBA: Internationally significant migratory shorebird species.

Table 8-1 presents a list of the high and moderate occurrence threatened and migratory seabird and shorebird species (as per subject matter expert review, Worley (2024)) that occur within the NWMR, with their conservation/protected status, relevant recovery plans and/or conservation advice.

Table 8-1. High and moderate occurrence seabird and migratory shorebird species (threatened/migratory/marine) identified by the EPBC Act PMST and NWMR Seabird and Shorebird Existing Knowledge and Threats report as potentially occurring within the NWMR

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁹	IUCN Red List of Threatened Species (non-statutory) ²⁰	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
Seabirds							
<i>Diomedea amsterdamensis</i>	Amsterdam Albatross	Endangered	Migratory	Marine	Critically Endangered	Endangered	National Recovery Plan for albatrosses and petrels (DCCEEW, 2022)
<i>Sternula nereis nereis</i>	Australian fairy tern	Vulnerable	N/A	N/A	Vulnerable	Vulnerable	National Recovery Plan for the Australian Fairy Tern <i>Sternula nereis nereis</i> (Commonwealth of Australia, 2020b) EPBC Act Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (DoEE, 2018)
<i>Anous tenuirostris melanops</i>	Australian lesser noddy	Vulnerable	N/A	Marine	Endangered	Least Concern	Conservation Advice <i>Anous tenuirostris melanops</i> Australian lesser noddy (Threatened Species Scientific Committee, 2015e) EPBC Act Threat Abatement Plan to reduce the impacts of exotic rodents on biodiversity on Australian offshore islands of less than 100,000 hectares (DEWHA, 2009)
<i>Pterodroma mollis</i>	Soft-plumaged petrel	Vulnerable	N/A	Marine	N/A	Least Concern	Conservation Advice <i>Pterodroma mollis</i> soft-plumaged petrel (Threatened Species Scientific Committee, 2015f)
<i>Sula leucogaster</i>	Brown booby	N/A	Migratory	Marine	Migratory	Least Concern	EPBC Act Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (DoEE, 2018)
<i>Ardenna pacifica</i>	Wedge-tailed shearwater	N/A	Migratory	Marine	Migratory	Least Concern	

¹⁹ Threatened and Priority Fauna List – April 2024 - <https://www.dbca.wa.gov.au/management/threatened-species-and-communities> (accessed on 13/08/2024)

²⁰ IUCN. 2024. *The IUCN Red List of Threatened Species. Version 2024-1*. <https://www.iucnredlist.org> (accessed on 13/08/2024)

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁹	IUCN Red List of Threatened Species (non-statutory) ²⁰	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<i>Ardenna carneipes</i>	Flesh-footed shearwater	N/A	Migratory	Marine	Vulnerable	Near Threatened	EPBC Act Threat Abatement Plan for predation by feral cats (DoE, 2015c)
<i>Oceanites oceanicus</i>	Wilson's storm petrel	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Anous stolidus</i>	Common noddy	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Fregata ariel</i>	Lesser frigatebird	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Fregata minor</i>	Great frigatebird	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Sula sula</i>	Red-footed booby	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Phaethon rubricauda</i>	Red-tailed tropicbird	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Onychiprion anaethetus</i> (listed as <i>Sterna anaethetus</i>)	Bridled tern	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Thalasseus bergii</i>	Greater crested tern	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Sternula albifrons</i>	Little tern	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Sterna dougallii</i>	Roseate tern	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Sterna hirundo</i>	Common tern	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Hydroprogne caspia</i>	Caspian tern	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Calonectris leucomelas</i>	Streaked shearwater	N/A	Migratory	Marine	Migratory	Near Threatened	
<i>Sula dactylatra</i>	Masked booby	N/A	Migratory	Marine	Migratory	Least Concern	

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		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<i>Phaethon lepturus</i>	White-tailed tropicbird	N/A	Migratory	Marine	Migratory	Least Concern	
All seabird species							Wildlife Conservation Plan for Seabirds (Commonwealth of Australia, 2020a) National Light Pollution Guidelines for Wildlife (DCCEEW, 2023d)
Migratory shorebirds							
<i>Numenius madagascariensis</i>	Eastern curlew, Far Eastern curlew	Critically endangered	Migratory	Marine	Critically endangered	Endangered	Conservation Advice <i>Numenius madagascariensis</i> Far eastern curlew (DCCEW, 2023f)
<i>Calidris ferruginea</i>	Curlew sandpiper	Critically endangered	Migratory	Marine	Critically endangered	Near Threatened	Conservation Advice <i>Calidris ferruginea</i> Curlew sandpiper (DCCEEW, 2023g)
<i>Limosa lapponica menzbieri</i>	Bar-tailed godwit (<i>menzbieri</i>)	Endangered	Migratory	Marine	Critically endangered	Near Threatened	Conservation Advice <i>Limosa lapponica menzbieri</i> Bar-tailed godwit (northern Siberia) (DCCEEW, 2024e)
<i>Charadrius mongolus</i>	Lesser sand plover	Endangered	Migratory	Marine	Endangered	Endangered	Conservation Advice <i>Charadrius mongolus</i> Lesser sand plover (Threatened Species Scientific Committee, 2016)
<i>Rostratula australis</i>	Australian painted snipe	Endangered	N/A	Marine	Endangered	Endangered	Conservation Advice <i>Rostratula australis</i> Australian painted snipe (Threatened Species Scientific Committee, 2013a)
<i>Calidris canutus</i>	Red knot	Vulnerable	Migratory	Marine	Endangered	Near Threatened	Conservation Advice <i>Calidris canutus</i> Red knot (DCCEEW, 2024f)
<i>Calidris tenuirostris</i>	Great knot	Vulnerable	Migratory	Marine	Critically endangered	Endangered	Conservation Advice <i>Calidris tenuirostris</i> Great knot (DCCEEW, 2024g)
<i>Charadrius leschenaultii</i>	Greater sand plover	Vulnerable	Migratory	Marine	Vulnerable	Least Concern	Conservation Advice <i>Charadrius leschenaultii</i> Greater sand plover (DCCEEW, 2023h)
<i>Limosa limosa</i>	Black-tailed godwit	Endangered	Migratory	Marine	Migratory	Near Threatened	Conservation Advice for <i>Limosa limosa</i> black-tailed godwit (DCCEEW, 2024h)

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		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<i>Limnodromus semipalmatus</i>	Asian dowitcher	Vulnerable	Migratory	Marine	Migratory	Near Threatened	Conservation Advice for <i>Limnodromus semipalmatus</i> Asian dowitcher (DCCEEW, 2024j)
<i>Tringa nebularia</i>	Common greenshank	Endangered	Migratory	Marine	Migratory	Least Concern	Conservation Advice for <i>Tringa nebularia</i> Common greenshank (DCCEEW, 2024i).
<i>Arenaria interpres</i>	Ruddy turnstone	Vulnerable	Migratory	Marine	Migratory	Least Concern	Conservation Advice for <i>Arenaria interpres</i> Ruddy turnstone (DCCEEW, 2024k)
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	Vulnerable	Migratory	Marine	Migratory	Vulnerable	Conservation Advice for <i>Calidris acuminata</i> Sharp-tailed sandpiper (DCCEEW, 2024l)
<i>Xenus cinereus</i>	Terek sandpiper	Vulnerable	Migratory	Marine	Migratory	Least Concern	Conservation Advice for <i>Xenus cinereus</i> Terek sandpiper (DCCEEW, 2024m)
<i>Pluvialis squatarola</i>	Grey plover	Vulnerable	Migratory	Marine	Migratory	Least Concern	Conservation Advice for <i>Pluvialis squatarola</i> Grey plover (DCCEEW, 2024n)
<i>Pluvialis fulva</i>	Pacific golden plover	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Tringa totanus</i>	Common redshank	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Actitis hypoleucos</i>	Common sandpiper	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Tringa stagnatilis</i>	Marsh sandpiper	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Calidris melanotos</i>	Pectoral sandpiper	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Tringa glareola</i>	Wood sandpiper	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Limicola falcinellus</i>	Broad billed sand piper	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Limosa lapponica</i>	Bar-tailed godwit	N/A	Migratory	Marine	Migratory	Near Threatened	
<i>Calidris ruficollis</i>	Red-necked stint	N/A	Migratory	Marine	Migratory	Near Threatened	

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		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<i>Calidris pugnax</i>	Ruff	N/A	Migratory	Marine	Migratory	Least Concern	<p>Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015c)</p> <p>EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing, and mitigating impacts on EPBC Act listed migratory shorebird species (DoEE 2017)</p> <p>National Light Pollution Guidelines for Wildlife (DCCEEW, 2023)</p>
<i>Xenus cinereus</i>	Terek sandpiper	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Numenius phaeopus</i>	Whimbrel	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Numenius minutus</i>	Little curlew	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Calidris alba</i>	Sanderling	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Calidris subminuta</i>	Long-toed stint	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Gallinago stenura</i>	Pin-tailed snipe	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Gallinago megala</i>	Swinhoe's snipe	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Glareola maldivarum</i>	Oriental pratincole	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Charadrius veredus</i>	Oriental plover	N/A	Migratory	Marine	Migratory	Least Concern	
<i>Tringa brevipes</i>	Grey-tailed tattler	N/A	Migratory	Marine	Migratory and Priority species	Near Threatened	
All migratory shorebird species							

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Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁹	IUCN Red List of Threatened Species (non-statutory) ²⁰	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
Other marine birds							
<i>Apus pacificus</i>	Fork-tailed swift		Migratory	Marine	N/A	Least Concern	None
<i>Pandion haliaetus</i>	Osprey		Migratory	Marine	N/A	Least Concern	None

8.2 Seabirds in the NWMR

Seabirds are birds that are adapted to life within the marine environment (oceanic and coastal) and are generally long-lived, have delayed breeding and have fewer young than other bird species (Commonwealth of Australia, 2020a).

At least 22 key seabird species (high and moderate occurrence, listed as threatened and/ or migratory under the EPBC Act) are known to occur in the NWMR. These include a variety of species of terns, noddies, petrels, shearwaters, frigatebirds, and boobies.

Seabird species can be grouped into pelagic and nearshore seabirds, based on lifecycle behaviour, distributions and key habitats (Worley, 2024). Pelagic species spend most of their life at sea, ranging over large distances to forage. These pelagic species only come onshore to breed and raise chicks at natal or high-fidelity breeding colonies on remote, offshore island locations in and adjacent to the NWMR. Many species are ecologically significant to the NWMR, as they are endemic to the region, can be present in large numbers in breeding seasons and non-breeding seasons, and many exhibit extensive annual migrations that include marine areas outside the Australian EEZ (DSEWPAC, 2012d). Nearshore seabirds are confined to nearshore areas (unless migrating), have shorter foraging trips during breeding and may rest on land/shoreline habitats outside of breeding periods (Worley, 2024).

The presence of seabirds within the NWMR is influenced by seabird species that migrate and forage in the area during the non-breeding season and this includes many seabird species that breed on the Houtman Abrolhos in the SWMR. Pelagic seabirds have been documented foraging at current boundaries and seasonal upwellings within the NWMR (refer to Sutton et al., 2019). The Houtman Abrolhos Islands National Park located in the SWMR is one of the most significant seabird breeding locations in the eastern Indian Ocean. 16 species of seabirds breed there. 80% of common (brown) noddies, 40% of sooty terns and all the lesser noddies found in Australia nest at the Houtman Abrolhos (Surman, 2019). Important seabird areas in the NWMR are as identified by the KBAs (refer to **Section 8.1**), EPBC Act Bioregional Biologically Important Areas and subject matter expert review, as presented in Worley (2024).

High occurrence key seabird species

Species descriptions for high occurrence key seabird species are provided below. High occurrence seabird species were defined as those with breeding and foraging aggregations within NWMR (Worley, 2024).

Wedge-tailed shearwater (pelagic seabird)

The wedge-tailed shearwater (*Ardenna pacifica*) is listed migratory under the EPBC Act and *Biodiversity Conservation Act 2016 (WA)* (BC Act). It is a pelagic, marine seabird known from tropical and subtropical waters. Its distribution is widespread across the Indian and Pacific oceans with a global population of 2.6 million pairs. Of this, approximately 1 million pairs breed in Australia, most of which do so on islands in Western Australia between Rottneest Island in the south to Ashmore Reef in the north. The largest breeding populations are at the Houtman Abrolhos (600,000 pairs – Surman and Nicholson 2009), and throughout the NWS region of the NWMR, where large populations on Muiron Islands (300,000 pairs) and Serrurier Island (60,000 pairs) exist (Surman and Nicholson 2009, 2015).

Adults are absent from their breeding colonies during the interbreeding period and return from their tropical Indian Ocean over-wintering grounds from late-June onwards to re-excavate their burrows. This species is highly synchronous in timing of breeding; all eggs within a colony are laid within a ten-day period. They lay their single egg during early-November, which is then incubated until the chick hatches (after 53 days) in early-January. Once hatched, adults leave the burrows to forage locally during the day returning at night to feed chicks until they are ready to fledge (Nicholson 2002). Due to the high synchronicity in egg laying, fledging is restricted to the first two weeks of April (Nicholson 2002).

Breeding behaviours are nocturnal in wedge-tailed shearwaters. Adults return to and depart the colony at night and fledglings depart the colony at night. In the lead up to fledging, chicks also leave their burrows to exercise their wings outside burrows.

Adults may not return to feed chicks each night; wedge-tailed shearwaters breeding on the Muiron Island (north) undertook extensive foraging trips during the incubation period (1,200 – 1400 km) and shorter trips during chick rearing (<300 km, Cannell et al., 2019). Longer foraging trips took individuals in a north-west direction offshore towards oceanic seamounts. Conversely, the shorter tended to include waters to the west and north-west of the Muiron Islands (Cannell et al., 2019). In addition to the Muiron Islands, this dual foraging strategy, whereby parents alternate or mix short and long trips, have been recorded in wedge-tailed shearwaters breeding at Heron Island, Queensland, Lord Howe Island, Tasmania (Peck & Congdon, 2005), and New Caledonia (Weimerskirch et al., 2020). However, divergent foraging strategies have been detected between colonies, which is linked to the proximity of colonies to high productivity waters (Peck & Congdon, 2005; Weimerskirch et al., 2020).

While the presence of squid and lanternfish in their diet (Surman & Nicholson, 2009) suggests nocturnal foraging occurs in this species, GPS tracking studies found that foraging activities at sea were more frequent during the day compared with at night (Weimerskirch et al., 2020; Catry et al., 2009). During the day, resting periods on the sea surface were short whereas at night individuals spent a large proportion of their time resting at the surface (Weimerskirch et al., 2020). Other prey species include schooling bait fishes and cephalopods, often feeding in association with other pelagic seabird species such as sooty terns and common noddies, and pelagic fishes such as tunas and mackerels. Diet composition is likely to vary between colonies, depending upon the prey available, and thus determining both the foraging strategy, as described above, and also the division of nocturnal and diurnal foraging. Wedge-tailed shearwaters dive between 3 and 66 m, actively pursuing prey by feeding at the surface or by actively swimming below bait schools.

Post-breeding, wedge-tailed shearwaters breeding on the Houtman Abrolhos Islands and Varanus Island migrated 4,500 km north-west to equatorial waters of the Indian Ocean around 90°E (Surman et al., 2018), traversing the NWMR, and those from the Great Barrier Reef migrated to the northern hemisphere, approximately 6,000 km northwards to Micronesia (McDuie and Congdon, 2016).

Wedge-tailed shearwaters are observed during breeding across all shelf waters and are the most frequently encountered seabird at sea. Large numbers of wedge-tailed shearwaters have been observed foraging off the North-west Shelf between May - August (Surman pers obs.).

Foraging and breeding BIAs are located for the wedge-tailed shearwater across the NWMR (**Figure 8-1**). It is noted that both breeding and foraging BIAs represent foraging habitat utilised by adult (chick-rearing) wedge-tailed shearwaters during the breeding season.

Australian lesser noddy (pelagic seabird)

The Australian lesser noddy (*Anous tenuirostris melanops*), which is endemic to Australia, is listed vulnerable under the EBPC Act and endangered under the BC Act. The largest breeding colonies are found on the Houtman Abrolhos Islands with fewer records of breeding on

Ashmore Reef (Clark et al., 2011; Cannell & Surman 2021). Possible colonisation of Cocos (Keeling) Island is reported; however, it is unconfirmed if this is the Australian subspecies (Stokes and Hinchey 1990).

At the Houtman Abrolhos Islands, the breeding population has been estimated at ~50,000 breeding pairs (Surman et al., 2016). At this location, studies indicate that breeding is not highly synchronised; the single egg clutches were laid over a 102-day period from late August to early December, peaking in September (Surman & Wooller 1995). The incubation period averaged 34 days and the fledging period 40 days. (Surman & Wooller 1995).

Studies of foraging ecology of breeding Australian lesser noddies at the Houtman Abrolhos Islands found that they are largely diurnal, foraging between 04h00 and 20h40 and returning to their colony at night (Surman et al., 2017). From this study, the GPS tracks of 17 adults during incubation or chick provisioning revealed that most foraging trips lasted for between 2 and 4 hours with a total trip distance of less than 40 km. However, some trips lasted up to 16 hours covering distances of up to 112 km (Surman et al., 2017). During non-breeding, birds appear to remain near the breeding islands year-round (Higgins and Davies 1996).

Due to differences in climate and seasonality experienced at the Houtman Abrolhos Islands and Ashmore Reef, timing of breeding differs. The Ashmore Reef population has been recorded breeding in the Austral autumn/winter (Clarke and Herrod, 2016), while the Houtman Abrolhos Islands populations breed during the Austral spring/summer (Surman and Wooller, 1995).

No BIAs for the Australian lesser noddy overlap the NWMR and tracking data suggests that individuals breeding at the Houtman Abrolhos Islands foraged predominantly in a south-westerly direction, remaining within waters of the SWMR (Surman et al., 2017). Several individuals were observed roosting with common noddies on Bernier Island, near Carnarvon in 2022 (Nicholson pers obs.). However, it is unlikely that waters of the NWMR provide significant habitat for individuals breeding at the Houtman Abrolhos Islands. The small population of this subspecies breeding on Ashmore Reef may show similar foraging ecology during breeding and remain in the vicinity of the islands, utilising habitats of the NWMR.

Brown booby (pelagic seabird)

The brown booby (*Sula leucogaster*) is listed migratory under the EPBC Act and BC Act. It is a cosmopolitan species with a pan-tropical distribution. Within the NWMR, large colonies occur at offshore islands including the Lacepede Islands (17,000 pairs, Mustoe and Edmunds 2008), Ashmore Reef (5,000 pairs at Middle Island and 3000 pairs at East Island in 2007, Swann 2005a; Swann 2005b; Swann 2005c; Milton 2005; Clarke 2010), Bedout Island (1,000 pairs) and Adele Island (7,500 pairs, Burbidge et al. 1987). Small colonies of up to 10 pairs have been recorded at Overhanging Rock, within the Lowendal Islands (Nicholson, pers obs.). The total breeding population in the Australian region in 1996–97 was estimated at 59,940 to 73,900 pairs (WBM Oceanics & Claridge 1997).

Brown boobies do not migrate far from their breeding islands, rarely dispersing more than 240 km from their natal colony (Dunlop et al., 2001). Brown boobies forage within 50 km of their colony where they plunge dive, reaching up to 15 m depth and pursuing their prey when ascending after the dive (Austin et al., 2021). Brown booby diet is principally medium to large surface schooling prey (northern pilchard, Indian anchovy, flying fish and cephalopods), often associated with feeding tunas and mackerels (Cannell et al. 2022; Austin et al., 2021).

Brown boobies are not prone to waterlogging and will roost on the seas surface and are known to form large aggregations on oil and gas platforms throughout the NWMR (Surman pers obs.), Woodside facilities indicating wider distribution of non-breeding individuals across the NWMR.

Breeding/foraging BIAs for the brown booby in the NWMR are associated with breeding colonies on Ashmore Reef, Adele Island, White Island, Lacepede Islands and Bedout Island (**Figure 8-3**). Breeding is reported as occurring between January and March, however this becomes protracted through to October at Ashmore Reef (Clarke et al. 2016). Brown Boobies are resident in the NWMR throughout the year, although they may forage long distances over the open ocean (Surman and Nicholson 2011).

Breeding/foraging BIAs for the brown booby in the NWMR are associated with breeding colonies on Ashmore Reef, Adele Island, White Island, Lacepede Islands and Bedout Island (**Figure 8-3**).

Red-footed booby (pelagic seabird)

The red-footed booby (*Sula sula*) is listed migratory under the EPBC Act and BC Act. Compared to brown boobies, the red-footed booby occurs in fewer numbers across the NWMR. Within the NWMR they breed at Ashmore Reef (up to 100 pairs, Clarke & Herrod, 2016) and Adele Island (14 pairs, Botle et al., 2004). At Ashmore Reef they have been recorded breeding year-round (Clarke & Herrod, 2016).

The red-footed booby is one of the most widely distributed of the boobies across oceanic waters in the tropical Indian Ocean; during non-breeding, individuals have been observed up to 800 km from their natal colony (Dunlop et al., 2001). However, individuals are limited to a range of 150 km from the breeding colony when breeding (Wiemerskirsch et al., 2005). In the Ashmore area, adults have been detected up to 125 km from the nearest breeding islands during October (unpubl. Data, referenced in Clarke & Herrod, 2016).

Red-footed boobies are diurnal foragers, plunge diving for flying fishes (predominately) across their range (Commonwealth of Australia, 2020a). Breeding/foraging BIAs for the red-footed booby are associated with breeding colonies at Ashmore Reef and Adele Island (**Figure 8-3**).

Masked booby (pelagic seabird)

The masked booby (*Sula dactylatra*) is listed migratory under the EBPC Act. Within the NWMR, the sub-species *Sula dactylatra bedouti* ranges from the Dampier Archipelago, along the entire coast into the NMR and across to Queensland (Merchant & Higgins, 1990). Individuals have also been recorded at Barrow Island.

Within the NWMR, Bedout and Adele Island represent the main breeding locations with 400 and 320 breeding pairs estimated at each respectively (Marchant & Higgins 1990; Swann et al. 2002). Breeding is also reported at the Ashmore Reef group with up to 30 breeding pairs recorded on Middle Island and 15 pairs on East Island (Burbidge & Fuller 1996; Hassell et al., 2003; Swann 2005a; Swann 2005b; Swann 2005c; Milton 2005; Clarke 2010; Clarke et al. 2016). Up to two pairs have also been recorded breeding in the Lacapede Group (Hassell et al. 2003).

A recent study of individuals from Bedout Island indicated low genetic exchanges (mitochondrial genes) with other masked booby colonies currently studied, suggesting a dependence on local recruitment for population persistence (Kingsley et al., 2019). Further, the low exchange of mitochondrial genes may reflect high breeding site fidelity and limited foraging distances during the breeding season. Due to the concentration in a relatively small number of areas to breed, any catastrophe at these sites (e.g. oil spills, or disturbance/vandalism of nests) could have a substantial impact on the population (Birds Australia August 2005).

Studies of foraging behaviour of individuals breeding within the NWMR are lacking, however studies at other locations indicate that foraging is diurnal and ranges vary between 100 and 200 km of the breeding colony (Weimerskirch et al. 2008).

There are no BIAs for this species in the NWMR.

Common noddy (pelagic seabird)

The common (or brown) noddy (*Anous stolidus*) is listed as migratory under the EPBC Act and BC Act. The species is widespread in tropical and subtropical areas within and beyond Australia. This seabird species is gregarious and normally occurs in flocks, up to hundreds of individuals, when feeding or roosting.

The Houtman Abrolhos is the primary breeding habitat for the common noddy in the Eastern Indian Ocean, although breeding occurs across offshore islands of the NWMR, albeit in fewer numbers, including Bedout Island, Montebello Islands and Fazer Island (Johnstone et al., 2013), and Ashmore Reef (Clark & Herrod, 2016). Breeding at Ashmore Reef has been recorded as occurring between April and November (Clark & Herrod, 2016).

During breeding, individuals nesting on Lancelin Island in the SWMR were found to forage diurnally (Shephard et al 2018). Tracked individuals travelled an average of 97 km from the colony with an average trip distance of 141 km, with significantly longer trips during chick rearing compared to incubation (Shephard et al., 2018).

The species is highly pelagic outside breeding (March to August), with breeding individuals of the Houtman Abrolhos Islands travelling ~950 km north to the NWMR (Surman et al., 2017). The species is often reported roosting on unmanned oil and gas platforms within the NWS and Timor Sea (Surman pers comm, 2021).

Although widespread across the NWMR during breeding and non-breeding, no BIAs for this species are located in the NWMR.

Bridled tern (pelagic seabird)

The bridled tern (*Onychoprion anaethetus* (listed as *Sterna anaethetus*) is listed migratory under the EPBC Act and BC Act. It is a common summer breeding visitor to the NWMR between September and April, especially around Dampier Archipelago and the Montebello Islands (Johnstone et al 2013). Breeding has also been reported on the Lowendal Islands (Nicholson 2002), Passage Islands and islands off Onslow from November–March (Johnstone et al 2013). Small breeding populations have also been recorded on East Island at Ashmore Reef between April–November and the Lacapede Islands (Clarke and Herrod 2016; Johnstone and Storr, 1998).

The migration and local movements of breeding birds within the NWMR are poorly defined; two individuals were tracked departing the Houtman Abrolhos islands in April/May, transiting along the continental shelf waters before departing Australian waters and migrating towards the Western Celebes Sea, east of Borneo (Surman et al., 2018). These individuals departed the Western Celebes Sea in August/September returning to the Houtman Abrolhos islands around 14 days later (Surman et al., 2018). This species has been regularly recorded on the continental shelf up to 70 km away from breeding locations during oceanic surveys (Surman and Nicholson, 2011; Dunlop et al., 2001).

Bridled terns feed diurnally on a range of species of fish, crustaceans, cephalopods and insects. In Australia, they feed almost entirely on fish, though they also take crustaceans and aquatic insects. They often feed on schools of fish forced to the surface by other predators (Dunlop, 1997). Bridled Terns forage mainly by contact dipping, with birds hovering or gliding close to the surface of the sea and swooping down and immersing only the head and breast when attacking prey, which are usually taken from the top few centimetres of the sea surface (<20 cm) (Dunlop, 1997).

During breeding at Penguin Island, WA, individuals foraged most commonly between 20 km and 40 km from the nearest breeding colony, though some were observed at distances up to 80 km (Dunlop, 1997). This species has also been recorded within 70 km of their breeding colonies within the NWMR, on outer continental shelf waters (Nicholson 2002; Dunlop et al. 2001).

Although foraging may be concentrated around breeding colonies during the breeding season, no BIAs in the NWMR have been identified for this species.

Frigate birds (pelagic seabirds)

The lesser (*Fregata ariel*) and great frigatebirds (*Fregata minor*) are both listed migratory under the EBPC Act and BC Act. They are the most widely distributed of the frigatebirds, with a pan-tropical distribution.

In the NWMR, the great frigatebird nests at Ashmore Reef and Adele Island. At Ashmore Reef they are found to breed year-round (Clark & Herrod, 2016). In addition to the Ashmore Reef and Adele Island, the lesser frigatebird also nests at Cartier Island, the Lacepede Islands and Bedout Island, which is thought to support more than 1% of the world's breeding population (BirdLife International 2021). On Ashmore Reef, the species breed in the Austral winter (Clark & Herrod, 2016).

During breeding, great frigatebirds breeding in the South China Sea on average foraged 75 km (maximum 150 km) from their breeding colony and lesser frigatebirds 123 km (maximum 300 km) (Mott et al., 2017).

Outside of breeding, frigatebirds may disperse significant distances from their breeding colonies (Mott et al., 2017). Great frigatebirds are wide ranging, being recorded between 900-1400 km from their natal colonies (Dunlop et al., 2001). Tracking studies of non-breeding lesser and great frigatebirds roosting on Ashmore Reef and Adele Island demonstrated that individuals have large distributions including Australian coastal waters and in addition to the South China, Java and Sulu Seas and the Gulf of Thailand (Mott et al., 2021). During the wet season in particular, Australian waters provided optimal habitat for non-breeding individuals of both species. (Mott et al., 2021).

Both frigatebirds forage by snatching prey from the surface waters, or when prey break the surface. They also rely heavily upon kleptoparasitism, harrying other seabirds returning to their colonies with food until it is regurgitated. Frigatebirds are susceptible to waterlogging, so do not plunge or splash dive for prey nor do they roost on the seas surface. Across the NWMR they forage on flying fish, cephalopods, anchovies, northern pilchards and other medium sized prey (8-30 cm, Surman pers. Obs.).

Breeding/foraging BIAs for the great frigatebird in the NWMR are associated with breeding colonies on Ashmore Reef and Adele Island. For the lesser frigatebird, breeding/foraging BIAs are associated with breeding colonies on Ashmore Reef, Adele Island, White Island, Lacepede Islands and Bedout Island (**Figure 8-4** Greater and lesser frigatebird BIAs for the NWMR (data source: DCCEEW, 2024b)).

White-tailed tropicbird (pelagic seabird)

The white-tailed tropicbird (*Phaethon lepturus*) is listed migratory under the EBC Act and BC Act. The species breeds across many sites, but in low numbers (Commonwealth of Australia, 2020). In Australia, between 6,000 and 12,000 pairs nest on Christmas Island, with smaller fragmented populations at North Keeling Island (40 pairs). These individuals are expected to be members of the Christmas Island white-tailed tropicbird sub species *Phaethon lepturus fulvus*. While individuals of this subspecies can forage at great distances from colonies (see below), the numbers occurring in the NWMR are expected to be low.

In the NWMR, the white-tailed tropicbird is known to nest on Ashmore Reef and the Rowley Shoals, (10 breeding pairs, Clark 2010 and up to three nesting pairs Burbidge et al. 1996, respectively). Breeding can occur year-round (Clarke & Herrod, 2016).

Pennyquick et al. (1990) demonstrated that the white-tailed tropicbirds breeding in Puerto Rico foraged up to 89 km from the nest site when breeding and moved considerably larger distances when not breeding. Dunlop et al. (2001) observed birds from Christmas Island foraging singly between 1400-1600 km SE of Christmas Island.

This species regularly roosts on the seas surface, in between bouts of foraging. It is a solitary forager, rarely feeding in association with other seabird species and always in waters favourable for its principal prey, flying fish (Santos et al., 2018). The species is a surface forager that occasionally undertakes shallow dives (Marchant & Higgins 1990).

There are breeding BIAs associated with nesting occurring at the Rowley Shoals and Ashmore Reef within the NWMR (

Figure 8-5).

Red-tailed tropicbird (pelagic seabird)

The red-tailed tropic bird is listed as Endangered (since December 2023) under the EPBC Act and 'Priority 4' under the BC Act.

Across the NWMR, the largest population breeds on Christmas Island (1,400 - 2,000 pairs, references within Sommerfeld et al., 2015) with additional key breeding locations on Cocos (Keeling) Group and islands of Ashmore Reef Marine Park (17-24 breeding pairs, Clarke et al., 2011; Clarke and Herrod, 2016). At Ashmore Reef, breeding pairs were observed year-round, with no discernible peak in breeding activity (Clarke et al., 2011).

The red-tailed tropicbird is a shallow diving species typically foraging diurnally within the first 4 m of the water column (LeCorre 1997). There is limited information concerning foraging range when breeding in Australia, but observations at sea in the Ashmore Reef region demonstrate they are capable of foraging considerable distances from land (unpubl. Data, Clarke, 2010). This corroborates data from elsewhere in their global range which reported foraging distances of 240 km during incubation, 109 km during chick rearing and maximum distances of 380 km (Fayat et al., 2023). This species has been observed during boat surveys of the outer shelf of the NWMR year-round (Surman and Nicholson 2011).

There are no BIAs for this species within the NWMR.

Australian Fairy Tern (nearshore seabird)

The Australian fairy tern (*Sternula nereis nereis*) is listed vulnerable under the EPBC Act. The WA breeding population (approximately 5000-6000 mature individuals) is dispersed over approximately 2500km of coastline (Greenwell, 2021). Within Western Australia, the subspecies comprises a sedentary Pilbara population and a partially-migratory population extending from Exmouth to Point Malcolm. Individuals of the partially-migratory population may occasionally migrate into the southern region of the NWMR during the winter months.

Within the NWMR breeding occurs in small colonies between June-September on offshore islands, including Simpson Island, Barrow Island, the Montebello Islands, the Lowendal Islands, Thevenard Island, Serrurier Island, the islands in the Dampier Archipelago, Maryanne Shoals and Egret Island (Dunlop 2018; Johnstone et al 2013; Surman pers. Obs.). Colonies tend to occupy areas rather than fixed sites, and nest sites can be abandoned after one or more years, even if they have been successful (Saunders and de Rebeira, 1985).

While information regarding foraging ecology of this species within the NWMR is lacking, the Australian fairy tern has been studied in South Australia. Here, species typically forages in inshore waters and has been reported to rarely travel beyond 2 km during the breeding season in South Australia (Paton and Rogers 2009).

Australian fairy terns are diurnal plunge diving seabirds, feeding exclusively on small (<60 mm) surface schooling bait fishes throughout their range. Prey include species of sprats, hardy heads and larval prey of some demersal fish species. Unlike many other terns, fairy terns are not dependent upon large pelagic fishes to drive their prey to the surface.

Breeding and foraging BIAs are identified for the fairy tern in the NWMR, as presented in **Figure 8-2**.

Little tern (nearshore seabird)

The little tern (*Sternula albifrons*) is listed migratory under the EPBC Act and BC Act. There are three sub-populations of little tern in Australia and two of these occurring in the NWMR: the northern Australian breeding subpopulation occurring around Broome and extending across the NWMR to Cape York, and an east Asian breeding subpopulation, with the terns present from Shark Bay to south-eastern Queensland during the Austral summer.

Recent surveys have found that little terns breed across the NWMR in small colonies (Surman pers. obs.). However, identification between subpopulations is difficult, and population estimates have high error due to the overlapping range and remote breeding sites of the northern populations. A southwards movement of breeding distribution has been noted at three key locations; Lowendal Islands (Surman pers comm.), Burrup Peninsula (Nicholson pers comm.), and North-west Cape (Greenwell and Dunlop 2021). Little terns usually forage close to their breeding colonies, typically within 5 km (Bertolero et al., 2005) mainly on small fish (< 10 cm in length), but they also eat crustaceans, insects, annelids and molluscs.

Little is known about the breeding and foraging ecology of little terns, however BIAs for foraging and resting have been identified across the NWMR (**Figure 8-2**), with a peak in breeding activity between June and October.

Roseate tern (nearshore seabird)

The roseate tern (*Sterna dougallii*) is listed migratory under the EPBC Act and BC Act. This species is generally sub-tropical in distribution and there are many breeding populations in the NWMR, including Ashmore Reef, Bonaparte Archipelago, Lacepede Islands, Dampier Archipelago and the Lowendal Islands.

The largest roseate tern breeding colony in Western Australia is in the Houtman Abrolhos Islands (Surman & Nicholson, 2009). Large colonies breed within the Lowendal Island and Montebello Island region where there is a stronghold for this species (Higgins & Davies 1996). A large breeding colony has also been recorded on Goodwyn Island on the Dampier Archipelago (Higgins & Davies 1996). Peak breeding times across the NWMR are between May to August.

Birds are known to usually move away from breeding colonies following breeding, but their non-breeding range is not well defined (Higgins & Davies 1996). Many non-breeding roseate terns have been observed at several remote locations in the Kimberley and there are high numbers also recorded at the Eighty Mile Beach Ramsar site (Surman pers obs).

Roseate terns will forage diurnally, up to 60 km from their colonies and always over deeper shelf waters, rather than shallow coastal areas (Surman & Wooller, 2003). Roseate terns will also readily raft (roost in flocks on the sea surface) after foraging episodes (Commonwealth of Australia, 2020).

Roseate terns predominately eat small pelagic fish taken by plunge diving or surface dipping, typically foraging in dense flocks overflying predatory fishes that push their prey to the surface. Roseate terns may plunge to 20 cm depth.

Breeding BIAs across the NWMR are associated with known breeding colonies on islands, while a resting BIA encompasses Eighty Mile Beach (**Figure 8-2**).

Caspian tern

The Caspian tern (*Hydroprogne caspia*) is listed migratory under the EPBC Act and BC Act. It is moderately common across coastlines of the NWMR and offshore islands (Johnstone et al., 2013).

Breeding occurs as solitary nests or in colonies of up to 52 breeding pairs mainly on islands, including North Turtle Island, Dampier Archipelago including Enderby Island, and Frazer Island, and occasionally on mainland coasts, such as Cape Preston and the Northwest Cape, from late March to early November (Johnstone et al., 2013).

During breeding, adults can forage up to 60 km from the colony during this period to catch fish and meet their elevated energetic requirements at this time (Burger et al. 1996; Balance et al., 2008). The Caspian tern is a diurnal forager, with the length and frequency of foraging trips, as well as relative time spent foraging or attending chicks, changing with food resource availability (Dunlop & McNeill 2017).

Caspian tern usually forage in shallow, sheltered waters, by plunge-diving for various prey species (Serventy et al., 1971).

Although foraging BIAs occur in the SWMR, no BIAs for this species have been identified in the NWMR.

Greater crested tern

The greater crested tern (*Thalasseus bergii*) is listed migratory under the EPBC Act and BC Act. The species is widespread along coastlines of the NWMR and offshore islands (Johnstone et al., 2013).

Many populations remain sedentary in their breeding areas or disperse locally (del Hoyo et al., 1996), although some are more migratory (Urban et al., 1986). The species breeds in large, dense colonies, or in small groups of fewer than ten pairs amidst colonies of other species, such as silver gull (del Hoyo et al. 1996). Colonies are located on islands, including those as far offshore as Bedout, Legendre and the Montebello and Lowendal Islands (Johnstone et al., 2013). Adult breeders have shown both high site fidelity and also flexibility in their breeding localities depending upon the spatial and temporal reliability of food resources (Crawford et al., 2002).

Breeding occurs from late March to May (Johnstone et al., 2013). During breeding, greater crested terns conduct short, diurnal foraging trips close (<40 km) to the colony (Surman & Wooller 2003, Rock et al. 2007; McLeay et al., 2010) with most foraging behaviour displayed by individuals at distances >5 km (McLeay et al., 2010).

The chicks are predominantly fed pelagic fish, a diet that varies among colonies and years (Chiaradia et al., 2002; McLeay et al., 2009). Adults may forage more widely on inshore reef fish (Surman & Wooller, 2003), crustaceans and cephalopods using a plunge diving method (Commonwealth of Australia, 2020a).

Although there is known habitat use in the NWMR, there are no designated BIAs for the greater crested tern in the NWMR.

8.2.1 Moderate occurrence seabird species

Species descriptions for moderate occurrence key pelagic and nearshore seabird species are summarised in **Table 8-2**.

Table 8-2 Species summary for moderate occurrence pelagic and nearshore seabird species within the NWMR.

Species	NMWR presence	Predominant feeding behaviour	Diet
Amsterdam albatross	Year-round low-density presence associated with foraging breeding and non-breeding individuals	Diurnal and nocturnal Dipping, surface seizing, diving to depths ≥ 2 m	Squid, fish and crustaceans
Flesh-footed shearwater	Non-breeding, migration: Jun – Aug	Diurnal and nocturnal Pursuit-plunging, surface-seizing	Fish, cephalopods
Soft-plumaged petrel	Non-breeding, migration: Jan-June	Diurnal and nocturnal Dipping, surface-seizing	Crustaceans, fish
Streaked shearwater	Non-breeding: Dec – Apr	Diurnal and nocturnal Surface-seizing	Fish, squid, crustacean
Wilson's storm petrel	Non-breeding: June – Dec	Diurnal and nocturnal Dipping, surface-seizing	Crustaceans, fish
Common tern	Non-breeding: Aug – Mar	Diurnal	Fish

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		Surface-plunging, dipping.	
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8.2.2 Biologically Important Areas for seabirds in the NWMR

A review of the Australian Marine Spatial Information System (GA, 2024) identified BIAs representing important life cycle stages and behaviours for nine species of seabird in the NWMR. These are presented in **Table 8-3**.

Table 8-3 Seabird BIAs within the NWMR (source: AMSIS, 2024 [accessed on 12/08/24])

Seabird Species	Woodside Activity Area			BIAs			
	Browse	NWS/S	NWC	Breeding/foraging	Foraging	Breeding	Resting
Australia fairy tern	-	✓	✓	-	No foraging BIAs in the NWMR Foraging in high numbers: the BIA is located in the SWMR including the Houtman Abrolhos Islands	Dampier Archipelago, Montebello, Lowendal and Barrow Island Groups, south Ningaloo and Bernier Island of Shark Bay	-
Wedge-tailed shearwater	✓	✓	✓	Widespread area of the NWMR offshore and inshore waters	Foraging in high numbers: the BIA is located in the SWMR including the Houtman Abrolhos Islands	-	-
Great frigatebird	✓	-	-	Ashmore Reef, Adele Island	-	-	-
Lesser frigatebird	✓	✓	-	Off Eighty Mile Beach, Lacepedes, Adele Island, North Kimberley and Ashmore Reef	-	-	-
Brown booby	✓	✓	-	Off Eighty Mile Beach, Lacepedes, Adele Island, North Kimberley and Ashmore Reef	-	-	-
Red-footed booby	✓	-	-	Adele Island, Ashmore Reef	-	-	-
Little tern	✓	✓	-	Rowley Shoals, Adele Island	-	-	-
Roseate tern	✓	✓	✓	-	No foraging BIAs in the NWMR Foraging (provisioning young) and foraging BIAs located in the SWMR – Houtman Abrolhos Islands the	Dampier Archipelago, Montebello, Lowendal and Barrow Island Groups, south Ningaloo and barrier island of Shark Bay	Eighty Mile Beach

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Seabird Species	Woodside Activity Area			BIAs			
	Browse	NWS/S	NWC	Breeding/foraging	Foraging	Breeding	Resting
					nearest BIA to the NWMR		
White-tailed tropicbird	✓	✓	-			Rowley Shoals Ashmore Reef	

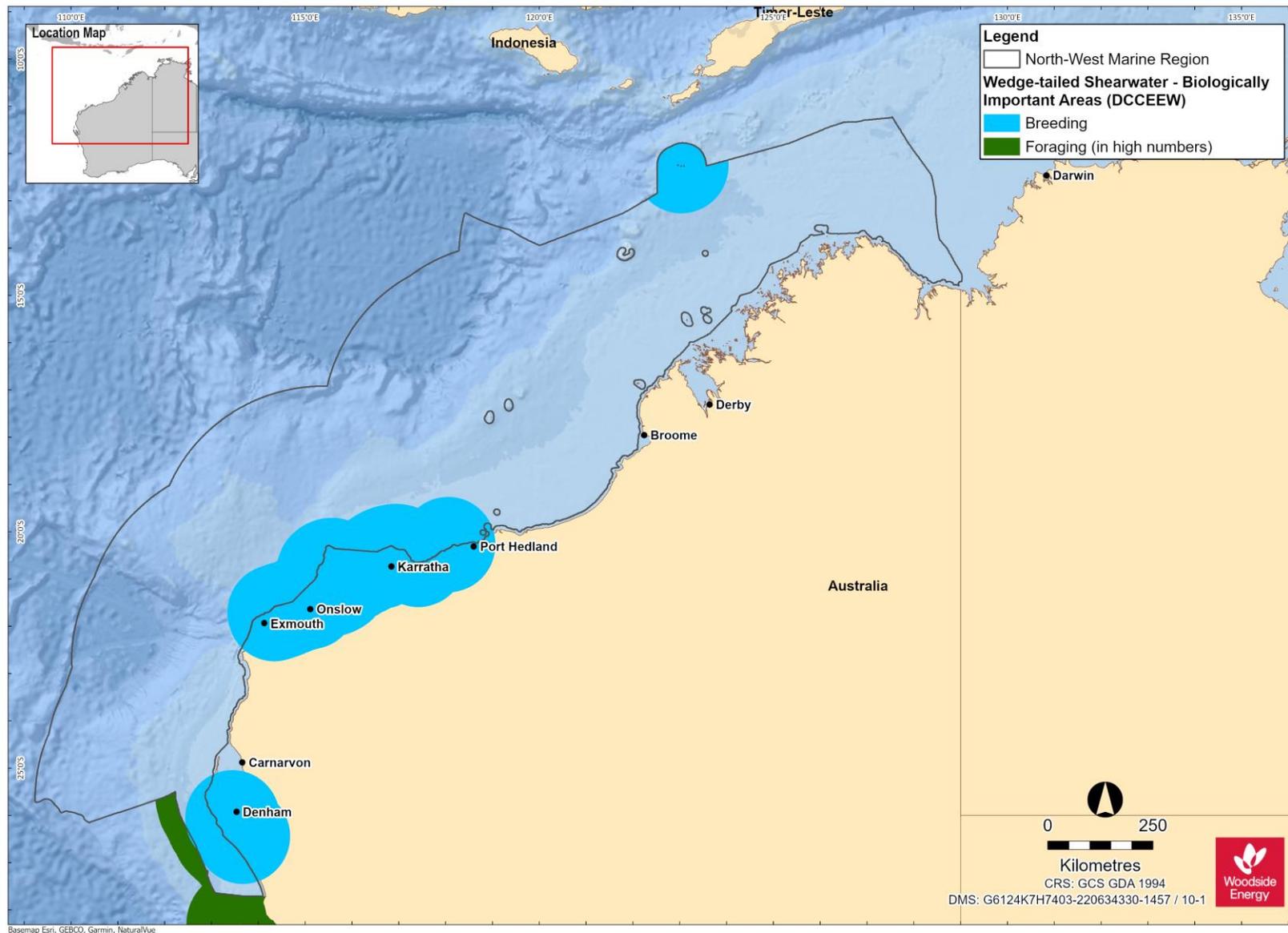


Figure 8-1 Wedge-tailed shearwater BIAs for the NWMR (data source: DCCEEW, 2024b)

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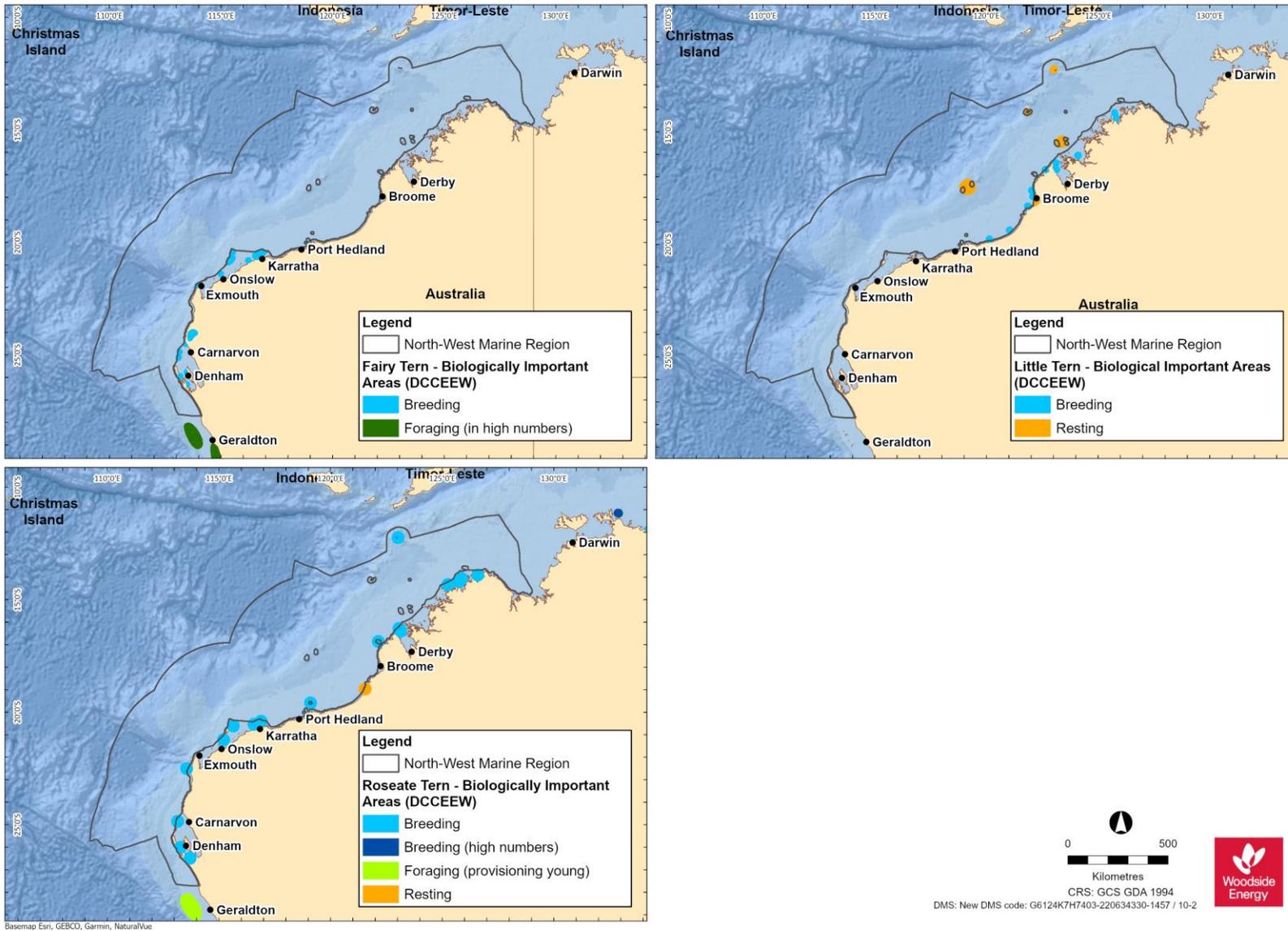


Figure 8-2 Tern species BIAs for the NWMR (data source: DCCEEW, 2024b)

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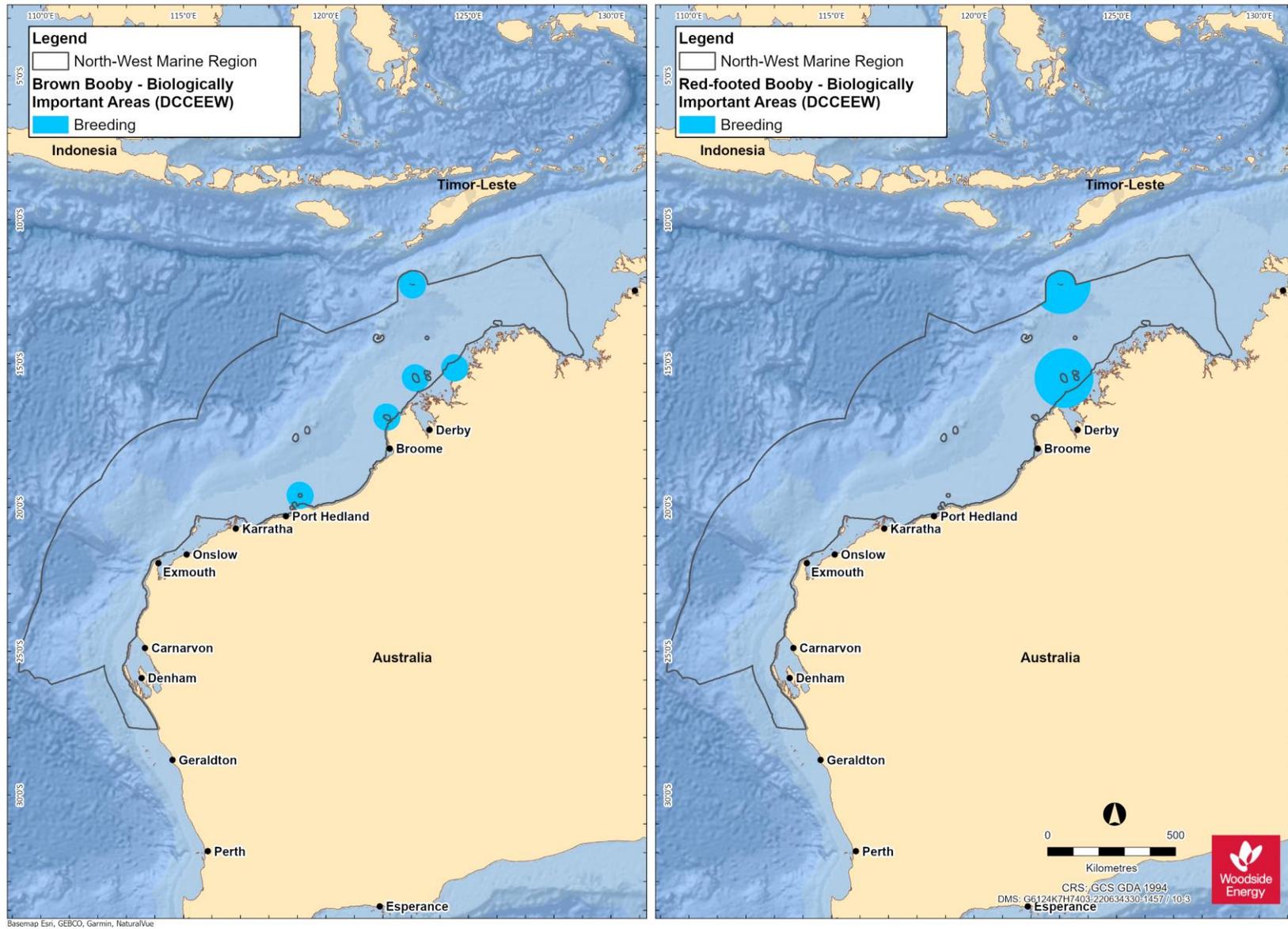


Figure 8-3 Red-footed and brown booby BIAs for the NWMR (data source: DCCEEW, 2024b)

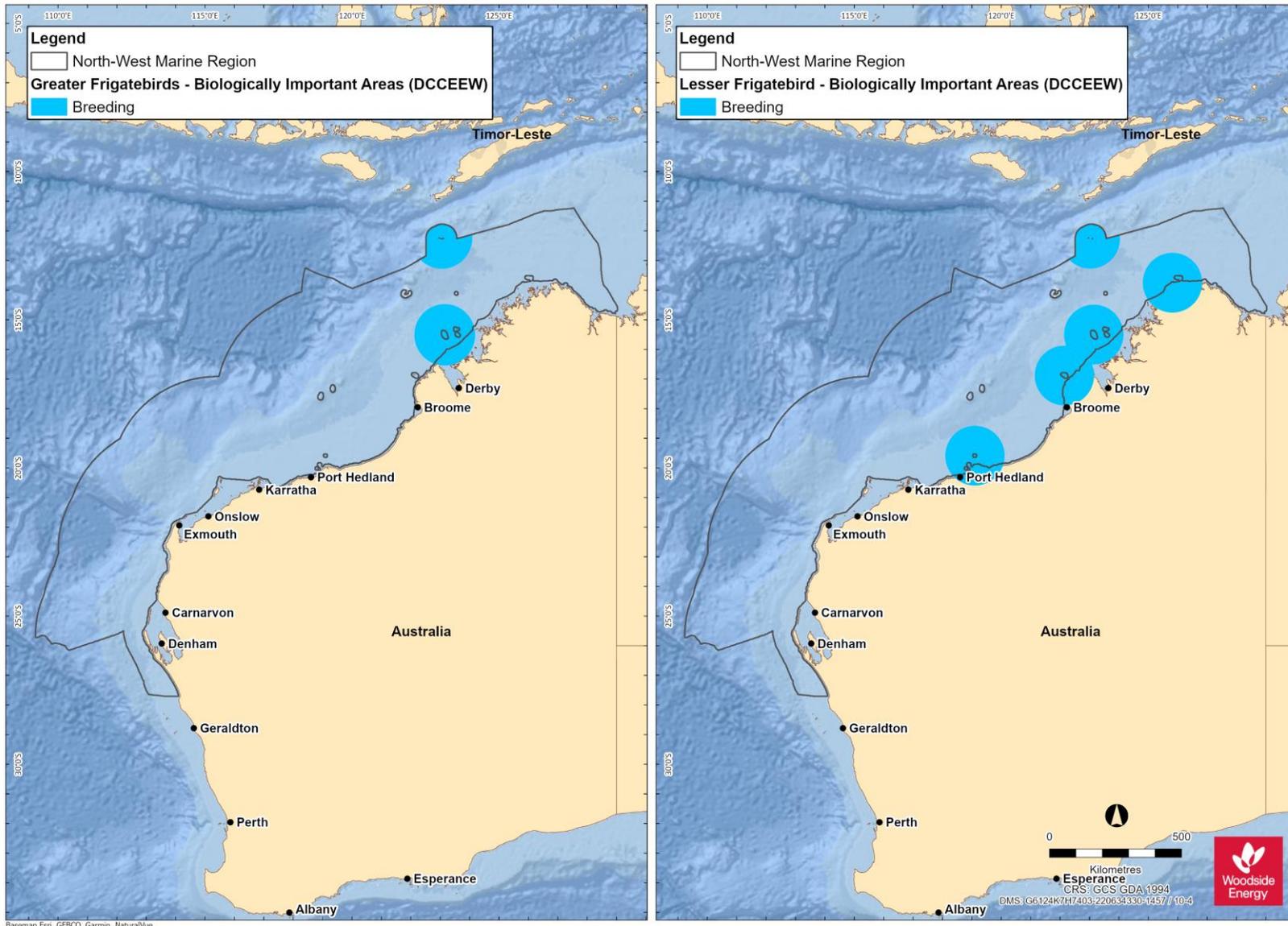


Figure 8-4 Greater and lesser frigatebird BIAs for the NWMR (data source: DCCEW, 2024b)

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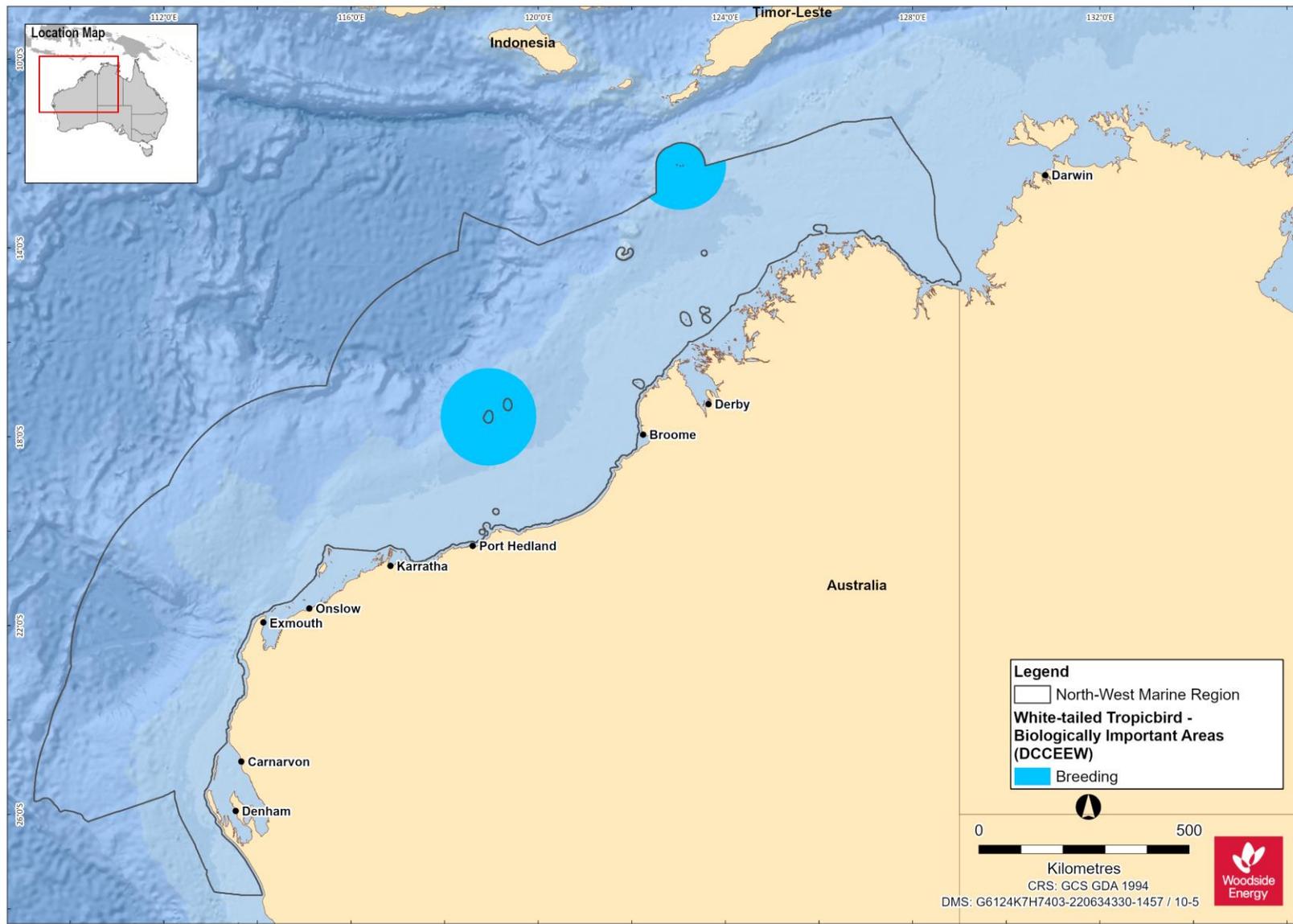


Figure 8-5 White-tailed tropicbird BIA for the NWMR (data source: DCCEW, 2024b)

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Page 150 of 379

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8.2.3 Seabird Summary for NWMR

8.2.3.1 Browse

The Browse activity area includes biologically important habitat for seven threatened and/or migratory seabird species:

- wedge-tailed shearwater (breeding/foraging);
- great and lesser frigatebirds (breeding/foraging);
- brown booby (breeding/foraging);
- red-footed booby (breeding/foraging);
- little tern (breeding/foraging);
- roseate tern (breeding and resting); and,
- white-tailed tropicbird (breeding).

BIAs for the seabird species are outlined in **Table 8-3**.

8.2.3.2 NWS / Scarborough

The NWS / Scarborough activity area includes biologically important habitat for seven threatened and/or migratory seabird species:

- Australian fairy tern (breeding);
- wedge-tailed shearwater (breeding/foraging);
- lesser frigatebird (breeding/foraging);
- brown booby (breeding/foraging);
- white-tailed tropicbird (breeding);
- little tern (breeding/foraging); and
- roseate tern (breeding and resting).

BIAs for the seabird species are outlined in **Table 8-3**.

8.2.3.3 North-west Cape

The North-west Cape activity area includes biologically important habitat for three threatened and/or migratory seabird species:

- Australian fairy tern (breeding);
- wedge-tailed shearwater (breeding/foraging); and
- roseate tern (breeding and resting).

BIAs for the seabird species are listed and described in **Table 8-3**.

8.3 Shorebirds

Shorebirds (migratory and resident species) are generally associated with wetland or coastal environments, and the NWMR hosts many shorebird species, particularly in the Austral summer (refer to **APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR** for the EPBC Act PMST reports on listed species of shorebirds). Shorebirds may use coastal environments for feeding, nesting or migratory stopovers. In coastal environments, shorebirds generally feed

during low tide on exposed intertidal mud and sand flats, and roost in suitable habitat above the high-water mark.

The NWMR is situated within the East Asian – Australian Flyway (EAAF), a geographic region supporting populations of migratory shorebirds throughout their annual cycle. The EAAF extends from breeding grounds in the Russian tundra, Mongolia and Alaska southwards through east and south-east Asia, to non-breeding areas of Indonesia, Papua New Guinea, Australia and New Zealand (Weller and Lee, 2017). All shorebird species identified undertake annual migrations from breeding sites in the northern hemisphere to more southern non-breeding sites within the EAAF (Bamford et al 2008).

The EAAF encompasses a large proportion of the NWMR. Migratory shorebirds may migrate through the offshore areas of the NWMR between overwinter grounds in Australia and breeding sites in the northern hemisphere (Bamford et al. 2008). Peak migration occurs between March and May (northern migration) and August and November (southern migration) (Bamford et al. 2008). Migration routes of some migratory shorebird species have been characterised using band recoveries (Minton et al 2006), however the migration pathways taken between sightings are poorly understood.

Migratory shorebird species are present in Australia during the non-breeding period (December to February), in coastal and inland habitats where adult birds build up the energy reserves necessary to support northward migration and subsequent breeding (Commonwealth of Australia, 2015c). During this time, individuals must maintain an energy intake greater than their energy expenditure to recover from the southward migration, to allow moulting, and to build fat reserves in preparation for the northward migration (Commonwealth of Australia, 2015c). The high energy demands of migration means that both foraging and resting during the non-breeding period are vital for individual fitness and survival.

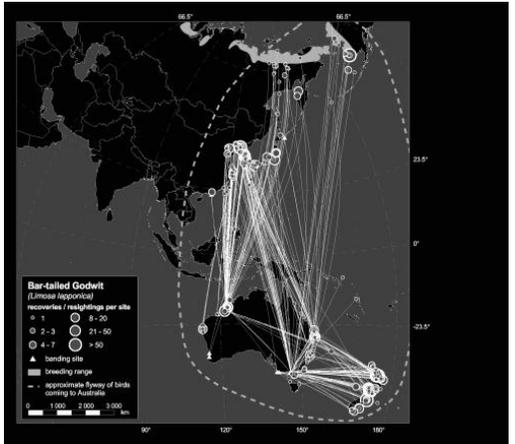
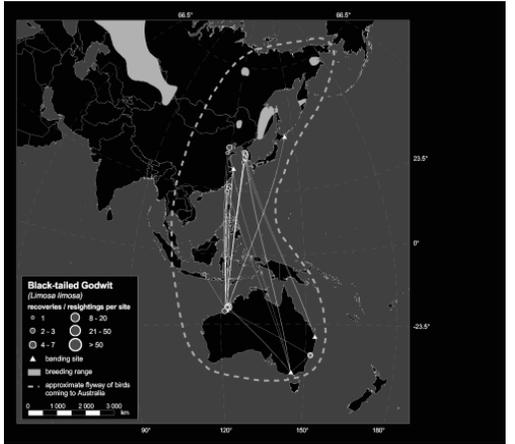
Due to differences in coastal or wetland habitat requirements between roosting and foraging behaviours, areas used most by migratory shorebirds usually comprise networks of foraging and roosting habitats. Shorebirds move between areas of this network depending on the time of day, availability of resources, levels of disturbance and environmental conditions (Commonwealth of Australia, 2015c). Displacement from one habitat or the other may result in utilisation of sub-optimal habitat and/or increase energetic demands via increased distance between habitats.

Within the EAAF, “a wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird” (Ramsar Convention Bureau, 2000). All shorebirds identified as high occurrence key species occur in shoreline habitats within the NWMR for at least part of their non-breeding season in Australia.

Ashmore Reef is documented as a BIA for migratory shorebirds in the NWMR (DSEWPAC, 2012a).

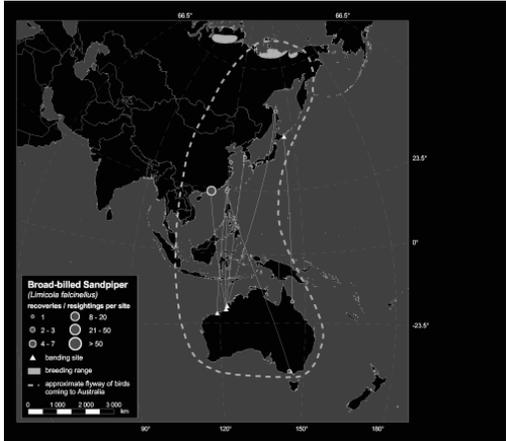
Species descriptions, including information on migration routes where available, for key high and moderate occurrence shorebird species are provided in **Table 8-4** and **Table 8-5**. It should be noted that Minton et al., (2006) did not report on the Pilbara region or Exmouth Gulf, so the migratory pathways may be incompletely depicted.

Table 8-4 Species summary for high and selected moderate occurrence key shorebird species.

Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Bar-tailed godwit ²¹	Widespread around the coast as far east as Derby, with a few scattered records elsewhere in the Kimberley <i>Internationally important site:</i> <ul style="list-style-type: none"> • Roebuck Bay • Eighty Mile Beach 	Sandy beaches, sandbars, spits and also in near-coastal saltmarsh	Tidal estuaries and harbours	Worms, molluscs, crustaceans, insects and some plant material	 <p>The map shows the distribution and migration of Bar-tailed Godwits in the Kimberley region. It features a network of lines connecting various roosteries and banding sites. The legend indicates roosteries based on the number of recoveries or resightings per site: 1 (smallest circle), 2-3, 4-7, 8-20, 21-50, and >50 (largest circle). Banding sites are marked with triangles. A dashed line outlines the breeding range, and a dotted line shows the approximate flyway of birds coming to Australia. A scale bar at the bottom indicates distances up to 3000 km.</p>
Black-tailed godwit	Found in coastal regions of all States and Territories of Australia <i>Internationally important site:</i> <ul style="list-style-type: none"> • Roebuck Bay 	Claypan	Intertidal mudflats or sandflats	Annelids, crustaceans, arachnids, fish eggs and spawn and tadpoles	 <p>The map shows the distribution and migration of Black-tailed Godwits in the Kimberley region. It features a network of lines connecting various roosteries and banding sites. The legend indicates roosteries based on the number of recoveries or resightings per site: 1 (smallest circle), 2-3, 4-7, 8-20, 21-50, and >50 (largest circle). Banding sites are marked with triangles. A dashed line outlines the breeding range, and a dotted line shows the approximate flyway of birds coming to Australia. A scale bar at the bottom indicates distances up to 3000 km.</p>

²¹ Nominate species *Limosa lapponica*. Subspecies which may occur includes *L. I menzbieri*, which is listed Critically Endangered under the EPBC Act. Specific information on *L. I menzbieri* is lacking, but information regarding habitat use and diet for the nominate species is considered applicable.

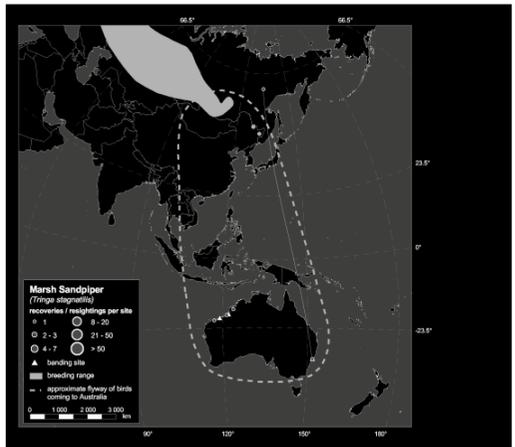
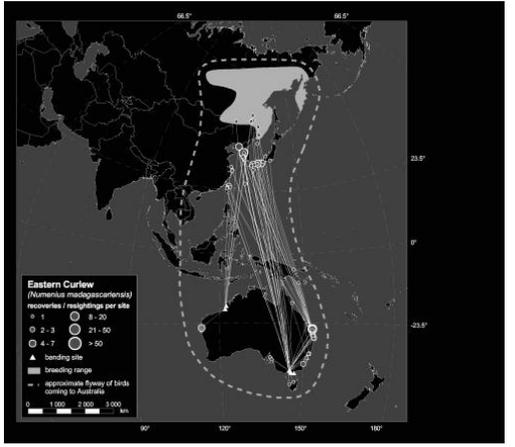
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Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Broad billed sand piper	Regular visitor to coasts of the Pilbara and Kimberley between Onslow and Broome <i>Internationally important site:</i> <ul style="list-style-type: none"> Port Hedland Saltworks 	Sheltered sandy, shelly or shingly beaches	Mudflats, mangroves	Worms, including polychaetes, molluscs, crustaceans, insects and seeds	 <p>The map shows the distribution and migration of Broad-billed Sandpipers (<i>Limicola falcinellus</i>) in the Indian Ocean region. It includes a legend for roosting sites (circles of varying sizes representing different numbers of roostings per site) and a dashed line indicating the approximate flyway of birds coming to Australia. The map covers the area from 60°E to 160°E and 30°S to 10°S.</p>
Common redshank	Records in the Gascoyne region, Coral Bay and Carnarvon Widespread from the Dampier Saltworks to Roebuck Bay and Broome Ashmore Reef	Sheltered coastal wetlands such as bays, river estuaries, lagoons, inlets and saltmarsh	Bare mud or sand, or on algal deposits, round the edges of wetlands	Worms, molluscs, crustaceans, arachnids and insects	Not available

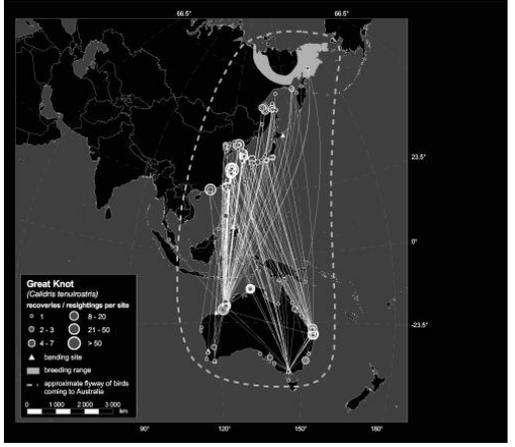
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Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Curlew sandpiper	<p>Widespread around coastal and subcoastal plains</p> <p>Non-breeding one year old birds may remain in Australia rather than migrating north</p> <p><i>Internationally important site:</i></p> <ul style="list-style-type: none"> • Dampier Saltworks • Port Hedland Saltworks • Eighty Mile Beach • Roebuck Bay 	Bare dry shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands	Mudflats and nearby shallow water	Worms, molluscs, crustaceans, and insects, as well as seeds	

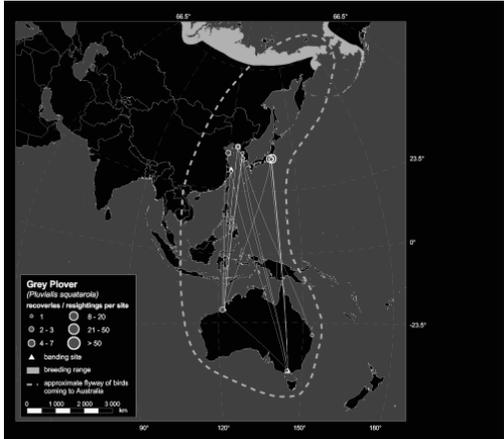
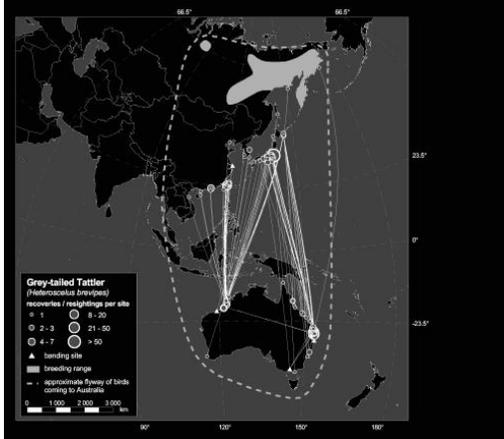
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Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Marsh sandpiper	Widespread, notable areas include Eighty Mile Beach, Port Hedland Saltworks	Tidal mudflats	Mudflats, marshy vegetation	Molluscs, crustaceans and insects	 <p>Marsh Sandpiper (<i>Tringa stagninella</i>)</p> <p>recovery / resightings per site</p> <ul style="list-style-type: none"> ○ 1-1 ○ 2-3 ○ 4-7 ○ 8-20 ○ 21-50 ○ >50 <p>▲ banding site</p> <p>■ breeding range</p> <p>--- approximate flyway of birds coming to Australia</p> <p>0 1 000 2 000 3 000 km</p>
Eastern curlew	Continuous distribution from Barrow Island and Dampier Archipelago through the Kimberley region <i>Internationally important site:</i> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay 	Sandy spits, sandbars and islets, beaches near the high-water mark, coastal vegetation including low saltmarsh or mangroves	Soft sheltered intertidal sandflats or mudflats, saltflats and saltmarsh, in proximity to mangroves, among rubble on coral reefs, and beaches near the tideline	Crustaceans small molluscs, insects	 <p>Eastern Curlew (<i>Numenius madagascariensis</i>)</p> <p>recovery / resightings per site</p> <ul style="list-style-type: none"> ○ 1-1 ○ 2-3 ○ 4-7 ○ 8-20 ○ 21-50 ○ >50 <p>▲ banding site</p> <p>■ breeding range</p> <p>--- approximate flyway of birds coming to Australia</p> <p>0 1 000 2 000 3 000 km</p>

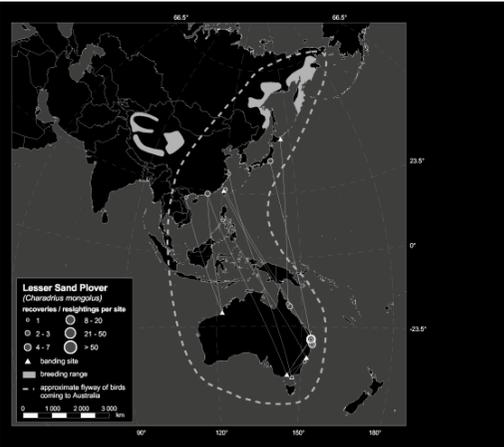
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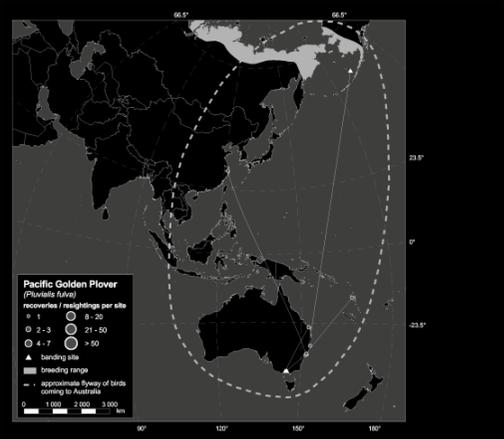
Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Great knot	<p>Common on the coasts of the Pilbara and Kimberley, from the Dampier Archipelago to the Northern Territory border</p> <p><i>Internationally important site:</i></p> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay 	<p>Roosts in large groups in open areas, often at the water's edge or in shallow water close to feeding grounds</p>	<p>Sheltered coastal habitats with large intertidal mudflats or sandflats</p>	<p>Bivalves, gastropods, crustaceans and other invertebrates</p>	
Greater sand plover	<p>Widespread between North-west Cape and Roebuck Bay</p> <p><i>Internationally important site:</i></p> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay 	<p>Sand-spits and banks on beaches or in tidal lagoons</p>	<p>Surface of wet sand or mud on open intertidal flats of sheltered embayments, lagoons or estuaries</p>	<p>Molluscs, worms, crustaceans and insects</p>	

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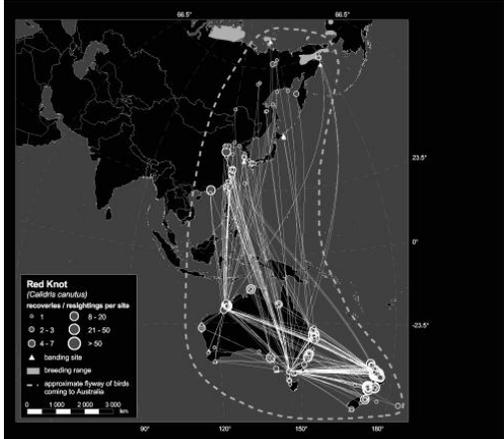
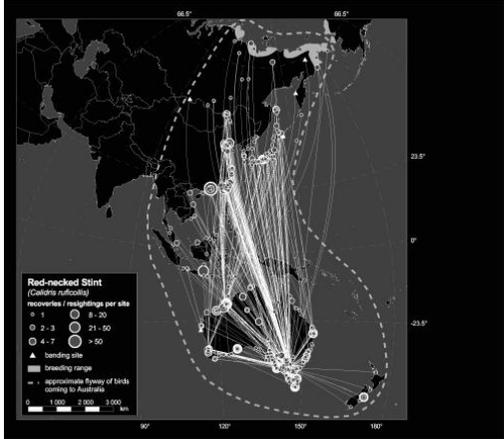
Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Grey plover	Widespread in coastal areas across Australia <i>Internationally important site:</i> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay 	Sandy habitats including unvegetated sandbanks or sand-spits, sheltered beaches, estuaries or lagoons	Large areas of exposed mudflats and beaches of sheltered coastal shores	Molluscs, insects and their larvae, crustaceans and polychaete worms	
Grey-tailed tattler	Widespread from Houtman Abrolhos and the mainland adjacent to the Kimberley <i>Internationally important site:</i> <ul style="list-style-type: none"> • Barrow Island • Roebuck Bay • Eighty Mile Beach • Lacepede Islands 	Branches of mangroves, snags or driftwood	Shallow water on hard intertidal substrates, such as reefs and rock platforms, in rock pools and among rocks and coral rubble	Polychaetes, molluscs, crustaceans, insects and, occasionally, fish	

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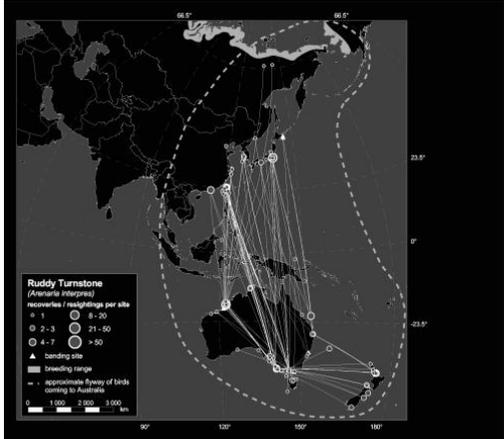
Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Lesser Sand Plover	Widespread, internationally important site: <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay • Broome • Port Hedland Saltworks 	Beaches, banks, spits of sand or shell, occasionally rocky spits, islets and reefs	Exposed intertidal sandflats and mudflats of beaches or estuaries, occasionally shallow water in saltworks	Molluscs, worms, crustaceans and insects	
Oriental plover	Most records are along the north-western coast, between Exmouth Gulf and Derby in Western Australia <i>Internationally important site:</i> <ul style="list-style-type: none"> • Dampier Saltworks • Port Hedland Saltworks • Eighty Mile Beach • Roebuck Bay 	Soft wet mud or in shallow water of beaches and tidal mudflats	Short grass, hard stony bare ground, mudflats or among beachcast seaweed on beaches	Insects, including termites, beetles, grasshoppers, crickets	Not available

Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Oriental pratincole	Widespread along the coasts of the Pilbara and Kimberley <i>Internationally important site:</i> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Plains 	Bare areas such as claypans or areas with low vegetation, such as saltmarsh	Open plains, floodplains or short grassland, artificial wetlands (saltworks), beaches, mudflats and islands, or around coastal lagoons Usually feeds aerially, at heights varying from just above the ground up to 300 m	Insects, including dragonflies, cicadas, beetles, moths, ants, termites, locusts, grasshoppers, flies, bees and wasps	Not available
Pacific golden plover	Widespread along the coasts of the Pilbara and Kimberley Nationally important site: <ul style="list-style-type: none"> • Eighty Mile Beach 	Sandy beaches and spits, rocky points, islets, exposed reef, occasionally mangrove and saltmarsh vegetation, beachcast seaweed, levee banks and saltwork evaporation ponds	Sandy, muddy and rocky shores, sheltered estuaries and lagoons, occasionally saltmarsh, mangrove or pasture	Molluscs, polychaete worms, insects, insect larvae, spiders, crustaceans, occasionally seeds, leaves, lizards, bird eggs and fish	

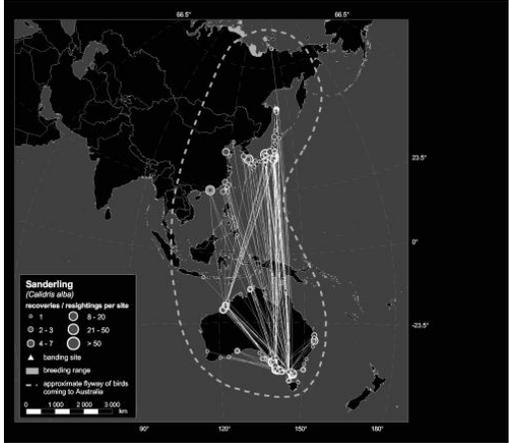
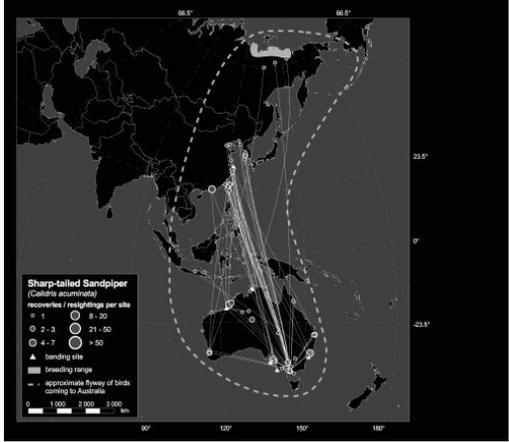
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Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Red knot	<p>Large numbers regularly recorded in north-west Australia</p> <p><i>Internationally important site:</i></p> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay 	Sandy beaches, spits and islets, and mudflats close to feeding grounds	Soft substrate near the water edge including intertidal mudflats and sandflats exposed by low tide	Worms, bivalves, gastropods, crustaceans and echinoderms	 <p>Red Knot (<i>Calidris canutus</i>) newspires / resightings per site</p> <ul style="list-style-type: none"> • 1 ○ 2-3 ○ 4-7 ○ 8-20 ○ 21-50 ○ >50 ▲ breeding site ■ breeding range - - - approximate flyway of birds coming to Australia
Red-necked stint	<p>Widespread in coastal areas across Australia</p> <p><i>Internationally important site:</i></p> <ul style="list-style-type: none"> • Barrow Island • Port Hedland Saltworks • Eighty Mile Beach • Roebuck Bay 	Sheltered beaches, spits, banks or islets of sand, mud, coral or shingle, occasionally in saltmarsh or other vegetation	Feed in dense flocks on bare wet mud such as intertidal mudflats or sandflats, or in very shallow water	Marine worms, molluscs, snails and slugs, shrimps, spiders, beetles, flies and ants	 <p>Red-necked Stint (<i>Calidris melanotos</i>) newspires / resightings per site</p> <ul style="list-style-type: none"> • 1 ○ 2-3 ○ 4-7 ○ 8-20 ○ 21-50 ○ >50 ▲ breeding site ■ breeding range - - - approximate flyway of birds coming to Australia

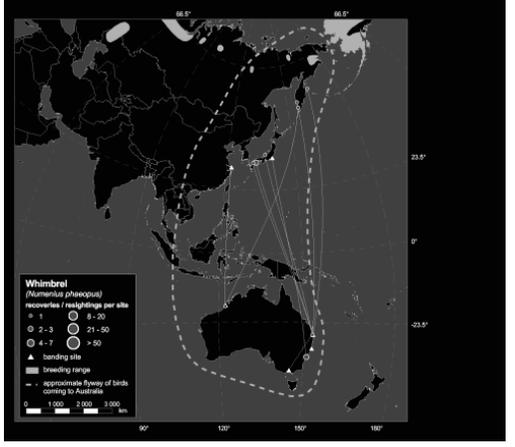
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Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Ruddy turnstone	Found in most coastal regions across Australia <i>Internationally important site:</i> <ul style="list-style-type: none"> • Barrow Island • Eighty Mile Beach • Roebuck Bay • Lacepede Islands 	Beaches above the tideline, among rocks, shells, beachcast seaweed or other debris	Between lower supralittoral and lower littoral zones of foreshores. Often forage among banks of stranded seaweed or other tide-wrack. Occasionally forage on exposed rocky platforms, coral reefs and mudflats	Insects, worms, crustaceans, molluscs, and spiders Occasionally been known to eat fish, birds' eggs and carrion and human food scraps	
Ruff	Periodically recorded in Port Hedland, Kununurra and the Argyle Diamond Mine	Wetlands with exposed mudflats and short dense vegetation	Exposed mudflats with shallow water and dry mud	Moss, plant fibre, seeds, annelid worms, molluscs, crustaceans, spiders, insects, fish and amphibians	Not available

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Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Sanderling	Occur most of the NWMR coast as far east as Derby <i>Internationally important site:</i> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay 	Bare sand high on the beach clumps of washed-up kelp coastal dunes rocky reefs and ledge	Open sandy beaches exposed to open sea-swell, exposed sandbars and spits and shingle banks, where they forage in the wave-wash zone and amongst rotting seaweed.	Plants, seeds, worms, crustaceans, spiders, insects. Occasionally on medusae, fish, larger molluscs and crustaceans taken as carrion	 <p>Sanderling (<i>Callinectes albidus</i>) recruitment / catchings per site</p> <ul style="list-style-type: none"> • 1 ○ 2-3 ○ 4-7 ○ 8-20 ○ 21-50 ○ >50 <p>▲ breeding site ■ breeding range - - approximate flyway of birds coming to Australia</p>
Sharp-tailed sandpiper	Widespread from Cape Arid to Carnarvon, around coastal and subcoastal plains of Pilbara to Kimberley <i>Internationally important site:</i> <ul style="list-style-type: none"> • Port Hedland Saltworks • Eighty Mile Beach 	Edges of wetlands, on wet open mud or sand, in shallow water, or in short sparse vegetation, such as grass or saltmarsh	Edge of the water of wetlands or intertidal mudflats, either on bare wet mud or sand, or in shallow water. Also forage among inundated vegetation of saltmarsh, grass or sedges	Seeds, worms, molluscs, crustaceans and insects	 <p>Sharp-tailed Sandpiper (<i>Callinectes acuminatus</i>) recruitment / catchings per site</p> <ul style="list-style-type: none"> • 1 ○ 2-3 ○ 4-7 ○ 8-20 ○ 21-50 ○ >50 <p>▲ breeding site ■ breeding range - - approximate flyway of birds coming to Australia</p>

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Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Terek sandpiper	<p>The species is widespread in the Pilbara and Kimberley, from Dampier to Wyndham, with occasional records around Shark Bay</p> <p><i>Internationally important site:</i></p> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay 	<p>In or among mangroves, may perch in branches or roots up to 2 m from the ground, or in shade beneath</p>	<p>Soft wet intertidal mudflats or in sheltered estuaries, embayments, harbours or lagoons</p>	<p>Crustaceans, insects, seeds, molluscs and arachnids</p>	 <p>Terek Sandpiper (<i>Tringa cinerea</i>) roovesites (roostings per site)</p> <ul style="list-style-type: none"> ○ 1 ○ 2-3 ○ 4-7 ○ 8-20 ○ 21-50 ○ > 50 <p>▲ roosting site ■ breeding range - - approximate flyway of birds coming to Australia</p>
Whimbrel	<p>Widespread from Carnarvon to the north-east Kimberley</p> <p>Primarily coastal distribution. There are also scattered inland records of Whimbrels in all regions</p> <p><i>Internationally important site:</i></p> <ul style="list-style-type: none"> • Roebuck Bay 	<p>Regularly roost in mangroves and other structures flooded at high tide. May also roost on ground of muddy, sandy or rocky beaches; rocky islets and coral cays.</p>	<p>Intertidal mudflats, muddy banks of estuaries and in coastal lagoons, open unvegetated areas or among mangroves. Occasionally on sandy beaches or among rocks</p>	<p>Annelids, crustaceans and, rarely, vertebrates (e.g. small fish, little tern chicks)</p>	 <p>Whimbrel (<i>Numenius phaeopus</i>) roovesites (roostings per site)</p> <ul style="list-style-type: none"> ○ 1 ○ 2-3 ○ 4-7 ○ 8-20 ○ 21-50 ○ > 50 <p>▲ roosting site ■ breeding range - - approximate flyway of birds coming to Australia</p>

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Table 8-5 Species summary for moderate occurrence key shorebird species

Species	NWMR presence	Roosting habitat	Foraging habitat	Diet
Asian dowitcher	Regular visitor to the north-west between Port Hedland and Broome <i>Internationally important sites:</i> <ul style="list-style-type: none"> • Roebuck Bay and Port Hedland saltworks 	Coastal lagoons, estuaries and tidal creeks	Intertidal mud flats	Polychaete worms and larvae, also insect larvae and molluscs
Australian painted snipe	Widespread in low numbers	Shallow freshwater wetlands with bare mud and dense canopy cover	Dense vegetation cover, occasionally mudflats and grassland	Vegetation, seeds, insects, worms, molluscs and crustaceans
Little curlew	Widespread with distribution concentrated along the northern coast from Port Hedland during the non-breeding season. <i>Internationally important sites:</i> <ul style="list-style-type: none"> • Roebuck Plains • Roebuck Bay • Anna Plains • Derby Sewage Ponds • Parry Floodplain. 	Short, dry grassland, and occasionally dry saltmarshes, coastal swamps, mudflats or sandflats in estuaries, or on the beaches of sheltered coasts.	Short, dry grassland and sedgeland with shallow freshwater pools or seasonal inundation.	Insects, seeds and berries.
Common greenshank	Occurs in all types of wetlands and has the widest distribution of any shorebird in Australia <i>Internationally important sites:</i> <ul style="list-style-type: none"> • Eighty Mile Beach • Roebuck Bay 	Wetlands, shallow pools and puddles, or slightly elevated on rocks, sandbanks or small muddy islets	Edges of wetlands, in soft mud on mudflats, in channels, among pneumatophores of mangroves or other sparse, emergent or fringing vegetation, such as sedges or saltmarsh	Molluscs, crustaceans, insects, and occasionally fish and frogs

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Species	NWMR presence	Roosting habitat	Foraging habitat	Diet
Common sandpiper	Widespread in low numbers	Rocks or in roots or branches of vegetation, especially mangroves	Bare soft mud at the edges of wetlands	Molluscs, crustaceans and insects
Pectoral sandpiper	Low numbers recorded across the Gascoyne, Pilbara and Kimberley regions	Coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands	Bare soft mud at the edges of wetlands	Algae, seeds, crustaceans, arachnids and insects
Wood sandpiper	NWMR supports largest numbers in Australia. Notable areas include Parry floodplain, Shark Bay	Low trees, grassy hillocks	Bare soft mud at the edges of wetlands	Insects and molluscs
Long-toed stint	Widespread along the coasts of the Pilbara and Kimberley	Shallow inland wetlands	Wetland or islets with wet mud or shallow water and short vegetation	Seeds, molluscs, crustaceans, insects, occasionally algae
Pin-tailed snipe	Recorded in the Pilbara, Port Hedland, Myaree Pool, Maitland River and near Karratha	Wide variety of wetland habitats including flooded paddy-fields, wet grasslands, seepage swamps and marshland	Muddy shorelines of swamps and along streams	Molluscs, adult and larval insects, earthworms and occasionally crustaceans, seeds and other plant matter

Species	NWMR presence	Roosting habitat	Foraging habitat	Diet
Swinhoe's snipe	Recorded in the Pilbara, Kimberley, Mount Goldsworth, Mount Blaize and near the Mitchell Plateau	Grasses and rushes around the edge of fresh and brackish marshes	Grasses and rushes near the water edge, in addition to hummocks or on mudflats around seepage areas	Earthworms, adult and larval insects

8.4 Other marine birds

Species descriptions for high occurrence key other marine bird species are summarised in **Table 8-6**.

Table 8-6 Species summary for high occurrence key other marine bird species

Species	NWMR presence		Predominant feeding behaviour	Diet
Fork-tailed swift	<p><i>Non-breeding:</i> Oct – Apr</p> <p>Widespread in coastal areas as far north as Carnarvon, including some on nearshore and offshore islands. Scattered along the Pilbara coast to the east Kimberley region</p>	<p>Aerial forager, flying anywhere from 1 m to 300 m above the ground to forage</p> <p>Typically feed in flocks ranging from 10 to 1,000 birds</p>	Insectivorous	
Osprey	<p><i>Breeding:</i> April to February, though depends on latitude. NWMR individuals breeding early in season compared to SWMR</p> <p><i>Non-breeding:</i> remain in breeding territories</p> <p>Continuous distribution of the species around the coast except for a possible gap at Eighty Mile Beach</p>	<p>Hover momentarily and then dive down, sometimes in stages, before snatching prey from near the surface with the feet or by plunging into the water feet first</p>	<p>Fish, especially mullet where available</p> <p>Rarely take molluscs, crustaceans, insects, reptiles, birds and mammals.</p>	

9. THREATENED AND MIGRATORY SPECIES SEASONAL PRESENCE

Seasonal sensitivity for key threatened and migratory species in the NWMR presented in **Table 9-1**. The timing presented is displayed as a broad representation for the NWMR, with location specific seasonality presented within Environment Plans (EPs).

Table 9-1 Seasonal sensitivity of key threatened and migratory species in the NWMR

Species	January	February	March	April	May	June	July	August	September	October	November	December
Fishes, sharks and rays												
Whale shark - foraging (northward from Ningaloo) ¹												
Whale shark - foraging (high density prey, Ningaloo Reef) ²												
Dwarf sawfish - reproduction ³												
Dwarf sawfish - foraging ⁴												
Large tooth (freshwater) sawfish - reproduction (pupping) ⁵												
Large tooth (freshwater) sawfish - foraging												
Green sawfish (reproduction)												
Green sawfish (foraging)												
Marine reptiles- turtle nesting												
Green turtle												
Ashmore Reef Stock (G-AR) ⁶												

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Species	January	February	March	April	May	June	July	August	September	October	November	December
Scott Reef-Browse Island Stock (G-ScBr) ⁷												
NWS Stock (G-NWS) ⁸												
Hawksbill turtle												
Western Australia Stock (H-WA) ⁹												
Flatback turtle												
Cape Domett Stock (F-CD) ¹⁰												
South-west Kimberley Stock (F-swKim) ¹¹												
Pilbara Stock (F-Pil) ¹²												
Unknown genetic stock Kimberley, Western Australia ¹³												
Loggerhead turtle												
Western Australia Stock (LH-WA) ¹⁴												
Cetaceans												
Fin whale ¹⁵												
Humpback whale - northern migration ¹⁶												
Humpback whale - southern migration ¹⁷												

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Species	January	February	March	April	May	June	July	August	September	October	November	December
Humpback whale - reproduction (nursing, Kimberley coast) ¹⁸												
Omura's whale ¹⁹												
Pygmy blue whale - northern migration ²⁰												
Pygmy blue whale - southern migration ²¹												
Southern Right Whale (calving/presence in NWMR) ²²												
Seabirds (high occurrence seabirds with designated BIAs)												
Wedge-tailed shearwater - breeding / foraging <small>*fledgling emergence (first two weeks of April)</small>				*								
Australian lesser noddy <small>NWMR presence in non-breeding period *breeding – Ashmore Reef and Abrolhos, may forage in NWMR</small>								*	*	*	*	*
Common noddy - breeding												
Bridled tern – breeding and foraging												
Australian fairy tern - breeding/foraging												
Great frigatebird- breeding / foraging	*	*	*	*	*	*	*	*	*			

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Description of the Existing Environment

Species	January	February	March	April	May	June	July	August	September	October	November	December
*possibly present in NWMR in non-breeding and foraging in breeding season												
Lesser frigatebird - breeding / foraging *possibly present in NWMR in non-breeding and foraging in breeding season	*	*	*	*	*	*	*	*	*			
Brown booby - presence in NWMR (breeding / foraging) Present NWMR year-round (breeding at Ashmore Reef, Adele Island, Lacepedes between Jan-Mar (protracted through to Oct at Ashmore Reef)												
Red-footed booby - presence in NWMR (breeding / foraging) Breed at Ashmore Reef and Adele Island, recorded breeding year-round at Ashmore Reef												
Little tern - breeding / foraging maybe present in NWMR outside breeding season – foraging and resting												
Roseate tern - breeding												
Caspian tern – breeding Dampier Archipelago and North-west Cape												
Greater crested tern												
White-tailed and Red-tailed tropicbird - breeding largest breeding populations on Christmas Island												
	Peak period (reliable / predictable).											
	Species present / undertaking biologically important behaviour in the NWMR.											
	Species not likely to be present or undertaking biologically important behaviour in NWMR.											

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Species	January	February	March	April	May	June	July	August	September	October	November	December
<p>¹Whale shark foraging northward from Ningaloo in Spring (DCCEEW, 2024b15). Migration along the north coast of WA also known to occur between July - November (TSSC, 2015d). Potential presence of whale sharks year-round at Ningaloo (Norman et al., 2017).</p> <p>²Whale shark foraging (high density prey) Ningaloo April- June, Autumn (DCCEEW, 2024b15). March- July (TSSC, 2015d). Potential presence of whale sharks year-round at Ningaloo (Norman et al., 2017).</p> <p>³Dwarf sawfish reproduction- potential to occur in all seasons (DCCEEW, 2024b15).</p> <p>⁴Dwarf sawfish foraging- potential to occur in all seasons (DCCEEW, 2024b15).</p> <p>⁵Large-tooth (freshwater) sawfish pupping occurs from January to May (DCCEEW, 2024b15).</p> <p>⁶Green turtle nesting Ashmore Reef Stock- year-round (peak: December- January) (CoA, 2017).</p> <p>⁷Green turtle nesting Scott Reef-Browse Island Stock November- March (CoA, 2017).</p> <p>⁸Green turtle nesting NWS Stock November- March (CoA, 2017).</p> <p>⁹Hawskbill turtle nesting Western Australia Stock October- February (CoA, 2017).</p> <p>¹⁰Flatback turtle nesting Cape Domett Stock- year-round (peak July- September) (CoA, 2017).</p> <p>¹¹Flatback turtle nesting South-west Kimberley Stock October- March (CoA, 2017).</p> <p>¹² Flatback turtle nesting Pilbara stock October- March (CoA, 2017).</p> <p>¹³Unknown stock nesting Kimberley May- July (CoA, 2017).</p> <p>¹⁴Loggerhead turtle nesting Western Australia stock November- May.</p> <p>¹⁵Fin whale presence NWMR May- October (Aulich et al., 2022). Migrating north from Cape Leewuin (SWMR) May- October. Present offshore Dampier August- October (Aulich et al., 2022).</p> <p>¹⁶Humpback whale northern migration. Range June- September (DCCEEW, 2024b15; TSSC, 2015b; DSEWPac, 2012a). Peak July- August (Salgado Kent et al. 2012).</p> <p>¹⁷Humpback whale southern migration. Range July- November. Peak August- October. (TSSC, 2015b; Irvine & Salgado Kent, 2019; Salgado Kent et al., 2012; DSEWPac, 2012a;</p> <p>¹⁸Humpback whale- reproduction (nursing, Kimberley coast) Winter (DCCEEW, 2024b15). Breeding August- September (DSEWPac, 2012a; TSSC, 2015b). Calves present off Kimberley in October (Thums et al., 2018).</p> <p>¹⁹Limited data however sightings reported year-round (Cerchio et al, 2019).</p>												

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Species	January	February	March	April	May	June	July	August	September	October	November	December
<p>²⁰ Pygmy blue whale northern migration April - August (DCCEEW, 2024b15; DSEWPaC, 2012a; McCauley et al., 2018; CoA, 2015a). Peak April- July (Thums et al., 2022)</p> <p>²¹ Pygmy blue whale southern migration October- December, possibly into January (DCCEEW, 2024b15; DSEWPaC, 2012a citing (McCauley and Jenner, 2010; McCauley et al., 2018; Thums et al., 2022; CoA, 2015a). Peak November - December (Thums et al., 2022).</p> <p>²² Southern right whale calving and migratory presence in Exmouth Gulf (NWMR) June to September with peak months July and August (DCCEEW, 2024a)</p> <p>All seabird seasonality information derived from BIA metadata, scientific publications and expert opinion (Worley, 2024).</p>												

10. KEY ECOLOGICAL FEATURES

Key ecological features (KEFs) are elements of the Commonwealth marine environment that are considered to be important for a marine region's biodiversity or ecosystem function and integrity. KEFs have been identified by the Australian Government based on advice from scientists about the ecological processes and characteristics of the area.

KEFs meet one or more of the following criteria:

- a species, group of species, or a community with a regionally important ecological role (e.g. a predator, prey that affects a large biomass or number of other marine species),
- a species, group of species or a community that is nationally or regionally important for biodiversity,
- an area or habitat that is nationally or regionally important for:
 - enhanced or high productivity (such as predictable upwellings – an upwelling occurs when cold nutrient-rich waters from the bottom of the ocean rise to the surface),
 - aggregations of marine life (such as feeding, resting, breeding or nursery areas), or
 - biodiversity and endemism (species which only occur in a specific area),
- a unique seafloor feature, with known or presumed ecological properties of regional significance.

Thirteen KEFs are designated within the NWMR, twelve KEFs within the SWMR and eight KEFs within the NMR. These KEFs have been identified in the Protected Matters search (**APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR**) and outlined in **Table 10-1, Table 10-2 and Table 10-3, and Figure 10-1, Figure 10-10-2 and Figure -10-3.**

Table 10-1 Key Ecological Features (KEF) within the NWMR.

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Carbonate bank and terrace system of the Sahul Shelf	✓	-	-	<p>Unique seafloor feature with ecological properties of regional significance</p> <p>Regionally important because of their role in enhancing biodiversity and local productivity relative to their surrounds. The carbonate banks and terraces provide areas of hard substrate in an otherwise soft sediment environment which are important for sessile species</p>	<p>The carbonate banks and terrace system of the Sahul Shelf are located in the western Joseph Bonaparte Gulf and to the north of Cape Bougainville and Cape Londonderry. The carbonate banks and terraces are part of a larger complex of banks and terraces that occurs on the Van Diemen Rise in the adjacent NMR.</p> <p>The bank and terrace system of the Van Diemen Rise covers approximately 31,278 km² and forms part of the larger system associated with the Sahul Banks to the north and Londonderry Rise to the east. The feature is characterised by terrace, banks, channels and valleys (DSEWPAC, 2012c). The banks, ridges and terraces of the Van Diemen Rise are raised geomorphic features with relatively high proportions of hard substrate that support sponge and octocoral gardens. These, in turn, provide habitat to other epifauna, by providing structure in an otherwise flat environment (Przeslawski et al., 2011). Plains and valleys are characterised by scattered epifauna and infauna that include polychaetes and ascidians. These epibenthic communities support higher order species such as olive ridley turtles, sea snakes and sharks (DSEWPAC, 2012c)</p>
Pinnacles of the Bonaparte Basin	✓	-	-	<p>Unique seafloor feature with ecological properties of regional significance</p> <p>Provide areas of hard substrate in an otherwise soft sediment environment and so are important for sessile species</p> <p>Recognised as a biodiversity hotspot for sponges</p> <p>The Pinnacles of the Bonaparte Basin KEF is located within both the NWMR and NMR (refer Table 10-3)</p>	<p>The Pinnacles of the Bonaparte Basin provide areas of hard substrate in an otherwise relatively featureless environment, the pinnacles are likely to support a high number of species, although a better understanding of the species richness and diversity associated with these structures is required (DSEWPAC, 2012a, 2012c). Covering >520 km² within the Bonaparte Basin, this feature contains the largest concentration of pinnacles along the Australian margin. The Pinnacles of the Bonaparte Basin are thought to be the eroded remnants of underlying strata; it is likely that the vertical walls generate local upwelling of nutrient-rich water, leading to phytoplankton productivity that attracts aggregations of planktivorous and predatory fish, seabirds, and foraging turtles (DSEWPAC, 2012a, 2012c)</p>
Ashmore Reef and Cartier Island and surrounding Commonwealth waters	✓	-	-	<p>High productivity, biodiversity and aggregation of marine life that apply to both the benthic and pelagic habitats within the feature</p>	<p>Ashmore Reef is the largest of only three emergent oceanic reefs present in the north-eastern Indian Ocean and is the only oceanic reef in the region with vegetated islands. Ashmore contains a large reef shelf, two large lagoons, several channelled carbonate sand flats, shifting sand cays, an extensive reef flat, three vegetated islands—East, Middle and West islands—and</p>

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KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
					surrounding waters. Rising from a depth of more than 100 m, the reef platform is at the edge of the NWS and covers an area of 239 km ² . Ashmore Reef and Cartier Island and the surrounding Commonwealth waters are regionally important for feeding and breeding aggregations of birds and other marine life; they are areas of enhanced primary productivity in an otherwise low-nutrient environment (DSEWPAC, 2012a). Ashmore Reef supports the highest number of coral species of any reef off the WA coast
Seringapatam Reef and the Commonwealth waters in the Scott Reef complex	✓	-	-	Support diverse aggregations of marine life, have high primary productivity relative to other parts of the region, are relatively pristine and have high species richness, which apply to both the benthic and pelagic habitats within the feature	Seringapatam Reef and the Commonwealth waters in the Scott Reef complex are regionally important in supporting the diverse aggregations of marine life, high primary productivity, and high species richness associated with the reefs themselves. As two of the few offshore reefs in the North-west, they provide an important biophysical environment in the region (DSEWPAC, 2012a)
Continental slope demersal fish communities	✓	✓	✓	High biodiversity of demersal fish assemblages, including high levels of endemism	The diversity of demersal fish assemblages on the continental slope in the Timor Province, the Northwest Transition and the North-west Province is high compared to elsewhere along the Australian continental slope (DSEWPAC, 2012a). The continental slope between North-west Cape and the Montebello Trough has more than 500 fish species, 76 of which are endemic, which makes it the most diverse slope bioregion in Australia (Last et al., 2005). The slope of the Timor Province and the Northwest Transition also contains more than 500 species of demersal fishes of which 64 are considered endemic (Last et al., 2005), making it the second richest area for demersal fishes throughout the whole continental slope. Demersal fish species occupy two distinct demersal biomes associated with the upper slope (225–500 m water depths) and the mid-slope (750–1000 m). Although poorly known, it is suggested that the demersal slope communities rely on bacteria and detritus-based systems comprised of infauna and epifauna, which in turn become prey for a range of teleost fishes, molluscs and crustaceans (Brewer et al., 2007). Higher-order consumers may include carnivorous fishes, deepwater sharks, large squid, and toothed whales (Brewer et al., 2007). Pelagic production is phytoplankton-based, with hot spots around oceanic reefs and islands (Brewer et al., 2007)

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Ancient coastline at 125 m depth contour	✓	✓	✓	<p>Unique seafloor feature with ecological properties of regional significance</p> <p>Provides areas of hard substrate and therefore may provide sites for higher diversity and enhanced species richness relative to surrounding areas of predominantly soft sediment</p>	<p>Several steps and terraces as a result of Holocene sea level changes occur in the region, with the most prominent of these features occurring as an escarpment along the NWMR and Sahul Shelf at a water depth of 125 m.</p> <p>The ancient coastline is not continuous throughout the NWMR and coincides with a well-documented eustatic stillstand at about 130 m depth worldwide (Falkner et al., 2009).</p> <p>Where the ancient coastline provides areas of hard substrate, it may contribute to higher diversity and enhanced species richness relative to soft sediment habitat (Falkner et al., 2009). Parts of the ancient coastline, represented as rocky escarpment, are considered to provide biologically important habitat in an area predominantly made up of soft sediment.</p> <p>The escarpment type features may also potentially facilitate mixing within the water column due to upwelling, providing a nutrient-rich environment. Although the ancient coastline adds additional habitat types to a representative system, the habitat types are not unique to the coastline as they are widespread on the upper shelf (Falkner et al., 2009)</p>
Canyons linking the Argo Abyssal Plain and Scott Plateau	-	✓	-	<p>Facilitates nutrient upwelling, creating enhanced productivity and encouraging diverse aggregations of marine life</p> <p>Likely to be important due to their historical association with sperm whale aggregations</p>	<p>Interactions with the Leeuwin Current and strong internal tides are thought to result in upwelling at the canyon heads, thus creating conditions for enhanced productivity in the region (Brewer et al., 2007). As a result, aggregations of whale sharks, manta rays, humpback whales, sea snakes, sharks, predatory fishes and seabirds are known to occur in the area due to its enhanced productivity (Sleeman et al., 2007)</p>
Glomar Shoal	-	✓	-	<p>An area of high productivity and aggregations of marine life including commercial and recreational fish species</p>	<p>Glomar Shoal is a submerged littoral feature located about 150 km north of Dampier on the Rowley shelf at depths of 33–77 m (Falkner et al., 2009). Studies by Abdul Wahab et al. (2018) found a number of hard coral and sponge species in water depths less than 40 m. One hundred and seventy (170) different species of fishes were detected with greatest species richness and abundance in shallow habitats (Abdul Wahab et al., 2018). Fish species present include a number of commercial and recreational species such as rankin cod, brown striped snapper, red emperor, crimson snapper, bream and yellow-spotted triggerfish (Falkner et al., 2009; Fletcher and Santoro, 2009). These species have recorded high catch rates associated with Glomar Shoal, indicating that the shoal is likely to be an area of high productivity</p>

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KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Mermaid Reef and Commonwealth waters surrounding Rowley Shoals	-	✓	-	Regionally important in supporting high species richness, higher productivity and aggregations of marine life	The Mermaid Reef and Commonwealth waters surrounding the Rowley Shoals KEF is adjacent to the three nautical mile State waters limit surrounding Clerke Reef and Imperieuse Reef, and include the Mermaid Reef Marine Park as described in Section 11 . The reefs provide a distinctive biophysical environment in the region. They have steep and distinct reef slopes and associated fish communities. In evolutionary terms, the reefs may play a role in supplying coral and fish larvae to reefs further south via the southward flowing Indonesian Throughflow. Both coral communities and fish assemblages differ from similar habitats in eastern Australia (<i>Done et al., 1994</i>)
Exmouth Plateau	-	✓	✓	Unique seafloor feature with ecological properties of regional significance, which apply to both benthic and pelagic habitats Likely to be an important area of biodiversity as it provides an extended area offshore for communities adapted to depths of approximately 1000 m	The Exmouth Plateau is a large, mid-slope, continental margin plateau that lies off the northwest coast of Australia. It ranges in depth from about 500 to more than 5000 m and is a major structural element of the Carnarvon Basin (Miyazaki and Stagg, 2013). The large size of the Exmouth Plateau and its expansive surface may modify deep water flow and be associated with the generation of internal tides; both of which may subsequently contribute to the upwelling of deeper, nutrient-rich waters closer to the surface (Brewer et al., 2007). Satellite observations suggest that productivity is enhanced along the northern and southern boundaries of the plateau (Brewer et al., 2007). Sediments on the plateau suggest that biological communities include scavengers, benthic filter feeders and epifauna (DSEWPAC, 2012a). Fauna in the pelagic waters above the plateau are likely to include small pelagic species and nekton attracted to seasonal upwellings, as well as larger predators such as billfishes, sharks and dolphins (Brewer et al., 2007). Protected and migratory species are also known to pass through the region, including whale sharks and cetaceans
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	-	-	✓	Unique seafloor feature with ecological properties of regional significance The feature creates an enhanced productivity environment, attracting aggregations of fish and higher-order consumers such as large predatory	The canyons are associated with upwelling as they channel deep water from the Cuvier Abyssal Plain up onto the slope, Exmouth Plateau and Ningaloo Reef. This nutrient-rich water interacts with the Leeuwin Current at the canyon heads (DSEWPAC, 2012a). Aggregations of whale sharks, manta rays, sea snakes, sharks, large predatory fish, and seabirds are known to occur in this area

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KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
				fish, sharks, toothed whales and dolphins	
Commonwealth waters adjacent to Ningaloo Reef	-	-	✓	High productivity and diverse aggregations of marine life The Commonwealth waters adjacent to Ningaloo Reef and associated canyons and plateaus are interconnected and support the high productivity and species richness of Ningaloo Reef. Ningaloo Reef is globally significant as it is the only extensive coral reef in the world that fringes the west coast of a continent	The Leeuwin and Ningaloo currents interact, leading to areas of enhanced productivity in the Commonwealth waters adjacent to Ningaloo Reef. Aggregations of whale sharks, manta rays, humpback whales, sea snakes, sharks, large predatory fish, and seabirds are known to occur in this area (DSEWPAC, 2012a). The spatial boundary of this KEF, as defined in the Australian Marine Spatial Information System, is defined as the waters contained in the existing Ningaloo AMP provided in Section 11
Wallaby Saddle	-	-	✓	High productivity and aggregations of marine life: Representing almost the entire area of this type of geomorphic feature in the NWMR. It is a unique habitat that neither occurs anywhere else nearby (within hundreds of kilometres) nor with as large an area (Falkner et al. 2009)	The Wallaby Saddle may be an area of enhanced productivity. Historical whaling records provide evidence of sperm whale aggregations in the area of the Wallaby Saddle, possibly due to the enhanced productivity of the area and aggregations of baitfish (DSEWPAC, 2012a)

¹ Values description sourced from Marine bioregional plan for the North-west Marine Region (DSEWPAC, 2012a) and the Department of Agriculture, Water and the Environment (DAWE) SPRAT database.

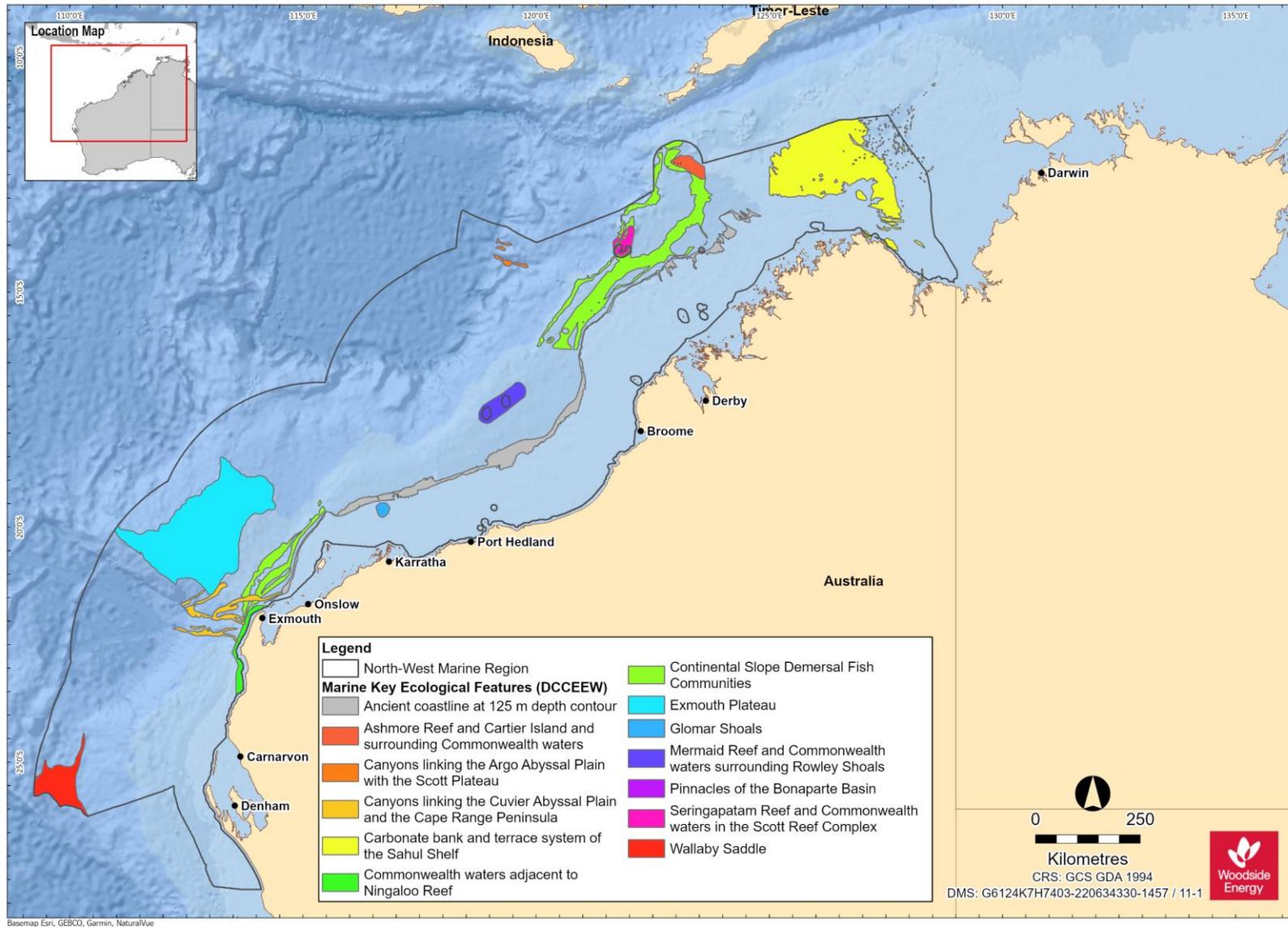


Figure 10-1 Key Ecological Features (KEFs) within the NWMR (data source: DCCEEW, 2024d)

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Table 10-2 Key Ecological Features (KEF) within the SWMR

KEF Name	Values ¹	Description
Albany Canyons group and adjacent shelf break	High productivity and aggregations of marine life, and unique seafloor feature with ecological properties of regional significance Both benthic and demersal habitats within the feature are of conservation value	The Albany Canyons group is thought to be associated with small, periodic subsurface upwelling events, which may drive localised regions of high productivity. The canyons are known to be a feeding area for sperm whale and sites of orange roughly aggregations. Anecdotal evidence also indicates that this area supports fish aggregations that attract large predatory fish and sharks
Ancient coastline at 90-120 m depth	Relatively high productivity and aggregations of marine life, and high levels of biodiversity and endemism The feature creates topographic complexity, that may facilitate benthic biodiversity and enhanced biological productivity	Benthic biodiversity and productivity occur where the ancient coastline forms a prominent escarpment, such as in the western Great Australian Bight, where the sea floor is dominated by sponge communities of significant biodiversity and structural complexity
Cape Mentelle upwelling	Facilitates nutrient upwelling, supporting high productivity and diverse aggregations of marine life	The Cape Mentelle upwelling draws relatively nutrient-rich water from the base of the Leeuwin Current, up the continental slope and onto the inner continental shelf, where it results in phytoplankton blooms at the surface. The phytoplankton blooms provide the basis for an extended food chain characterised by feeding aggregations of small pelagic fish, larger predatory fish, seabirds, dolphins and sharks
Commonwealth marine environment surrounding the Houtman Abrolhos Islands (and adjacent shelf break)	High levels of biodiversity and endemism within benthic and pelagic habitats	The Houtman Abrolhos Islands and surrounding reefs support a unique mix of temperate and tropical species, resulting from the southward transport of species by the Leeuwin Current over thousands of years. The Houtman Abrolhos Islands are the largest seabird breeding station in the eastern Indian Ocean. They support more than one million pairs of breeding seabirds
Commonwealth marine environment surrounding the Recherche Archipelago	Aggregations of marine life and high levels of biodiversity and endemism within benthic and demersal communities	The Recherche Archipelago is the most extensive area of reef in the SWMR. Its reef and seagrass habitat supports a high species diversity of warm temperate species, including 263 known species of fish, 347 known species of molluscs, 300 known species of sponges, and 242 known species of macroalgae. The islands also provide haul-out (resting areas) and breeding sites for Australian sea lions and New Zealand fur seals

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KEF Name	Values ¹	Description
Commonwealth marine environment within and adjacent to the west-coast inshore lagoons	High productivity and aggregations of marine life within benthic and pelagic habitats Important for benthic productivity and recruitment for a range of marine species	These lagoons are important for benthic productivity, including macroalgae and seagrass communities, and breeding and nursery aggregations for many temperate and tropical marine species. They are important areas for the recruitment of commercially and recreationally important fish species. Extensive schools of migratory fish visit the area annually, including herring, garfish, tailor and Australian salmon
Commonwealth marine environment within and adjacent to Geographe Bay	High productivity and aggregations of marine life, and high levels of biodiversity, recruitment within benthic and pelagic communities	Geographe Bay is known for its extensive beds of tropical and temperate seagrass that support a diversity of species, many of them not found anywhere else. The bay provides important nursery habitat for many species. Juvenile dusky whaler sharks use the shallow seagrass habitat as nursery grounds for several years, before ranging out to adult feeding grounds along the shelf break. The seagrass also provides valuable habitat for fish and invertebrates (Carruthers et al., 2007). It is also an important resting area for migratory humpback whales
Diamantina Fracture Zone	Unique seafloor feature with ecological properties of regional significance which apply to its benthic and demersal habitats	The Diamantina Fracture Zone is a rugged, deep-water environment of seamounts and numerous closely spaced troughs and ridges. Very little is known about the ecology of this remote, deep-water feature, but marine experts suggest that its size and physical complexity mean that it is likely to support deep-water communities characterised by high species diversity, with many species found nowhere else
Naturaliste Plateau	Unique seafloor feature with ecological properties of regional significance including high species diversity and endemism which apply to its benthic and demersal habitats	The Naturaliste Plateau is Australia's deepest temperate marginal plateau. The combination of its structural complexity, mixed water dynamics and relative isolation indicate that it supports deep-water communities with high species diversity and endemism
Perth Canyon and adjacent shelf break, and other west-coast canyons	An area of higher productivity that attracts feeding aggregations of deep-diving mammals and large predatory fish. It is also recognised as a unique seafloor feature with ecological properties of regional significance	The Perth Canyon is the largest known undersea canyon in Australian waters. Deep ocean currents rise to the surface, creating a nutrient-rich cold-water habitat attracting feeding aggregations of deep-diving mammals, such as pygmy blue whales and large predatory fish that feed on aggregations of small fish, krill and squid
Western demersal slope and associated fish communities of the Central Western Province	Provides important habitat for demersal fish communities and supports species groups that are nationally or regionally important to biodiversity	The western demersal slope provides important habitat for demersal fish communities, with a high level of diversity and endemism. A diverse assemblage of demersal fish species below a depth of 400 m is dominated by relatively small benthic species such as grenadiers, dogfish and cucumber fish. Unlike other slope fish communities in Australia, many of these species display unique physical adaptations to feed on the sea floor (such as a mouth position adapted to bottom feeding), and many do not appear to migrate vertically in their daily feeding habits
Western rock lobster	A species that plays a regionally important ecological role	This species is the dominant large benthic invertebrate in the region. The lobster plays an important trophic role in many of the inshore ecosystems of the SWMR. Western rock lobsters are an important part of the food web on the inner shelf, particularly as juveniles.

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KEF Name	Values ¹	Description
¹ . Values description sourced from Marine bioregional plan for the South-west Marine Region (DSEWPAC, 2012b) and the Department of Agriculture, Water and the Environment (DAWE) SPRAT database		

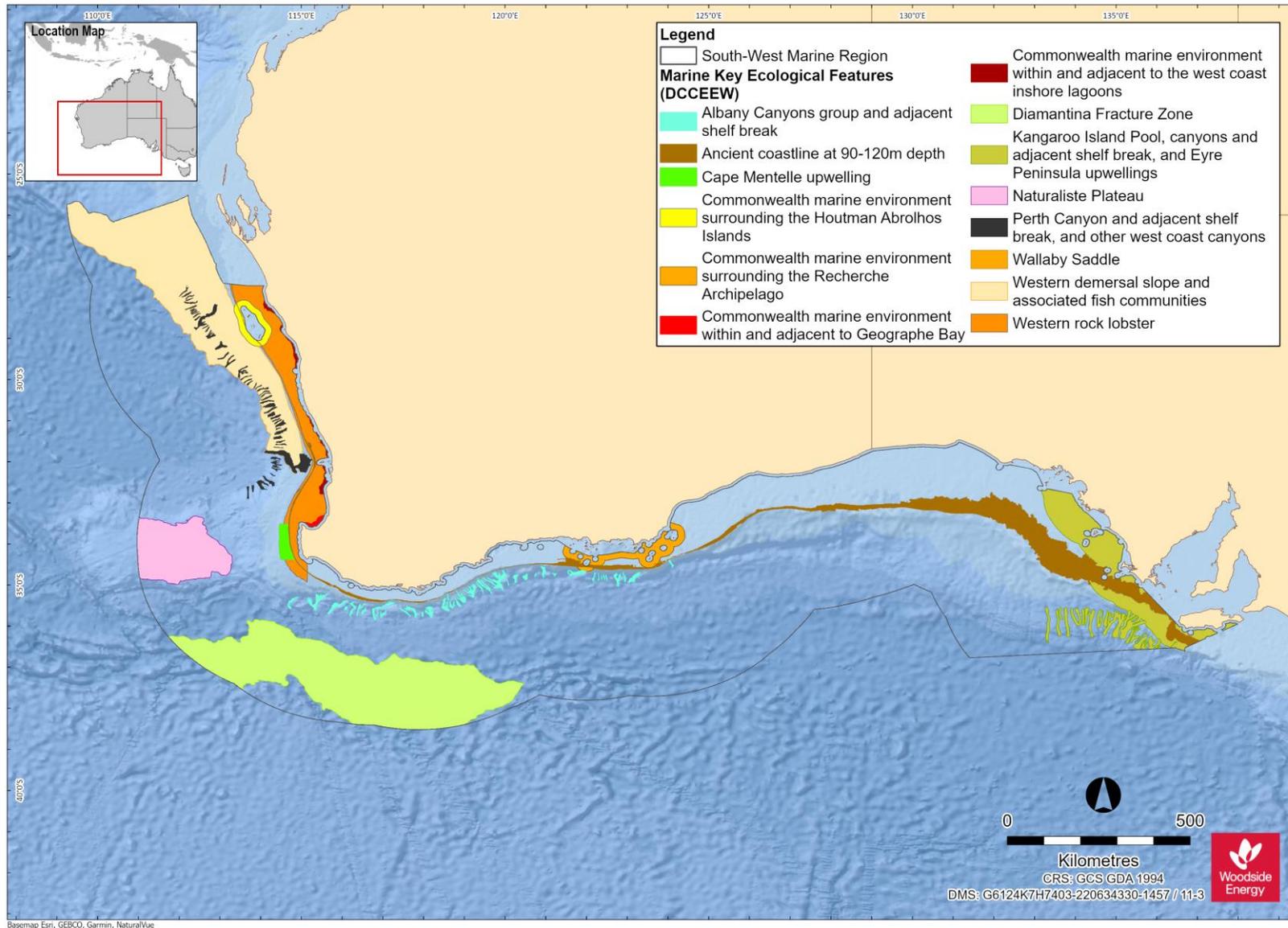


Figure 10-10-2. Key Ecological Features (KEFs) within the SWMR (data source: DCCEEW, 2024d)

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Table 10-3 Key Ecological Features (KEF) within the NMR

KEF Name	Values ¹	Description
Carbonate bank and terrace system of the Van Diemen Rise	Important for its role in enhancing biodiversity and local productivity relative to its surrounds and for supporting relatively high species diversity The feature has been identified as a sponge biodiversity hotspot (Przeslawski et al. 2014)	The bank and terrace system of the Van Diemen Rise is part of the larger system associated with the Sahul Banks to the north and Londonderry Rise to the east; it is characterised by terrace, banks, channels and valleys. The variability in water depth and substrate composition may contribute to the presence of unique ecosystems in the channels. Species present include sponges, soft corals and other sessile filter feeders associated with hard substrate sediments of the deep channels; epifauna and infauna include polychaetes and ascidians. Olive ridley turtles, sea snakes and sharks are also found associated with this feature
Gulf of Carpentaria basin	Regional importance for biodiversity, endemism and aggregations of marine life relevant to benthic and pelagic habitats	The Gulf of Carpentaria basin is one of the few remaining near-pristine marine environments in the world. Primary productivity in the Gulf of Carpentaria basin is mainly driven by cyanobacteria that fix nitrogen but is also strongly influenced by seasonal processes. The soft sediments of the basin are characterised by moderately abundant and diverse communities of infauna and mobile epifauna dominated by polychaetes, crustaceans, molluscs, and echinoderms. The basin also supports assemblages of pelagic fish species including planktivorous and schooling fish, with top predators such as shark, snapper, tuna, and mackerel
Gulf of Carpentaria coastal zone	High productivity, aggregations of marine life (including several endemic species) and high biodiversity compared to broader region	Nutrient inflow from rivers adjacent to the NMR generates higher productivity and more diverse and abundant biota within the Gulf of Carpentaria coastal zone than elsewhere in the region. The coastal zone is near pristine and supports many protected species such as marine turtles, dugongs, and sawfishes. Ecosystem processes and connectivity remain intact; river flows are mostly uninterrupted by artificial barriers and healthy, diverse estuarine and coastal ecosystems support many species that move between freshwater and saltwater environments
Pinnacles of the Bonaparte Basin	Unique seafloor feature with ecological properties of regional significance Provide areas of hard substrate in an otherwise soft sediment environment and so are important for sessile species Recognised as a biodiversity hotspot for sponges The Pinnacles of the Bonaparte Basin KEF is located within both the NWMR and NMR (refer Table 10-1)	Covering more than 520 km ² within the Bonaparte Basin, this feature contains the largest concentration of pinnacles along the Australian margin. The Pinnacles of the Bonaparte Basin are thought to be the eroded remnants of underlying strata; it is likely that the vertical walls generate local upwelling of nutrient-rich water, leading to phytoplankton productivity that attracts aggregations of planktivorous and predatory fish, seabirds and foraging turtles

KEF Name	Values ¹	Description
Plateaux and saddle north-west of the Wellesley Islands	High species abundance, diversity and endemism of marine life	Abundance and species density are high in the plateaux and saddle as a result of increased biological productivity associated with habitats rather than currents. Submerged reefs support corals that are typical of northern Australia, including corals that have bleach-resistant zooxanthellae; and particular reef fish species that are different to those found elsewhere in the Gulf of Carpentaria. Species present include marine turtles and reef fish such as coral trout, cod, mackerel, and shark. Seabirds frequent the plateaux and saddle, most likely due to the presence of predictable food resources for feeding offspring
Shelf break and slope of the Arafura Shelf	The shelf break and slope of the Arafura Shelf is defined as a key ecological feature for its ecological significance associated with productivity emanating from the slope It also forms part of a unique biogeographic province (Last et al., 2005)	The shelf break and slope of the Arafura Shelf is characterised by continental slope and patch reefs and hard substrate pinnacles. The ecosystem processes of the feature are largely unknown in the region; however, the Indonesian Throughflow and surface wind-driven circulation are likely to influence nutrients, pelagic dispersal and species and biological productivity in the region. Biota associated with the feature is largely of Timor–Indonesian Malay affinity
Submerged coral reefs of the Gulf of Carpentaria	High aggregations of marine life, biodiversity and endemism Twenty per cent of the reefs found in the NMR are situated within this KEF (Harris et al., 2007)	The submerged coral reefs of the Gulf of Carpentaria are characterised by submerged patch, platform and barrier reefs that form a broken margin around the perimeter of the Gulf of Carpentaria basin, rising from the sea floor at depths of 30–50 m. These reefs provide breeding and aggregation areas for many fish species including mackerel and snapper and offer refuges for sea snakes and apex predators such as sharks. Coral trout species that inhabit the submerged reefs are smaller than those found in the Great Barrier Reef and may prove to be an endemic sub-species
Tributary Canyons of the Arafura Depression	High productivity and high levels of species diversity and endemism of marine life within the benthic and pelagic habitats of the feature	The tributary canyons are approximately 80–100 m deep and 20 km wide. The largest of the canyons extend some 400 km from Cape Wessel into the Arafura Depression, and are the remnants of a drowned river system that existed during the Pleistocene era. Sediments in this feature are mainly calcium-carbonate rich, although sediment type varies from sandy substrate to soft muddy sediments and hard, rocky substrate. Marine turtles, deep sea sponges, barnacles and stalked crinoids have all been identified in the area

¹. Values description sourced from *Marine bioregional plan for the North Marine Region (DSEWPAC, 2012c)* and *Department of Agriculture, Water and the Environment (DAWE) SPRAT database*.

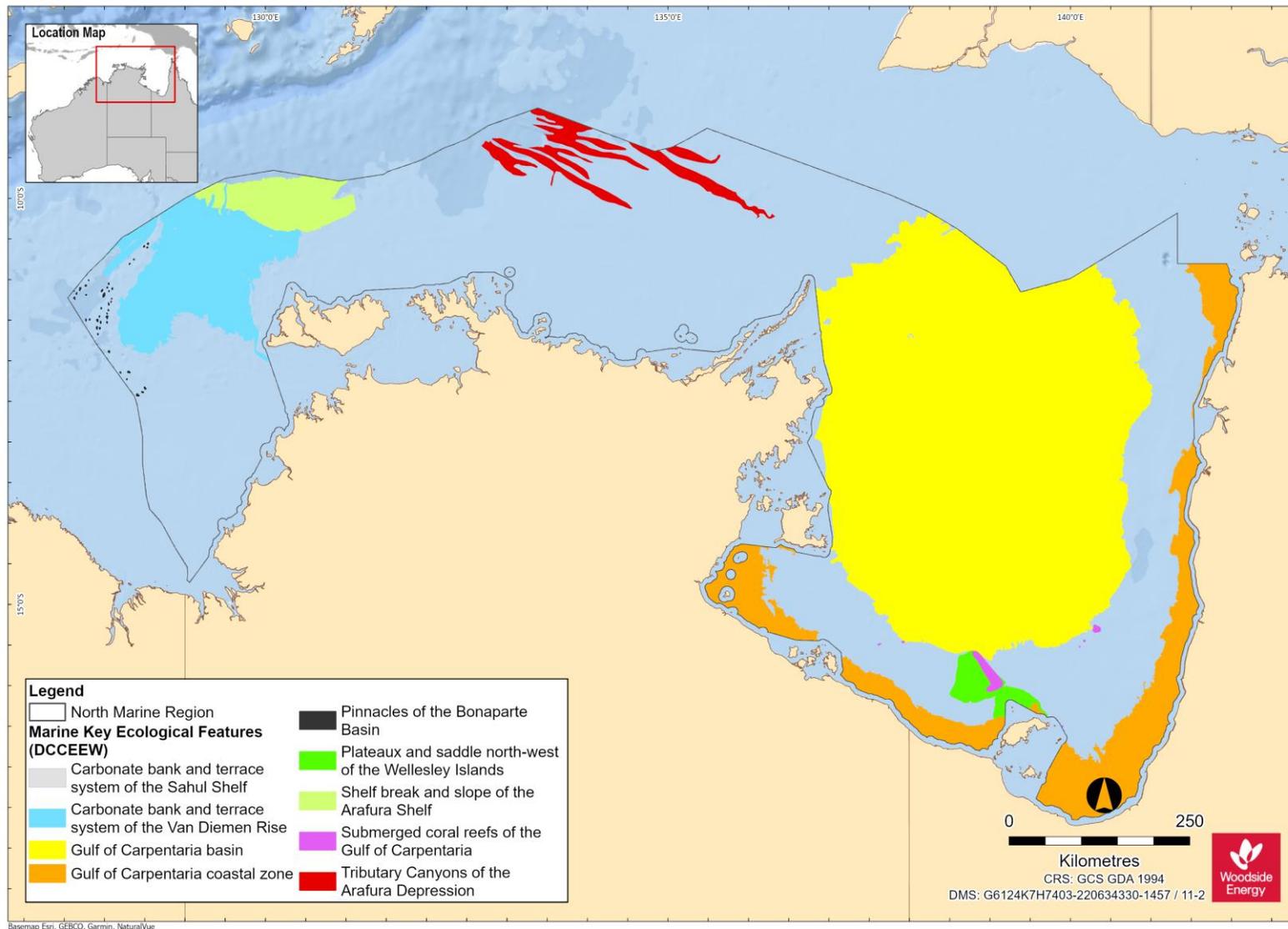


Figure -10-3. Key Ecological Features (KEFs) within the NMR (data source: DCCEEW, 2024d)

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11. PROTECTED AREAS

11.1 Regional Context

Protected areas include World Heritage Properties, National Heritage Places, Wetlands of International Importance, Australian Marine Parks, State Marine Parks and Reserves, Threatened Ecological Communities and the Australian Whale Sanctuary. The PMST Reports (**APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR**) show that there are 29 protected areas found in the NWMR, 18 in the SWMR and 9 in the NMR.

Australian Marine Parks are outlined in, **Table 11-1, Table 11-3 and Table 11-4**. All other protected areas of each of the marine regions NWMR, SWMR and NMR are outlined in **Table 11-6, Table 11-7 and Table 11-8**, respectively.

11.2 World Heritage Properties

World Heritage listings are sites of outstanding universal value and meet at least 10 selection criteria, compiled of cultural and natural basis criteria. World Heritage listings classed as meeting outstanding natural criteria are discussed in this section and World Heritage sites classed as meeting outstanding cultural criteria are discussed in **Section 12**.

The list of Australia's World Heritage Properties and the PMST Reports (**APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR**) show two World Heritage Properties within the NWMR (**Table 11-6**), one World Heritage Property within the SWMR (**Table 11-7**), and though not reported in the NMR PMST Report, Kakadu National Park World Heritage Area is included in **Table 11-8**.

11.3 National and Commonwealth Heritage Places— Natural

The National Heritage List is Australia's list of natural, historic, and Indigenous places of outstanding significance to the nation. The National Heritage List Spatial Database describes the place name, class (Indigenous, natural, historic), and status. Commonwealth Heritage Places are a collection of sites recognised for their Indigenous, historical and/or natural values which are owned or controlled by the Australian Government.

Only National and Commonwealth Heritage Places classed as natural are discussed in this section. Heritage Places classed as Indigenous or historic are discussed in **Section 12**.

A search of the National Heritage List Spatial Database and the PMST Reports (**APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR**) identified three natural National Heritage Places in the NWMR (**Table 11-6**), one in the SWMR (**Table 11-7**) and for the NMR, Kakadu National Park (not included in the PMST report) is included in **Table 11-8**.

A search of the Commonwealth Heritage List identified six natural commonwealth heritage places within the NWMR (**Table 11-6**) and one within the SWMR (**Table 11-7**).

11.4 Wetlands of International Importance (listed under the Ramsar Convention)

Australia has 65 Ramsar wetlands that cover >8.3 million ha. Ramsar wetlands are those that are representative, rare, or unique wetlands, or that are important for conserving biological diversity.

The List of Wetlands of International Importance held under the Ramsar Convention and the PMST Reports (**APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR**) identified four Ramsar Sites with coastal features within the NWMR (**Table 11-6**), five in the SWMR (**Table 11-7**) and two for the Northern Territory, included for the NMR (not included in the PMST report) (**Table 11-8**).

11.5 Australian Marine Parks

Australian Marine Parks (AMPs), proclaimed under the EPBC Act in 2007 and 2013, are located in Commonwealth waters from the outer edge of State and Territory waters (3 nm) to the outer boundary of Australia's EEZ 200 nm from the shore.

PMST Reports (**APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR) show 16 AMPs within the NWMR, 10 within the SWMR and eight within the NMR. These are displayed in **Figure 11-1**, Error! Reference source not found. and Error! Reference source not found. respectively.

The values of all marine parks identified in the North-West, South-West and North Marine Network management plans are described in **Table 11-1**, **Table 11-3** and **Table 11-4**, respectively.

There are also two AMPs in the Indian Ocean territories. These are the Cocos (Keeling) Islands Marine Park and the Christmas Island Marine Park (**Table 11-2**, **Figure 11-1**) (Commonwealth of Australia, 2021).

11.5.1 North West Marine Parks Network

Table 11-1 describes Australian Marine Parks within the North West Marine Park Network, according to the North West Marine Parks Network Management Plan 2018 (DNP, 2018a).

Table 11-1 Summary of Commonwealth Australian Marine Parks (AMPs) in the North West Marine Park Network

North West Marine Park Network	IUCN zones	Description and Values
Argo-Rowley Terrace Marine Park	National Park (II) Multiple use (VI) Special Purpose Zone (Trawl) (VI)	<p>Description The Argo–Rowley Terrace Marine Park is located approximately 270 km North-west of Broome, Western Australia, and extends to the limit of Australia’s exclusive economic zone. This AMP covers an area of 146,003 km² and water depths between 220 m and 6000 m, protecting ecological communities in the deep offshore region. The AMP provides connectivity between the Mermaid Reef Marine Park and WA Rowley Shoals Marine Park.</p> <p>Natural values The Marine Park includes ecosystems representative of:</p> <ul style="list-style-type: none"> • Northwest Transition—an area of shelf break, continental slope, and the majority of the Argo Abyssal Plain. Key topographic features include Mermaid, Clerke and Imperieuse Reefs; • Timor Province—an area dominated by warm, nutrient-poor waters. Canyons are an important feature in this area of the Marine Park and are generally associated with high productivity and aggregations of marine life. <p>Key ecological features:</p> <ul style="list-style-type: none"> • Canyons linking the Argo Abyssal Plain with the Scott Plateau; and • Mermaid Reef and Commonwealth waters surrounding Rowley Shoals. <p>The Marine Park includes a range of seafloor features such as canyons on the slope between the Argo Abyssal Plain, Rowley Terrace and Scott Plateau. These are believed to be up to 50 million years old and are associated with small, periodic upwellings that results in localised higher levels of biological productivity. The Marine Park includes species listed under the EPBC Act. Biologically important areas within the Marine Park include resting and breeding habitat for seabirds and a migratory pathway for the pygmy blue whale.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. As noted in the ‘North West Marine Park Management Plan’, limited information regarding the cultural significance of this marine park is currently available (DNP, 2018a).</p> <p>Heritage values There are no international, Commonwealth or national heritage listings relevant to the Argo-Rowley Terrace Marine Park. The Marine Park contains two known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>: <i>Alfred</i> (wrecked in 1908) and <i>Pelsart</i> (wrecked in 1908).</p> <p>Social and economic values Socio-economic values of this Marine Park include commercial fishing and mining.</p>

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North West Marine Park Network	IUCN zones	Description and Values
Ashmore Reef Marine Park	Sanctuary (Ia) Recreational Use (IV)	<p>Description The Ashmore Reef Marine Park is located approximately 630 km north of Broome and 110 km south of the Indonesian island of Roti. The Marine Park is located in Australia's External Territory of Ashmore and Cartier Islands. It is within an area subject to a Memorandum of Understanding (MoU) between Indonesia and Australia, known as the MoU Box. The Marine Park covers an area of 583 km² and water depths from less than 15 m to 500 m.</p> <p>Natural values The Ashmore Reef Marine Park includes ecosystems representative of the Timor Province—a bioregion with a depth range from about 200 m near the shelf break to 5,920 m over the Argo Abyssal Plain. Ashmore Reef is an important feature of the bioregion. There are two distinct demersal fish communities: one on the upper slope, the other mid slope. The marine environment includes two extensive lagoons, sand flats, shifting sand cays, extensive reef flat and large areas of seagrass. The reef ecosystems are comprised of hard and soft corals, gorgonians, sponges and a range of encrusting organisms, with the highest number of coral species of any reef off the Western Australian coast. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within the Marine Park include breeding, foraging and resting habitat for seabirds, resting and foraging habitat for migratory shorebirds, foraging, mating, nesting and internesting habitat for marine turtles, foraging habitat for dugong, and a migratory pathway for pygmy blue whales. The Ashmore Reef Ramsar site includes the largest of the atolls in the region. West Island, Middle Island and East Island represent the only vegetated islands in the region. The site supports internationally significant populations of seabirds and shorebirds, is important for turtles (green, hawksbill and loggerhead) and dugong, and has the highest diversity of hermatypic (reef-building) corals on the West Australian coast. It is known for its abundance and diversity of sea snakes, although populations at Ashmore Reef have been in decline since 1998. Key ecological features:</p> <ul style="list-style-type: none"> • Ashmore Reef and Cartier Island and surrounding Commonwealth waters; and • Continental slope demersal fish communities—an area of high-diversity demersal fish assemblages. <p>Cultural values Sea country is valued for Indigenous Australians cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. As noted in the 'North West Marine Park Management Plan', there is limited information about the cultural significance of this Marine Park (DNP, 2018a). This Marine Park is valued in Indonesian culture as it contains Indonesian artefacts and grave sites. Ashmore lagoon is still accessed as a rest or staging area for traditional Indonesian fishers travelling to and from fishing grounds within the MoU Box.</p> <p>Heritage values Ashmore Reef is a Commonwealth Heritage listed site, meeting criteria A, B and C.</p> <p>Social and economic values Tourism, recreation and scientific research are important activities in this Marine Park.</p>
Carnarvon Canyon Marine Park	Habitat Protection (IV)	<p>Description The Carnarvon Canyon Marine Park is located approximately 300 km North-west of Carnarvon. It covers an area of 6177 km² and a water depth range of 1,500–6,000 m.</p>

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North West Marine Park Network	IUCN zones	Description and Values
		<p>Natural values This Marine Park includes ecosystems representative of the Central Western Transition—a bioregion characterised by large areas of continental slope, a range of topographic features such as terraces, rises and canyons, seasonal and sporadic upwelling, and benthic slope communities. It includes the Carnarvon Canyon, a single-channel canyon covering the entire depth range of this Marine Park. Ecosystems of this Marine Park are influenced by tropical and temperate currents, deep-water environments and proximity to the continental slope and shelf. The soft-bottom environment at the base of the Carnarvon Canyon is likely to support deep seafloor species (e.g. holothurians, polychaetes and sea-pens). This Marine Park supports a range of species listed under the EPBC Act.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to the Marine Park.</p> <p>Social and economic values Commercial fishing is an important activity in the Marine Park.</p>
Cartier Island Marine Park	Sanctuary (1a)	<p>Description The Cartier Island Marine Park is located approximately 45 km south-east of Ashmore Reef Marine Park and 610 km north of Broome, Western Australia. Both Marine Parks are in Australia’s External Territory of Ashmore and Cartier Islands and are also within an area subject to a Memorandum of Understanding (MoU) between Indonesia and Australia, known as the MoU Box. The Cartier Island Marine Park covers an area of 172 km² and water depths from less than 15 m to 500 m.</p> <p>Natural values This Marine Park includes ecosystems representative of the Timor Province—a bioregion with a depth range from about 200 m near the shelf break to 5,920 m over the Argo Abyssal Plain. The reefs and islands of this bioregion are regarded as biodiversity hotspots. Key ecological features: <ul style="list-style-type: none"> • Ashmore Reef and Cartier Island and surrounding Commonwealth waters; and • Continental slope demersal fish communities. There are two distinct demersal fish communities of the continental slope: one on the upper slope, the other mid slope. This Marine Park includes an unvegetated sand island (Cartier Island), mature reef flat, a small, submerged pinnacle (Wave Governor Bank), and two shallow pools to the North-east of the island. It is also an area of high diversity and abundance of hard and soft corals, gorgonians (sea fans), sponges and a range of encrusting organisms. The reef crests are generally algal dominated, while the reef flats feature ridges of coral rubble and large areas of seagrass. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding and foraging habitat for seabirds, interbreeding, nesting and foraging habitat for marine turtles and foraging habitat for whale sharks. This Marine Park is internationally significant for its abundance and diversity of sea snakes.</p>

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North West Marine Park Network	IUCN zones	Description and Values
		<p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. As noted in the 'North-west Marine Park Management Plan', there is limited information about the cultural significance of this Marine Park (DNP, 2018a).</p> <p>Heritage values This Marine Park contains one known shipwreck listed under the <i>Historic Shipwrecks Act 1976</i>: the <i>Ann Millicent</i> (wrecked in 1888). No international or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Scientific research is an important activity in this Marine Park.</p>
Dampier Marine Park	National Park (II) Habitat Protection (IV) Multiple Use (VI)	<p>Description The Dampier Marine Park is located approximately 10 km North-east of Cape Lambert and 40 km from Dampier, extending from the Western Australian state water boundary. This Marine Park covers an area of 1252 km² and a water depth range between less than 15 m and 70 m.</p> <p>Natural values This Marine Park includes ecosystems representative of the Northwest Shelf Province—a dynamic environment influenced by strong tides, cyclonic storms, long-period swells and internal tides. The bioregion includes diverse benthic and pelagic fish communities, and ancient coastline thought to be an important seafloor feature and migratory pathway for humpback whales. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding and foraging habitat for seabirds, internesting habitat for marine turtles and a migratory pathway for humpback whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Ngarluma, Yindjibarndi, Yaburara, and Mardudhunera people have responsibilities for sea country in this Marine Park. The native title holders for these people are represented by the Ngarluma Aboriginal Corporation and Yindjibarndi Aboriginal Corporation. These Prescribed Bodies Corporate represent traditional owners with native title over coastal areas adjacent to this Marine Park. The Yamatji Marlpa Aboriginal Corporation is the Native Title Representative Body for the Pilbara and Yamatji regions.</p> <p>Heritage values No international, Commonwealth or national listings apply to this Marine Park, however the Marine Park is approximately 10 km north of the Dampier Archipelago (including Burrup Peninsula) national heritage listing, which has significant Indigenous heritage values including rock art sites.</p> <p>Social and economic values Port activities, commercial fishing and recreation, including fishing, are important activities in this Marine Park.</p>

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North West Marine Park Network	IUCN zones	Description and Values
Eighty Mile Beach Marine Park	Multiple Use (VI)	<p>Description The Eighty Mile Beach Marine Park is located approximately 74 km North-east of Port Hedland, adjacent to the Western Australian Eighty Mile Beach Marine Park. This Marine Park covers an area of 10,785 km² and water depth ranges between less than 15 m and 70 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the Northwest Shelf Province—a dynamic environment influenced by strong tides, cyclonic storms, long-period swells and internal tides. The bioregion includes diverse benthic and pelagic fish communities, and ancient coastline thought to be an important seafloor feature and migratory pathway for humpback whales. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding, foraging and resting habitat for seabirds, internesting and nesting habitat for marine turtles, foraging, nursing and pupping habitat for sawfish and a migratory pathway for humpback whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The sea country of the Nyangumarta, Karajarri and Ngarla people extends into the Eighty Mile Beach Marine Park. Sea country is culturally significant and important to their identity. They have an unbroken, deep spiritual connection to their sea country, with traditional practices continuing today. Staple foods of living cultural value for the Nyangumarta, Karajarri and Ngarla people include saltwater fish, turtles, dugong, crabs and oysters. Access to sea country by families is important for cultural traditions, livelihoods and future socio-economic development opportunities. The native title holders for the Nyangumarta, Karajarri and Ngarla people are represented by the Karajarri Aboriginal Corporation, Nyangumarta Karajarri Aboriginal Corporation, Nyangumarta Warrarn Aboriginal Corporation, and Wanparta Aboriginal Corporation. These Prescribed Body Corporates represent traditional owners with native title over coastal area adjacent to the Marine Park. They are the points of contact for their respective areas of responsibility for sea country in the Marine Park. The Kimberley Land Council and the Yamatji Marlpa Aboriginal Corporation are the Native Title Representative Bodies for Kimberley and Pilbara regions.</p> <p>Heritage values This Marine Park contains three known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>: <i>Lorna Doone</i> (wrecked in 1923), <i>Nellie</i> (wrecked in 1908), and <i>Tifera</i> (wrecked in 1923). No international, Commonwealth or national listings apply to the Marine Park.</p> <p>Social and economic values Tourism, commercial fishing, pearling and recreation are important activities in this Marine Park.</p>
Gascoyne Marine Park	National Park (II) Habitat Protection (IV) Multiple Use (VI)	<p>Description The Gascoyne Marine Park is located approximately 20 km off the west coast of the Cape Range Peninsula, adjacent to the Ningaloo Reef Marine Park and the Western Australian Ningaloo Marine Park and extends to the limit of Australia’s exclusive economic zone. This Marine Park covers an area of 81,766 km² and water depth varies between 15 m and 6,000 m.</p>

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North West Marine Park Network	IUCN zones	Description and Values
		<p>Natural values This Marine Park includes ecosystems representative of:</p> <ul style="list-style-type: none"> • Central Western Shelf Transition—continental shelf with water depths up to 100 m, and a significant transition zone between tropical and temperate species; • Central Western Transition—characterised by large areas of continental slope, a range of topographic features such as terraces, rises and canyons, seasonal and sporadic upwelling, benthic slope communities comprising tropical and temperate species; and • Northwest Province—an area of continental slope comprising diverse and endemic fish communities. <p>Key ecological features:</p> <ul style="list-style-type: none"> • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula; • Commonwealth waters adjacent to Ningaloo Reef; • Continental slope demersal fish communities; and • Exmouth Plateau. <p>Ecosystems represented in this Marine Park are influenced by the interaction of the Leeuwin Current, Leeuwin Undercurrent and the Ningaloo Current. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding habitat for seabirds, interbreeding habitat for marine turtles, a migratory pathway for humpback whales, and foraging habitat and migratory pathway for pygmy blue whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Gnulli people have responsibilities for sea country in this Marine Park. The Yamatji Marlpa Aboriginal Corporation is the Native Title Representative Body for the Yamatji region.</p> <p>Heritage values <i>World heritage</i> The Ningaloo Coast was listed as an area of outstanding universal value under the World Heritage Convention in 2011, meeting world heritage listing criteria vii and x. The Ningaloo Coast World Heritage Property is adjacent to the Marine Park. <i>Commonwealth heritage</i> The Ningaloo Marine Area (Commonwealth waters) meets the Commonwealth heritage listing criteria A, B and C. The Ningaloo Marine Area is adjacent to the Marine Park. <i>National heritage</i> The Ningaloo Coast meets the national heritage listing criteria A, B, C, D, and F and is adjacent to the Marine Park. <i>Historic shipwrecks</i> The Marine Park contains more than five known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>.</p> <p>Social and economic values Commercial fishing, mining and recreation are important activities in this Marine Park.</p>
Kimberley Marine Park	Habitat Protection (IV) National Park (II)	<p>Description The Kimberley Marine Park is located approximately 100 km north of Broome, extending from the Western Australian state water boundary north from the Lacepede Islands to the Holothuria Banks offshore from Cape Bougainville. This Marine Park is</p>

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North West Marine Park Network	IUCN zones	Description and Values
		<p>The Wunambal Gaambera, Dambimangari and Bardi Jawi people consider that these values extend into the Kimberley Marine Park. The Wanjina Wunggurr is law of the Wunambal Gaambera and Dambimangari people and it is recognised that all of the sea country, land, plants and animals were put there by Wanjina Wunggurr. Under Wanjina Wunggurr law, the Wunambal Gaambera and Dambimangari people have a responsibility to manage country, to maintain the health of the country and all living things.</p> <p>The Wunambal Gaambera, Bardi Jawi, Mayala and the Nyul Nyul people have had native title determined over parts of their sea country included in this Marine Park. The native title holders for these people are represented by the Wunambal Gaambera Aboriginal Corporation, Bardi and Jawi Niimidiman Aboriginal Corporation and the Kimberley Land Council. These representative bodies are the points of contact for their respective areas of sea country for this Marine Park.</p> <p>The Kimberley Land Council is the Native Title Representative Body for the Kimberley region.</p> <p>Heritage values This Marine Park contains more than 40 known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>. No international, Commonwealth or national heritage listings apply to the Marine Park, however the Marine Park is adjacent to the national heritage place of the West Kimberley.</p> <p>Social and economic values Tourism, commercial fishing, mining, recreation, including fishing and traditional use, are important activities in this Marine Park.</p>
Mermaid Reef Marine Park	National Park (II)	<p>Description The Mermaid Reef Marine Park is located approximately 280 km North-west of Broome, adjacent to the Argo–Rowley Terrace Marine Park and approximately 13 km from the Western Australian Rowley Shoals Marine Park. This Marine Park covers an area of 540 km² and water depths from less than 15 m to 500 m.</p> <p>Mermaid Reef is one of three reefs forming the Rowley Shoals. The reefs of the Rowley Shoals are significant as they are considered ecological stepping stones for reef species originating in Indonesian/Western Pacific waters, are one of a few offshore reef systems on the North-west Shelf, and may also provide an upstream source for recruitment to reefs further south.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the Northwest Transition—an area of shelf break, continental slope, and the majority of the Argo Abyssal Plain. Together with Clerke Reef and Imperieuse Reef, Mermaid Reef is a biodiversity hotspot and key topographic feature of the Argo Abyssal Plain.</p> <p>A key ecological feature of this Marine Park is the Mermaid Reef and Commonwealth waters surrounding the Rowley Shoals. Ecosystems of this Marine Park are associated with emergent reef flat, deep reef flat, lagoon, and submerged sand habitats. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding habitat for seabirds and a migratory pathway for the pygmy blue whale.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. As noted in the 'North-west Marine Park Management Plan', there is limited information about the cultural significance of this Marine Park (DNP, 2018a).</p> <p>Heritage values No international or national listings apply to this Marine Park.</p> <p>Mermaid Reef–Rowley Shoals was established on the Commonwealth Heritage List in 2004, meeting Commonwealth heritage listing criteria A, B, C and D.</p>

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North West Marine Park Network	IUCN zones	Description and Values
		<p>This Marine Park contains one known shipwreck listed under the <i>Historic Shipwrecks Act 1976: Lively</i> (wrecked in 1810).</p> <p>Social and economic values Tourism, recreation, and scientific research are important activities in this Marine Park.</p>
Montebello Marine Park	Multiple Use (VI)	<p>Description The Montebello Marine Park is located offshore of Barrow Island and 80 km west of Dampier extending from the Western Australian State water boundary, and is adjacent to the Western Australian Barrow Island and Montebello Islands Marine Parks. This Marine Park covers an area of 3413 km² and water depths from less than 15 m to 150 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the Northwest Shelf Province—a dynamic environment influenced by strong tides, cyclonic storms, long-period swells and internal tides. The bioregion includes diverse benthic and pelagic fish communities. A key ecological feature of this Marine Park is the ancient coastline at the 125 m depth contour. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding habitat for seabirds, internesting, foraging, mating, and nesting habitat for marine turtles, a migratory pathway for humpback whales and foraging habitat for whale sharks.</p> <p>Cultural values The Yamatji Marpa Aboriginal Corporation is the Native Title Representative Body for the Pilbara region. Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. As noted in the 'North-west Marine Park Management Plan', there is limited information about the cultural significance of this Marine Park (DNP, 2018a).</p> <p>Heritage values No international, Commonwealth or national listings apply to this Marine Park, however this Marine Park is adjacent to the Western Australia Barrow Island and the Montebello– Barrow Island Marine Conservation Reserves which have been nominated for national heritage listing. This Marine Park contains two known shipwrecks listed under the <i>Historic Shipwrecks Act 1976: Trial</i> (wrecked in 1622), the earliest known shipwreck in Australian waters and <i>Tanami</i> (unknown date).</p> <p>Social and economic values Tourism, commercial fishing, mining and recreation are important activities in this Marine Park.</p>
Ningaloo Marine Park	National Park (II) Recreational Use (IV)	<p>Description The Ningaloo Marine Park stretches approximately 300 km along the west coast of the Cape Range Peninsula, and is adjacent to the Western Australian Ningaloo Marine Park and Gascoyne Marine Park. This Marine Park covers an area of 2,435 km² and a water depth range of 30 m to more than 500 m. This Marine Park provides connectivity between deeper offshore waters of the shelf break and coastal waters of the adjacent Western Australian Ningaloo Marine Park. It includes some of the most diverse continental slope habitats in Australia, including the continental slope area between North-west Cape and the Montebello Trough. Canyons in this Marine Park are important for sustaining the nutrient conditions that support the high diversity of Ningaloo Reef.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of:</p>

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North West Marine Park Network	IUCN zones	Description and Values
Roebuck Marine Park	Multiple Use (VI)	<p>Description The Roebuck Marine Park is located approximately 12 km offshore of Broome and is adjacent to the Western Australian Yawuru Nagulagun/Roebuck Bay Marine Park. This Marine Park covers an area of 304 km² and a water depth range of less than 15 m to 70 m. This Marine Park is adjacent to the Roebuck Bay Ramsar site, recognised as one of the most important areas for migratory shorebirds in Australia; and the Western Australian Yawuru Nagulagun/Roebuck Bay Marine Park, providing connectivity between offshore and inshore coastal waters of Roebuck Bay.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the Northwest Shelf Province—a dynamic environment influenced by strong tides, cyclonic storms, long-period swells and internal tides. The bioregion includes diverse benthic and pelagic fish communities, and ancient coastline thought to be an important seafloor feature and migratory pathway for humpback whales. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding and resting habitat for seabirds, foraging and interesting habitat for marine turtles, a migratory pathway for humpback whales and foraging habitat for dugong.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. Yawuru people have always recognised the waters of Roebuck Bay as nagula (Yawuru sea country), and have customary responsibilities to care for it. They have a deep spiritual connection to offshore landscapes from Bugarrigarra (creator beings), and believe that snake-like metaphysical beings inhabit the sea. Cultural sites in sea country are also a source of law. The Yawuru people harvest marine resources according to the six Yawuru seasons. They have harvested pearl shell for food and cultural purposes. Fish are a staple food source, and fishing a form of cultural expression, connecting people to their country, modelled on tradition and based in traditional law. Access to sea country by families is important to cultural traditions, livelihoods and future socio-economic development opportunities. The Yawuru Native Title Holders Aboriginal Corporation is the Prescribed Body Corporate representing traditional owners with native title over coastal areas adjacent to this Marine Park, and is the point of contact for sea country in this Marine Park. The Kimberley Land Council is the Native Title Representative Body for the Kimberley region.</p> <p>Heritage values No international, Commonwealth or national listings apply to the Marine Park, however it is adjacent to the West Kimberley National Heritage Place.</p> <p>Social and economic values Tourism, commercial fishing, pearling and recreation, including fishing, are important activities that occur in the Marine Park.</p>
	Multiple Use (VI)	Description

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North West Marine Park Network	IUCN zones	Description and Values
Shark Bay Marine Park		<p>The Shark Bay Marine Park is located approximately 60 km offshore of Carnarvon, adjacent to the Shark Bay world heritage property and national heritage place. This Marine Park covers an area of 7443 km², extending from the Western Australian State water boundary, and a water depth range between 15 m and 220 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of:</p> <ul style="list-style-type: none"> • Central Western Shelf—a predominantly flat, sandy and low-nutrient area, in water depths 50 – 100 m. The bioregion is a transitional zone between tropical and temperate species; and • Central Western Transition—characterised by large areas of continental slope, a range of topographic features such as terraces, rises and canyons, seasonal and sporadic upwelling, and benthic slope communities comprising tropical and temperate species. <p>Ecosystems represented in this Marine Park are influenced by the Leeuwin, Ningaloo and Capes currents. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding habitat for seabirds, internesting habitat for marine turtles, and a migratory pathway for humpback whales. This Marine Park and adjacent coastal areas are also important for shallow-water snapper.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Gnulli and Malgana people have responsibilities for sea country in this Marine Park. The Yamatji Marlpa Aboriginal Corporation is the Native Title Representative Body for the Yamatji region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park, but this Marine Park is adjacent to the Shark Bay, Western Australia World Heritage Property and Shark Bay, Western Australia National Heritage Place. The Marine Park contains approximately 20 known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>.</p> <p>Social and economic values Tourism, commercial fishing, mining and recreation, including fishing, are important activities in the Marine Park.</p>

11.5.2 Indian Ocean Territory

Error! Reference source not found. describes the values of the Indian Ocean territory Australian Marine Parks (Commonwealth of Australia, 2021)

Table 11-2 Summary of Commonwealth marine parks within Indian Ocean territories

Indian Ocean territory Marine Park	IUCN Zones	Values
Christmas Island Marine Park	National Park (II) Habitat Protection (IV)	<p>Description Christmas Island Marine Park covers an area of 277,016 km² and extends from the island's shoreline to the limit of Australia's exclusive economic zone, approximately 200 nm from shore (except to the north of Christmas Island). This marine park adjoins the marine boundary of Christmas Island National Park (CINP), which extends 50 m seaward from the island. Almost all the island's port is excluded from this marine park, except for a very small and narrow part of the port's western boundary.</p> <p>Natural values The tropical waters and fringing coral reefs that surround Christmas Island contain a mix of coral reef species from both the Indian and Pacific Oceans and over 680 species of fish have been recorded in the region. The overlap of these waters gives rise to varieties of hybrid marine fish and some endemic species. Christmas Island also has the world's greatest diversity and abundance of land crabs. The island's waters are essential for the crabs, as they migrate to the coast to breed and release their eggs into the ocean. This Marine Park contains a range of unique seafloor features, habitats and species, particularly seamounts and deep-sea plains. Biologically important areas include foraging areas for the endemic Abbott's booby, Christmas Island frigatebird and golden bosun and other seabirds that nest on Christmas Island, as well as whale shark feeding areas and southern bluefin tuna breeding habitat.</p> <p>Cultural values The ocean is a centrepiece of life for many community members, of Christmas Island including those of Malay and Chinese heritage who maintain strong cultural traditions and connections to the surrounding marine environment.</p> <p>Social and economic values This Marine Park is valued for fishing (commercial, recreational and subsistence), diving, snorkelling and tourism. There is potential for scientific study and educational activities.</p>
Cocos (Keeling) Islands Marine Park	National Park (II) Habitat Protection (IV)	<p>Description Cocos (Keeling) Islands are located around 2,750 km North-west of Perth and the Cocos (Keeling) Islands Marine Park covers a 467,054 km² area, extending from most of the islands' shoreline to the limit of the Australian exclusive economic zone, approximately 100 nm from shore. The Cocos (Keeling) islands are a group of 27 tropical low-lying coral islands.</p> <p>Natural values The central lagoon system and outer reefs are two of the islands' important habitats. The lagoon encompasses a variety of unique and distinct habitats. This includes seagrass, which is essential for the resident green turtle population (which is a genetically distinct stock that is unique to the islands) as well as for sustaining fish populations. The outer reef habitats are dominated by hard and soft corals and have a high abundance and diversity of reef fish and other species. The offshore waters contain a range of unique seafloor features, habitats, and species, particularly seamounts, deep-sea plains, and a significant deep-sea ridgeline. This Marine Park also protects the foraging habitat of nesting seabirds on North Keeling Island (Pulu Keeling National Park), as well as species such as dolphins, deep-sea fish and sharks that are or may be threatened elsewhere in the region.</p>

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Indian Ocean territory Marine Park	IUCN Zones	Values
		<p>Cultural values Most of the islands' community members are Cocos Malay, who maintain vibrant and unique cultural traditions including strong cultural connections to the surrounding marine environment. The lagoon and ocean are an important part of life for all community members living on the remote atoll.</p> <p>Social and economic values This Marine Park is valued for recreational and subsistence activities (i.e., fishing, boating, diving, snorkelling, kite surfing, and kayaking), tourism, scientific research, and educational activities.</p>

11.5.3 South-west Marine Parks Network

Table 11-3 describes the Australian Marine Parks within the South-west Marine Parks Network (South-west Network), according to the South West Marine Parks Network Management Plan 2018 (DNP, 2018b)

Table 11-3 Summary of Commonwealth Australia Marine Parks (AMP)s for the South West Marine Park Network

South West Marine Park Network	IUCN zones	Natural Values
Abrolhos Marine Park	National Park (II) Habitat Protection (IV) Multiple use (VI) Special Purpose Zone (Trawl) (VI)	<p>Description The Abrolhos Marine Park is located adjacent to the Western Australian Houtman Abrolhos Islands, covering a large offshore area extending from the Western Australian State water boundary to the edge of Australia’s exclusive economic zone. It is located approximately 27 km south-west of Geraldton and extends north to approximately 330 km west of Carnarvon. The northernmost part of the shelf component of the Marine Park, north of Kalbarri, is adjacent to the Shark Bay World Heritage Area. This Marine Park covers an area of 88,060 km² and a water depth range between less than 15 m and 6,000 m.</p> <p>Natural values This Marine Park includes ecosystems representative of:</p> <ul style="list-style-type: none"> • Central Western Province—characterised by a narrow continental slope incised by many submarine canyons and the most extensive area of continental rise in any of Australia’s marine regions. A significant feature within the area are several eddies that form off the Leeuwin Current at predictable locations, including west of the Houtman Abrolhos Islands; • Central Western Shelf Province— a predominantly flat, sandy and low nutrient area, in water depths between 50 and 100 m. Significant seafloor features of this area include a deep hole and associated area of banks and shoals offshore of Kalbarri. The area is a transitional zone between tropical and temperate species; • Central Western Transition—a deep ocean area characterised by large areas of continental slope, a range of significant seafloor features including the Wallaby Saddle, seasonal and sporadic upwelling, and benthic slope communities comprising tropical and temperate species; and • South-west Shelf Transition—a narrow continental shelf that is noted for its physical complexity. The Leeuwin Current has a significant influence on the biodiversity of this nearshore area as it pushes subtropical water southward along the area’s western edge. The area contains a diversity of tropical and temperate marine life including a large number of endemic fauna species. <p>Key ecological features:</p> <ul style="list-style-type: none"> • Commonwealth marine environment surrounding the Houtman Abrolhos Islands; • Demersal slope and associated fish communities of the Central Western Province; • Mesoscale eddies; • Perth Canyon and adjacent shelf break, and other west-coast canyons; • Western rock lobster; • Ancient coastline between 90 m and 120 m depth; and • Wallaby Saddle.

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South West Marine Park Network	IUCN zones	Natural Values
		<p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging and breeding habitat for seabirds, foraging habitat for Australian sea lions and white sharks, and a migratory pathway for humpback and pygmy blue whales. The Marine Park is adjacent to the northernmost Australian sea lion breeding colony in Australia on the Houtman Abrolhos Islands.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Nanda and Naaguja People have responsibilities for sea country in this Marine Park. Traditional owners have strong stories that connect ocean and land. Artefacts from ancestors are abundant on islands in the adjacent State marine park. The Yamatji Marpa Aboriginal Corporation is the Native Title Representative Body for the Yamatji region.</p> <p>Heritage values No international heritage listings apply to this Marine Park, however this Marine Park is adjacent to the Western Australian Shark Bay World Heritage Property, listed as an area of outstanding universal value under the World Heritage Convention in 1991, meeting world heritage listing criteria vii, viii, ix, and x. No Commonwealth or national heritage listings apply to this Marine Park ; however this Marine Park is adjacent to the Western Australian Shark Bay National Heritage Place. This Marine Park contains 11 known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>. The <i>Zuytdorp</i> (wrecked in 1712) historic shipwreck protected zone lies in State waters adjacent to the northernmost part of the shelf component of the Marine Park, north of Kalbarri. The <i>HMAS Sydney II</i> and <i>HSK Kormoran</i> Shipwreck Sites (1941) lie at 2,500 m depth about 75 km east of the northern part of the Marine Park. This site is on the National Heritage List and a historic shipwreck protected zone. The <i>Batavia</i> (wrecked on the adjacent Abrolhos Islands in 1629) Shipwreck Site and Survivor Camps Area are on the National Heritage List.</p> <p>Social and economic values Tourism, commercial fishing, mining, recreation including fishing, are important activities in the Marine Park.</p>
Bremer Marine Park	National Park Zone (II) Special Purpose Zone (Mining Exclusion) (VI)	<p>Description The Bremer Marine Park is located approximately half-way between Albany and Esperance, offshore from the Fitzgerald River National Park, extending from the Western Australian State water boundary. This Marine Park covers an area of 4,472 km² and water depths from 15 m to 5,000 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of:</p> <ul style="list-style-type: none"> • Southern Province—includes the deepest ocean areas of the Australian exclusive economic zone, reaching depths of around 5,900 m, and is characterised by a long continental slope incised by numerous, well-developed submarine canyons; and • South-west Shelf Province—marine life in this area is very diverse and likely influenced by the warm waters of the Leeuwin Current. The sheltered bays along the south coast are important southern right whale calving areas. <p>Key ecological features:</p> <ul style="list-style-type: none"> • Albany Canyon group and adjacent shelf break; and • Ancient coastline between 90 m and 120 m depth.

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South West Marine Park Network	IUCN zones	Natural Values
		<p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, Australian sea lions, and white sharks, a migratory pathway for humpback whales, and a significant calving area for southern right whales. This Marine Park includes canyons—important aggregation areas for killer whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Noongar people have responsibilities for sea country in this Marine Park. Local traditional owners recognise Kaart, Koort and Waarnginy (head, heart and talking) as bringing together the narratives and protocols that have been practiced for thousands of years and the kinship that influences all stages and cycles of life. Traditional owners have responsibility for cultural values and are focussed on the creation and regeneration of spiritual, ethical, cultural and practical benefits and opportunities for marine systems. The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Tourism, commercial fishing and recreation, including fishing, are important activities in this Marine Park.</p>
Eastern Recherche Marine Park	National Park Zone (II) Special Purpose Zone (VI)	<p>Description The Eastern Recherche Marine Park is located approximately 135 km east of Esperance, adjacent to the Recherche Archipelago, close to the Western Australian Cape Arid National Park. This Marine Park covers an area of 20,575 km², extending from the Western Australia State water boundary to the edge of Australia’s exclusive economic zone, and a water depth range from less than 15 m to 6,000 m.</p> <p>Natural values This Marine Park includes ecosystems representative of:</p> <ul style="list-style-type: none"> • South-west Shelf Province—marine life in this area is very diverse and likely influenced by the warm waters of the Leeuwin Current. It includes globally important biodiversity hotspots, such as the waters surrounding the Recherche Archipelago; • Southern Province—includes the deepest ocean areas of the Australian exclusive economic zone, reaching depths of around 5,900 m, and is characterised by a long continental slope, numerous, well-developed submarine canyons, and extensive mid-slope terraces; and • Great Australian Bight Shelf Transition—a vast and shallow area characterised by an extensive area of flat continental shelf. The invertebrate communities that inhabit the seafloor are among the most diverse in the world. The inshore areas of the bioregion are globally important for threatened southern right whale and the Australian sea lion. <p>Key ecological features:</p> <ul style="list-style-type: none"> • Mesoscale eddies; • Ancient coastline between 90 m and 120 m depth; and • Commonwealth marine environment surrounding the Recherche Archipelago.

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South West Marine Park Network	IUCN zones	Natural Values
		<p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, Australian sea lions and white sharks, and a calving buffer area for southern right whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Ngadju and Esperance Nyungar people have responsibilities for sea country in this Marine Park. Local traditional owners recognise Kaart, Koort and Waarnginy (head, heart and talking) as bringing together the narratives and protocols that have been practiced for thousands of years and the kinship that influences all stages and cycles of life. Traditional owners have responsibility for cultural values and are focussed on the creation and regeneration of spiritual, ethical, cultural and practical benefits and opportunities for marine systems. The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park. This Marine Park contains two known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>—<i>Rodondo</i> (wrecked in 1894) and <i>Star</i> (wrecked in 1879).</p> <p>Social and economic values Tourism, commercial fishing, mining and recreation, including fishing, are important activities in this Marine Park.</p>
Geographe Marine Park	National Park Zone (II) Habitat Protection (IV) Multiple Use (VI) Special Purpose (Mining Exclusion Zone) (VI)	<p>Description The Geographe Marine Park is located in Geographe Bay, approximately 8 km west of Bunbury and 8 km north of Busselton, adjacent to the Western Australian Ngari Capes Marine Park. This Marine Park covers an area of 977 km², extending from the Western Australian State water boundary, and a water depth range between 15 m and 70 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the South-west Shelf Province—an area of diverse marine life, influenced by the warm waters of the Leeuwin Current. The bioregion includes globally important biodiversity hotspots, such as the waters off Geographe Bay. Key ecological features:</p> <ul style="list-style-type: none"> • Commonwealth marine environment within and adjacent to Geographe Bay; and • Western rock lobster. <p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, a migratory pathway for humpback and pygmy blue whales, and a calving buffer area for southern right whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Noongar people have responsibility for sea country in this Marine Park. Traditional owners have maintained cultural responsibilities for sea country as passed down from elders, to keep the oceans healthy, to support spiritual wellbeing and to uphold and protect obligatory cultural responsibilities for future generations.</p>

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South West Marine Park Network	IUCN zones	Natural Values
		<p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Tourism, commercial fishing, and mining are important activities in this Marine Park.</p>
Jurien Marine Park	National Park Zone (II) Special Purpose (VI)	<p>Description The Jurien Marine Park is located approximately 148 km north of Perth and 155 km south of Geraldton, adjacent to the Western Australian Jurien Bay Marine Park. This Marine Park covers an area of 1,851 km² of continental shelf, extending from the Western Australian State water boundary, and a water depth range between 15 m and 220 m.</p> <p>Natural values This Marine Park includes ecosystems representative of:</p> <ul style="list-style-type: none"> • South-west Shelf Transition—consists of a narrow continental shelf that is noted for its physical complexity. The Leeuwin Current has a significant influence on the biodiversity of this nearshore area as it pushes subtropical water southward along the bioregion’s western edge. The area contains a diversity of tropical and temperate marine life including a large number of endemic fauna species; and • Central Western Province—this Marine Park includes a small component of this bioregion, characterised by a narrow continental slope and influenced by the Leeuwin Current. <p>Key ecological features:</p> <ul style="list-style-type: none"> • Ancient coastline between 90 m and 120 m depth; • Demersal slope and associated fish communities of the Central Western Province; and • Western rock lobster. <p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, Australian sea lions and white sharks, and a migratory pathway for humpback and pygmy blue whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Noongar people have responsibilities for sea country in this Marine Park. Traditional owners have strong stories that connect ocean and land. Artefacts from ancestors are abundant on islands in the adjacent State marine park. The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park. This Marine Park contains two known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>— <i>SS Cambewarra</i> (wrecked in 1914) and <i>Oleander</i> (wrecked in 1884).</p> <p>Social and economic values Tourism, commercial fishing, mining and recreation, including fishing, are important activities in this Marine Park.</p>
Murat Marine Park	National Park Zone (II)	Description

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South West Marine Park Network	IUCN zones	Natural Values
		<ul style="list-style-type: none"> • South-west Transition—significant features of this area include the submarine canyons that incise the northern parts of the slope and the deep-water mixing that results from the dynamics of major ocean currents when these meet the seafloor, particularly in the Perth Canyon; and • South-west Shelf Transition—consists of a narrow continental shelf that is noted for its physical complexity. The Leeuwin Current has a significant influence on the biodiversity of this nearshore area as it pushes subtropical water southward along the area’s western edge. The area contains a diversity of tropical and temperate marine life including many endemic fauna species. <p>Key ecological features:</p> <ul style="list-style-type: none"> • Perth Canyon and adjacent shelf break, and other west-coast canyons; • Demersal slope and associated fish communities of the Central Western Province; • Western rock lobster; and • Mesoscale eddies. <p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, Antarctic blue, pygmy blue and sperm whales, a migratory pathway for humpback, Antarctic blue and pygmy blue whales, and a calving buffer area for southern right whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Swan River traditional owners have responsibilities for sea country in this Marine Park. Traditional owners have maintained cultural responsibilities for sea country as passed down from elders, to keep the oceans healthy, to support spiritual wellbeing and to uphold and protect obligatory cultural responsibilities for future generations. The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Tourism, commercial shipping, commercial fishing, recreation, including fishing, and defence training are important activities in this Marine Park.</p>
Southern Kangaroo Island Marine Park	Special Purpose Zone (Mining Exclusion) (VI)	<p>Description The Southern Kangaroo Island Marine Park is located approximately 140 km south-west of Adelaide, adjacent to the South Australian Kangaroo Island Marine Park. This Marine Park covers an area of 630 km² extending from the South Australian State water boundary, and water depth ranges between 15 m and 100 m.</p> <p>Natural values The Marine Park includes examples of ecosystems representative of the Spencer Gulf Shelf. Seasonal winds and ocean currents interact with seafloor features to produce small seasonal upwellings that are important for biological productivity. The area is noted for its diverse seafloor communities, productivity hotspots and aggregations of marine life associated with seasonal upwellings of nutrient-rich water. A key ecological feature of this Marine Park is the Kangaroo Island Pool, canyons and adjacent shelf break, and Eyre Peninsula upwellings.</p>

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South West Marine Park Network	IUCN zones	Natural Values
		<p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, Australian sea lions and white sharks and a calving buffer area for southern right whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. South Australian Native Title Services is the Native Title Service Provider for the South Australian region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Tourism, commercial fishing and recreation are important activities in this Marine Park. The Kangaroo Island community values the island's unique qualities and character.</p>
South-west Corner Marine Park	National Park (II) Habitat Protection (IV) Multiple Use (VI) Special Purpose (VI) Special Purpose (Mining Exclusion)	<p>Description The South-west Corner Marine Park is located adjacent to the Western Australian Ngari Capes Marine Park, covering an extensive offshore area that is closest to Western Australia State waters approximately 48 km west of Esperance, 73 km west of Albany and 68 km west of Bunbury, and extends to the edge of Australia's exclusive economic zone. This Marine Park covers an area of 271,833 km² and a water depth range from less than 15 m to 6,400 m.</p> <p>Natural values This Marine Park includes ecosystems representative of:</p> <ul style="list-style-type: none"> • Southern Province—includes the deepest ocean areas of the Australian exclusive economic zone, reaching depths of around 5,900 m, and is characterised by a long continental slope incised by numerous, well-developed submarine canyons and the Diamantina Fracture Zone, a rugged area of deep seafloor comprising seamounts and many ridges and troughs. • South-west Transition—the main features of this area are the Naturaliste Plateau, the deepest submarine plateau along Australia's continental margins. The Naturaliste Plateau supports rich and diverse biological communities. Deep-water mixing results from the dynamics of major ocean currents when these meet the seafloor. • South-west Shelf Province—marine life in this area is diverse and influenced by the warm waters of the Leeuwin Current. A small upwelling of nutrient-rich water off Cape Mentelle during summer increases productivity locally, attracting aggregations of marine life. <p>Key ecological features:</p> <ul style="list-style-type: none"> • Albany Canyon group and adjacent shelf break; • Cape Mentelle upwelling; • Diamantina Fracture Zone; • Naturaliste Plateau; • Western rock lobster; and • Ancient coastline between 90 m and 120 m depth.

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South West Marine Park Network	IUCN zones	Natural Values
		<p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, Australian sea lions, white sharks and sperm whales, a migratory pathway for Antarctic blue, pygmy blue and humpback whales, and a calving buffer area for southern right whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Nyungar/Noongar people have responsibilities for sea country in this Marine Park. Traditional owners have maintained cultural responsibilities for sea country as passed down from elders, to keep the oceans healthy, to support spiritual wellbeing and to uphold and protect obligatory cultural responsibilities for future generations. The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to the Marine Park. This Marine Park contains 10 known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>.</p> <p>Social and economic values Tourism, commercial fishing, commercial shipping, and recreation, including fishing, are important activities in this Marine Park.</p>
Twilight Marine Park	National Park Zone (II) Special Purpose Zone (Mining Exclusion) (VI)	<p>Description The Twilight Marine Park is located approximately 245 km south-west of Eucla and 373 km north-east of Esperance, adjacent to the Western Australian State water boundary. This Marine Park covers an area of 4,641 km² and water depths between less than 15 m and 70 m.</p> <p>Natural values This Marine Park includes ecosystems representative of the Great Australian Bight Shelf Transition—a vast and shallow area characterised by an extensive area of flat continental shelf. There are diverse invertebrate communities inhabiting the seafloor. The inshore areas of the bioregion are globally important for the threatened southern right whale and the Australian sea lion. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, Australian sea lions and white sharks, and a calving buffer area for southern right whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Mirning and Spinifex people have responsibilities for sea country in this Marine Park. Local traditional owners recognise Kaart, Koort and Waarnginy (head, heart and talking) as bringing together the narratives and protocols that have been practiced for thousands of years and the kinship that influences all stages and cycles of life. Traditional owners have responsibility for cultural values and are focussed on the creation and regeneration of spiritual, ethical, cultural and practical benefits and opportunities for marine systems. The Goldfields Land and Sea Council is the Native Title Representative Body for the Goldfields region.</p>

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South West Marine Park Network	IUCN zones	Natural Values
		<p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Tourism and commercial and recreational fishing are important activities in this Marine Park.</p>
Two Rocks Marine Park	Multiple Use (VI)	<p>Description The Two Rocks Marine Park is located approximately 25 km north-west of Perth, to the north-west of the Western Australian Marmion Marine Park. The Marine Park covers an area of 882 km², extending from the Western Australian State water boundary, and a water depth range from 15 m to 120 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the South-west Shelf Transition—an area of narrow continental shelf that is noted for its physical complexity. The Leeuwin Current has a significant influence on the biodiversity of this nearshore area as it pushes subtropical water southward along the area’s western edge. The area contains a diversity of tropical and temperate marine life including endemic fauna species. The inshore lagoons are thought to be important areas for benthic productivity and recruitment for marine species. Key ecological features:</p> <ul style="list-style-type: none"> • Commonwealth marine environment within and adjacent to the west-coast inshore lagoons; • Western rock lobster; and • Ancient coastline between 90 m and 120 m depth. <p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds and Australian sea lions, a migratory pathway for humpback and pygmy blue whales, and a calving buffer area for southern right whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Swan River traditional owners have responsibilities for sea country in this Marine Park. Traditional owners have maintained cultural responsibilities for sea country as passed down from elders, to keep the oceans healthy, to support spiritual wellbeing and to uphold and protect obligatory cultural responsibilities for future generations. The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Tourism, commercial fishing, recreation, including fishing, and scientific research are important activities in this Marine Park.</p>
Western Eyre Marine Park	National Park Zone (II) Multiple Use Zone (VI) Special Purpose Zone (VI) Special Purpose Zone (Trawl) (VI)	<p>Description The Western Eyre Marine Park is located approximately 123 km² south-west of Port Lincoln and 28 km west of Streaky Bay, adjacent to South Australia’s Investigator, West Coast Bays and Nuyts Archipelago Marine Parks. This Marine Park covers an area of 57,944 km², extending from the South Australian State water boundary to the edge of Australia’s exclusive economic zone, and water depths range between 15 m and more than 6,000 m.</p>

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South West Marine Park Network	IUCN zones	Natural Values
		<p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Tourism, commercial fishing, recreation and mining are important activities in this Marine Park.</p>
Western Kangaroo Island Marine Park	National Park Zone (II) Special Purpose Zone (Mining Exclusion) (VI) Special Purpose Zone (VI)	<p>Description The Western Kangaroo Island Marine Park is located approximately 230 km south-west of Adelaide and 110 km south of Port Lincoln, adjacent to the South Australian Western Kangaroo Island Marine Park. The Marine Park covers an area of 2,335 km² and water depths range between 15 m and 165 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the Spencer Gulf Shelf. Seasonal winds and ocean currents interact with seafloor features to produce a number of small seasonal upwellings that are important for biological productivity. The area is noted for its diverse seafloor communities, productivity hotspots and aggregations of marine life associated with the seasonal upwellings of nutrient rich water. Key ecological features:</p> <ul style="list-style-type: none"> • The ancient coastline between 90 m and 120 m depth; and • Kangaroo Island Pool, canyons and adjacent shelf break, and Eyre Peninsula upwellings. <p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for seabirds, Australian sea lions, white sharks and pygmy blue and sperm whales, and a calving buffer area for southern right whales.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. South Australian Native Title Services is the Native Title Service Provider for the South Australian region</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Tourism, commercial fishing and recreation are important activities in this Marine Park. The Kangaroo Island community values the island's unique qualities and character.</p>

11.5.4 North Marine Park Network

Table 11-4 describes the Commonwealth marine parks within the North Marine Park Network according to the North Marine Park Network Management Plan 2018 (DNP, 2018c)

Table 11-4 Summary of Commonwealth Australian Marine Parks (AMP)s for the North Marine Park Network

North Marine Park Network	IUCN Zones	Values
Arafura Marine Park	Multiple Use Zone (VI) Special Purpose Zone (VI) Special Purpose Zone (Trawl) (VI)	<p>Description The Arafura Marine Park is located approximately 256 km north-east of Darwin and 8 km offshore of Croker Island, Northern Territory. It extends from Northern Territory waters to the limit of Australia’s exclusive economic zone. This Marine Park covers an area of 22,924 km², and a water depth range from less than 15 m to 500 m.</p>
		<p>Natural values The Arafura Marine Park includes examples of ecosystems representative of:</p> <ul style="list-style-type: none"> • Northern Shelf Province—a dynamic region, with gently sloping shelf topped with a number of pinnacles at depths ranging from 5 m to 30 m. Tidal eddies induce localised upwellings and hotspots of productivity, which correspond with aggregations of marine life within this Marine Park. • Timor Transition Province—includes continental slope, canyons, ridges, terraces and the Arafura Depression. The primary drivers of biological productivity are associated with deep water upwellings at canyon heads, driven by strong tides. <p>The key ecological feature in this Marine Park is the tributary canyons of the Arafura Depression. The canyons channel deep ocean waters, enhancing productivity and supporting large predatory fish, whale sharks, sawfish and marine turtles, deep sea sponges, and barnacles. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include interesting habitat for marine turtles and important foraging and breeding habitat for seabirds.</p>
		<p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Yuwurrumu members of the Mandilarri-Ildugij, the Mangalara, the Murran, the Gadura-Minaga and the Ngaynjaharr clans have responsibilities for sea country in this Marine Park. These clans have native title determined over part of their sea country, which is included in this Marine Park. The Northern Land Council is the Native Title Representative Body for the Northern Territory’s northern region and is assisting these native title holders in the absence of a native title Prescribed Body Corporate. It is the point of contact for this Marine Park.</p>
		<p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p>
		<p>Social and economic values Commercial fishing, tourism, and recreation, including fishing, are important activities in this Marine Park.</p>
		<p>Description</p>

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North Marine Park Network	IUCN Zones	Values
Arnhem Marine Park	Special Purpose Zone (VI)	<p>The Arnhem Marine Park is located approximately 100 km south-east of Croker Island and 60 km south-east of the Arafura Marine Park. It extends from Northern Territory waters surrounding the Goulburn Islands, to the waters north of Maningrida. This Marine Park covers an area of 7,125 km² and water depth ranges from less than 15 m to 70 m.</p> <p>Natural values This Marine Park includes ecosystems representative of the Northern Shelf Province. Internal currents in the region drive a net clockwise movement of nutrient-rich coastal water contributing to high biological diversity. Tidal eddies induce localised upwellings and hotspots of productivity that correspond with aggregations of marine life within this Marine Park. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat and a migratory pathway for marine turtles and seabirds.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The coastal First Nations people of West Arnhem Land have responsibilities for sea country in this Marine Park. This Marine Park contains sites which are registered under the <i>Northern Territory Aboriginal Sacred Sites Act 1989</i> (NT). The Northern Land Council is the Native Title Representative Body for the Northern Territory's northern region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Commercial fishing, tourism, and recreation, including fishing, are important activities in this Marine Park.</p>
Gulf of Carpentaria Marine Park	National Park Zone (II) Special Purpose Zone (Trawl) (VI)	<p>Description The Gulf of Carpentaria Marine Park is located approximately 90 km north-west of Karumba, Queensland and is adjacent to the Wellesley Islands in the south of the Gulf of Carpentaria basin. This Marine Park covers an area of 23,771 km² and water depths range from less than 15 m to 70 m.</p> <p>Natural values This Marine Park includes ecosystems representative of the Northern Shelf Province—a dynamic region with a gently sloping shelf topped with a number of pinnacles at depths ranging from 5 m to 30 m. Tidal eddies induce localised upwellings and hotspots of productivity that correspond with aggregations of marine life within the Marine Park. Key ecological features:</p> <ul style="list-style-type: none"> • Gulf of Carpentaria basin; • Gulf of Carpentaria coastal zone; • Plateaux and saddle north-west of the Wellesley Islands; and • Submerged coral reefs of the Gulf of Carpentaria. <p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding and foraging areas for seabirds and interesting and foraging areas for turtles.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years.</p>

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North Marine Park Network	IUCN Zones	Values
		<p>The Lardil, Yangkaal, Kaiadlit and Gangalidda people of the Wellesley Islands have a continuing spiritual connection with their sea country and responsibilities for managing that country. They have had their native title rights recognised. Both the Thuwathu-Bujimulla Indigenous Protected Area (IPA) and the Wellesely Island Sea Claim determination extend over part of the Gulf of Carpentaria Marine Park. The Thuwathu-Bujimulla IPA includes 160 sites of cultural heritage significance and the largest collection of stone fish traps in the southern hemisphere.</p> <p>The Lardil, Yangkaal, Kaiadlit and Gangalidda people of the Wellesley Islands hold a wealth of cultural knowledge about their islands and sea country. They recognise the presence of the Rainbow Serpent (Thuwathu or Bujimulla) in cyclones, waterspouts and rainbows, and understand that the Rainbow Serpent has the power to cause a special type of sickness known as Markiriil in Lardil. They also consider that there are dangerous places on their country where spirits can do you harm if you are not accompanied by the right people for that area. Many prominent marine features, such as reefs, rocks, oyster banks or sand bars have their own specific names. Among these named sites are special 'story places', where significant events happened in the past, where people carry out ritual activities to maintain particular animal or plant species, or which are responsible for making tidal floods, cyclones or strong winds.</p> <p>The Lardil people, as the traditional owners of Mornington Island and surrounding sea country, are recognised as the people of the Wellesley Islands with the authority to speak for sea country within the Gulf of Carpentaria Marine Park. The Gulf Region Aboriginal Corporation Prescribed Body Corporate represents the Lardil, Yangkaal, Kaiadlit and Gangalidda native title holders of the Wellesley Islands and is the point of contact for this Marine Park. The Carpentaria Land Council Aboriginal Corporation is the Native Title Representative Body for the region.</p> <p>Heritage values This Marine Park contains four known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>— <i>Douglas Mawson</i> (wrecked in 1923); <i>A.D.C.</i> (wrecked in 1886); <i>Wild Duck</i> (wrecked in 1876); and <i>Ada</i> (wrecked 1886). No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Commercial fishing, tourism, and recreation, including fishing, are important activities in this Marine Park.</p>
Limmen Marine Park	Habitat Protection Zone (IV)	<p>Description The Limmen Marine Park is located approximately 315 km south-west of Nhulunbuy, Northern Territory, in the south-west of the Gulf of Carpentaria. It extends from Northern Territory waters, between the Sir Edward Pellew Group of Islands and Maria Island in the Limmen Bight, adjacent to the Northern Territory Limmen Bight Marine Park. This Marine Park covers an area of 1,399 km² and water depths range from less than 15 m to 70 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the Northern Shelf Province—a dynamic region with gently sloping shelf, topped with a number of pinnacles at depths ranging from 5 m to 30 m. Tidal eddies induce localised upwellings and hotspots of productivity that correspond with aggregations of marine life within this Marine Park. The key ecological feature in this Marine Park is the Gulf of Carpentaria coastal zone—nutrients from rivers flowing into the coastal zone support high productivity and diverse biota. A prominent seafloor feature within this Marine Park is the Labyrinthian Shoals, a group of sand banks, some with rocky heads, in depths of less than 1.8 m. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include interesting and foraging habitat for marine turtles.</p> <p>Cultural values</p>

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North Marine Park Network	IUCN Zones	Values
		<p>Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Marra people have responsibilities for sea country in this Marine Park, and share song-lines that travel through this Marine Park with the Yanyuwa People. The Northern Land Council is the Native Title Representative Body for the Northern Territory's northern region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park</p> <p>Social and economic values Commercial fishing, tourism, and recreation, including fishing, are important activities in this Marine Park.</p>
Wessel Marine Park	Habitat Protection Zone (IV) Special Purpose Zone (Trawl) (VI)	<p>Description The Wessel Marine Park is located approximately 22 km east of Nhulunbuy, Northern Territory. It extends from Northern Territory waters adjacent to the tip of the Wessel Islands to Northern Territory waters adjacent to Cape Arnhem. This Marine Park covers an area of 5,908 km² and water depths between 15 m and 70 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the Northern Shelf—a dynamic region with gently sloping shelf topped with a number of pinnacles at depths ranging from 5 m to 30 m. Tidal eddies induce localised upwellings and hotspots of productivity that correspond with aggregations of marine life within this Marine Park. The key ecological feature in this Marine Park is the Gulf of Carpentaria basin—characterised by soft sediments that support abundant and diverse communities dominated by polychaetes, crustaceans, molluscs and echinoderms, with pelagic fish species such as shark, snapper, tuna and mackerel. This Marine Park overlaps the Arafura Sill, which is a seafloor barrier that restricts movement of water into the Gulf of Carpentaria basin and forms a distinct biogeographical transition point for sessile invertebrate (e.g. sponges and corals) and fish species. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding habitat for seabirds and internesting and foraging habitat for marine turtles.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Yolŋu people have responsibilities for sea country in this Marine Park. This Marine Park contains sites which are registered under the <i>Northern Territory Aboriginal Sacred Sites Act 1989</i> (NT). The Northern Land Council is the Native Title Representative Body for the Northern Territory's northern region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Commercial fishing, tourism, and recreation, including fishing, are important activities in this Marine Park.</p> <p>Description</p>

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North Marine Park Network	IUCN Zones	Values
West Cape York Marine Park	National Park Zone (II) Habitat Protection Zone (IV) Special Purpose Zone (VI).	<p>The West Cape York Marine Park is located adjacent to the northern end of Cape York Peninsula approximately 25 km south-west of Thursday Island and 40 km north-west of Weipa, Queensland. It extends from Queensland State waters to the limit of Australia's exclusive economic zone. This Marine Park covers an area of 16,012 km² and water depths range from less than 15 m to 70 m.</p> <p>Natural values This Marine Park includes ecosystems representative of:</p> <ul style="list-style-type: none"> Northeast Shelf Transition—includes continental shelf, shallow water depths and high bottom salinity. It is influenced by tidal currents and has sandy substrates and reefs supporting benthic marine communities, reef-dwelling and pelagic species. Northern Shelf Province—a dynamic region with gently sloping shelf topped with a number of pinnacles at depths ranging from 5 m to 30 m. Tidal eddies induce localised upwellings and hotspots of productivity that correspond with aggregations of marine life within this Marine Park. <p>Key ecological features:</p> <ul style="list-style-type: none"> Gulf of Carpentaria basin; and Gulf of Carpentaria coastal zone. <p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include breeding and foraging habitat for seabirds, internesting and foraging habitat for marine turtles and dugong, and foraging, breeding and calving habitat for dolphins.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. Torres Strait Islanders and coastal First Nations people of the west coast of Cape York have responsibilities for sea country in this Marine Park. The Cape York Land Council is the Native Title Representative Body for the Cape York region, which includes most of this Marine Park. The Carpentaria Aboriginal Land Council and the Torres Strait Regional Authority also perform the function of Native Title Representative Bodies for parts of this Marine Park.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to the Marine Park. The Marine Park contains one known shipwreck listed under the <i>Historic Shipwrecks Act 1976</i>.</p> <p>Social and economic values Commercial fishing, tourism, and recreation, including fishing, are important activities in this Marine Park.</p>
Oceanic Shoals	National Park Zone (II) Multiple Use (VI) Oceanic Shoals Special Purpose (Trawl) (VI) Habitat Protection (IV)	<p>Description The Oceanic Shoals Marine Park is located west of the Tiwi Islands, approximately 155 km north-west of Darwin, Northern Territory and 305 km north of Wyndham, Western Australia. It extends to the limit of Australia's exclusive economic zone. The Marine Park covers an area of 71,743 km² and water depths from less than 15 m to 500 m.</p> <p>Natural values This Marine Park includes ecosystems representative of the Northwest Shelf Transition— a dynamic environment influenced by strong tidal currents, upwellings of nutrient-rich waters, and a range of prominent seafloor features. The pinnacles, carbonate banks and shoals are sites of enhanced biological productivity.</p>

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North Marine Park Network	IUCN Zones	Values
		<p>Key ecological features:</p> <ul style="list-style-type: none"> • Carbonate bank and terrace systems of the Van Diemen Rise; • Carbonate bank and terrace system of the Sahul Shelf; • Pinnacles of the Bonaparte Basin; and • Shelf break and slope of the Arafura Shelf. <p>This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging and interesting habitat for marine turtles.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. At the commencement of this plan, there was limited information about the cultural significance of this Marine Park. The Northern Land Council and the Kimberley Land Council are the Native Title Representative Bodies for the Northern Territory's northern region, and the Kimberley region. The Tiwi Land Council collectively represents traditional owners of the Tiwi Islands.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park.</p> <p>Social and economic values Commercial fishing and mining are important activities in this Marine Park.</p>
Joseph Bonaparte Gulf Marine Park	Multiple Use Zone (VI) Special Purpose Zone (VI) (NMR only)	<p>Description The Joseph Bonaparte Gulf Marine Park is located approximately 15 km west of Wadeye, Northern Territory, and approximately 90 km north of Wyndham, Western Australia, in the Joseph Bonaparte Gulf. It is adjacent to the Western Australian North Kimberley Marine Park. This Marine Park covers an area of 8,597 km² and water depth ranges between less than 15 m and 100 m.</p> <p>Natural values This Marine Park includes examples of ecosystems representative of the Northwest Shelf Transition— a dynamic environment influenced by strong tidal currents, monsoonal winds, cyclones and wind generated waves. The large tidal ranges and wide intertidal zones near this Marine Park create a physically dynamic and turbid marine environment. The key ecological feature in this Marine Park is the carbonate bank and terrace system of the Sahul Shelf—characterised by terraces, banks, channels and valleys supporting sponges, soft corals, sessile filter feeders, polychaetes and ascidians. This Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within this Marine Park include foraging habitat for marine turtles and the Australian snubfin dolphin.</p> <p>Cultural values Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years. The Miriuwung, Gajerrong, Doolboong, Wardenybung and Gija and Balangarra people have responsibilities for sea country in this Marine Park. They are represented by the following Prescribed Bodies Corporate: Miriuwung and Gajerrong Aboriginal Corporation, and Balangarra Aboriginal Corporation. These corporations are the points of contact for their respective areas of sea country in this Marine Park. The</p>

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North Marine Park Network	IUCN Zones	Values
		<p>Northern Land Council and the Kimberley Land Council are the Native Title Representative Bodies for the Northern Territory's northern region, and the Kimberley region.</p> <p>Heritage values No international, Commonwealth or national heritage listings apply to this Marine Park, however this Marine Park is adjacent to the West Kimberley National Heritage Place.</p> <p>Social and economic values Tourism, commercial fishing, mining, and recreation including fishing, are important activities in this Marine Park.</p>

11.6 Threatened Ecological Communities

No Threatened Ecological Communities (TECs) as listed under the EPBC Act are known to occur within the marine waters of the NWMR, or NMR as indicated by the PMST Reports (**APPENDIX A. Protected Matter Search Reports for NWMR, SWMR and NMR**). The Monsoon vine thickets (which is a TEC) occurs on the coastal dunes of Dampier Peninsula (NWMR). The subtropical and temperate coastal saltmarsh (which is a TEC) occurs within the marine water of the SWMR. Both TECs are described in **Table 11-5**.

Table 11-5 Summary of Threatened Ecological Communities within the NWMR, NMR and SWMR.

Threatened Ecological Community	Description	Conservation Values
<i>Threatened Ecological Communities in the NWMR</i>		
Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula	<p>The ecological community represents certain occurrences of monsoon vine thickets in the southwest Kimberley region of Western Australia, predominantly restricted to the coastlines of the Dampier Peninsula from Broome in the south to One Arm Point in the north and on the northeastern coast of the Peninsula from One Arm Point to Goodenough Bay (DSEWPaC, 2013d).</p> <p>The TEC occurs as discontinuous patches of dense vegetation and contains approximately 23% of vascular plant species that occur on the Dampier Peninsula. The ecological community contains deciduous, semi-deciduous and evergreen perennial flora species (DSEWPaC, 2013d).</p>	<p>The Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula ecological community is listed as endangered (DSEWPaC, 2013d).</p> <p>The extent of the ecological community corresponds to country (the traditional lands) of the Bardi Jawi, Djabera Djabera, Goolarabaloo, Jabirr Jabirr, Nyul Nyul and Yawuru Indigenous people. The ecological community is of cultural significance (DSEWPaC, 2013d).</p> <p>Patches of the TEC operate as an ecological network with birds, mammals and frugivore species providing connectivity. The vegetation provides refuge for animals (DSEWPaC, 2013d).</p>
<i>Threatened Ecological Communities in the NMR</i>		
N/A		
<i>Threatened Ecological Communities in the SWMR</i>		
Subtropical and Temperate Coastal Saltmarsh	<p>The ecological community spans six state jurisdictions: Queensland (southern), New South Wales, Victoria, Tasmania, South Australia and Western Australia (south-western) (DSEWPaC, 2013c). The TEC occupies a relatively narrow strip along the Australian coast, in areas which have an intermittent or regular tidal influence.</p> <p>The coastal saltmarsh community consists mainly of salt-tolerant vegetation including grasses, herbs, sedges, rushes and shrubs. (Adam, 1990 cited in DSEWPaC, 2013c).</p>	<p>The Subtropical and Temperate Coastal Saltmarsh TEC is listed as vulnerable (DCCEEW, 2023a). This TEC consists of organisms including and associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (DSEWPaC, 2013c).</p> <p>A wide range of infaunal and epifaunal invertebrates and low and high tide visitors such as fish, birds and prawns also inhabit the TEC (DSEWPaC, 2013c). It is reported as an important nursery habitat for fish and prawn species. The dominant marine residents are benthic invertebrates, including molluscs and crabs (Ross et al., 2009 cited in DSEWPaC, 2013c) with insects also abundant and considered an important food source for fauna (DSEWPaC, 2013c).</p>

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11.7 Australian Whale Sanctuary

The Australian Whale Sanctuary has been established to protect all whales and dolphins found in Australian waters. Under the EPBC Act all cetaceans (whales, dolphins and porpoises) are protected in Australian waters.

The Australian Whale Sanctuary includes all Commonwealth waters from the three nautical mile State/Territory waters limit out to the boundary of the economic exclusion zone (i.e. out to 200 nm and further in some places). Within the Australian Whale Sanctuary it is an offence to kill, injure or interfere with a cetacean. Severe penalties apply to anyone convicted of such offences.

11.8 State Marine Parks and Reserves

State Marine Parks and Reserves, proclaimed under the *Conservation and Land Management Act 1984* (WA) (CALM Act), are located in State waters and vested in the WA Conservation and Parks Commission. State Marine Parks and Reserves of Western Australia have been considered, with 10 occurring in the NWMR (**Table 11-6**) and six occurring in the SWMR (**Table 11-7**).

Three new marine parks were established in 2022 in the Buccaneer Archipelago of the Kimberley. Boundaries commenced on July 1, 2023. The parks have been co-designed and are joint-managed by Traditional Owners, alongside with the Department of Biodiversity, Conservation and Attractions (DBCA, 2021b). The three new marine parks are:

- Bardi Jawi Gaarra Marine Park;
- Lalang-gaddam Marine Park (formed from the amalgamation of Lalang-garram/Camden Sound Marine Park, Lalang-garram/Horizontal Falls Marine Park, North Lalang-garram Marine Park and Maiyalam Marine Park along Western Australia's Kimberley Coast); and
- Mayala Marine Park.

There is a marine park to be defined in the Exmouth Gulf (EPA, 2022). The Exmouth Gulf Taskforce Interim Report to the Minister for Environment (DWER, 2023) outlines the values and recommended management approach of the Exmouth Gulf Marine Park.

11.9 Summary of Protected Areas within the NWMR

Table 11-6 Protected Areas within the NWMR

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
World Heritage Properties					
Shark Bay World Heritage Property	-	-	✓		Description The Shark Bay World Heritage Property is adjacent to the Shark Bay AMP and was included on the World Heritage List in 1991 (UNESCO, 1991).
					Conservation Values Universal values of the Shark Bay World Heritage Property include large and diverse seagrass beds, stromatolites and populations of dugong and threatened species. Inscribed under Natural Criteria vii, viii, ix and x (UNESCO, 1991).
The Ningaloo Coast World Heritage Property	-	-	✓		Description The Ningaloo Coast World Heritage Property is approximately 710,000 ha and lies within the Ningaloo AMP and was included on the World Heritage List in 2011 (UNESCO, 2011).
					Conservation Values Universal values of the Ningaloo Coast World Heritage Property include high marine species diversity and abundance; in particular, Ningaloo Reef supports both tropical and temperate marine reptiles and mammals. Inscribed under Natural Criteria vii and x (UNESCO, 2011).
National Heritage Places – Natural					
Shark Bay	-	-	✓		Description The Shark Bay National Heritage Place consists of the same area included in the Shark Bay World Heritage Property (refer above) and was established on the National Heritage List in 2007 (DEC, 2008).
					Conservation Values This national heritage place has a number of exceptional natural features, including one of the largest and most diverse seagrass beds in the world, colonies of stromatolites and rich marine life including a large population of dugongs, and also provides a refuge for a number of other globally threatened species. Shark Bay meets the national heritage listing criteria a, b, c, d, e, f, g, h and i (DEC, 2008).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 227 of 379

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
The Ningaloo Coast	-	-	✓		<p>Description The Ningaloo Coast National Heritage Place consists of the same area included in the Ningaloo Coast World Heritage Property (refer above) and was established on the National Heritage List in 2010 (Commonwealth of Australia, 2010).</p> <p>Natural Values The Ningaloo Coast contains one of the best developed near-shore reefs in the world, being home to rugged limestone peninsulas, spectacular coral and sponge gardens and the whale shark. The Ningaloo Coast meets the national heritage listing criteria a, b, c, d, and f (Commonwealth of Australia, 2010).</p>
The West Kimberley	✓	✓	-		<p>Description The West Kimberley National Heritage Place covers an area of around 192,000 km² located in the north-west of Australia from Broome to Wyndham, and was established on the National Heritage List in 2011 (Commonwealth of Australia, 2011).</p> <p>Conservation Values The Kimberley plateau, north-western coastline and northern rivers of the West Kimberley provide a vital refuge for many native plants and animals that are found nowhere else or which have disappeared from much of the rest of Australia. In addition, Roebuck Bay is internationally recognised as one of Australia's most significant sites for migratory wading birds. This national heritage place also contains a remarkable history of First Nations occupation, with many places of indigenous sacred value. The West Kimberley meets the national heritage listing criteria a, b, c, d, e, f, g, h and I (Commonwealth of Australia, 2011).</p>
Commonwealth Heritage Places – Natural					
Mermaid Reef – Rowley Shoals	-	✓	-		<p>Description The Mermaid Reef – Rowley Shoals Commonwealth Heritage Place is located within the boundary of the Mermaid Reef Marine National Nature Reserve. The site was listed as a Commonwealth Heritage Place in 2004 (DCCCEEW, n.d.-a).</p> <p>Conservation Values The Mermaid Reef-Rowley Shoals Commonwealth Heritage Place is regionally important for the diversity of its fauna and together with Clerke</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					and Imperieuse reefs, has biogeographical significance due to the presence of species which are at, or close to, the limits of their geographic ranges, including fishes known previously only from Indonesian waters. Rowley Shoals is important for benchmark studies as one of the few places off the north-west coast of Western Australia which have been the site of major biological collection trips by the WA Museum (DCCCEEW, n.d.-a).
Ashmore Reef National Nature Reserve	✓	-	-		<p>Description The Ashmore Reef Commonwealth Heritage Place is located within the boundary of the Ashmore Reef Marine Park (refer AMPs below). The site was listed as a Commonwealth Heritage Place in 2004 (DCEEW, n.d-d).</p> <p>Conservation Values Ashmore Reef has major significance as a staging point for wading birds migrating between Australia and the Northern Hemisphere and supports high concentrations of breeding seabirds, many of which are nomadic and typically breed on small isolated islands. Ashmore Reef is an important scientific reference area for migratory seabirds, sea snakes and marine invertebrates. The Ashmore Reef Commonwealth Heritage Place is significant for its history of human occupation and use. The island is believed to have been visited by Indonesian fisherman since the early eighteenth century. The islands were used both for fishing and as a staging point for voyages to the southern reefs off Australia's coast (DCEEW, n.d-d).</p>
Scott Reef and Surrounds – Commonwealth Area	✓	-	-		<p>Description Scott Reef and Surrounds Commonwealth Heritage Place is located within the Western Australian Coastal Waters surrounding North and South Scott Reef. The site was listed as a Commonwealth Heritage Place in 2004 (DCEEW, n.d-e).</p> <p>Conservation Values The Scott Reef and Surrounds Commonwealth Heritage Place is regionally important for the diversity of its fauna and has biogeographical significance due to the presence of species which are at, or close to, the limits of their geographic ranges, including fish known previously only from Indonesian waters. Scott Reef is recognised as important for scientific research and benchmark studies due to its age, the extensive documentation of its</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					geophysical and physical environmental characteristics and its use as a site of major biological collection trips and surveys by the WA Museum and the Australian Institute of Marine Science (DCEEW, n.d-e).
Ningaloo Marine Area – Commonwealth Waters	-	-	✓		<p>Description The Ningaloo Marine Area Commonwealth Heritage Place is located within the Commonwealth waters of the Ningaloo Marine Park (refer AMPs below). The site was listed as a Commonwealth Heritage Place in 2004 (DCEEW, n.d-f).</p>
					<p>Conservation Values The Ningaloo Marine Area Commonwealth Heritage Place provides a migratory pathway for humpback whales and foraging habitat for whale shark. The place is an important breeding area for billfish and manta ray. The Ningaloo Marine Area provides opportunities for scientific research relating to aspects of the area’s unique features including tourism (marine ecology, whales, turtles, whale shark, fish and oceanography (DCEEW, n.d-f).</p>
Yampi Defence Area	✓	-	-		<p>Description Located 35 km south of Koolan Island the Yampi Defence Area displays a unique mosaic of geographical landforms that is unique to the region. The occurrence of such diverse landscapes within a small area is an unusual occurrence (DCCEEW, n.d.-c).</p>
					<p>Conservation Values The Yampi Defence Area occurs at the confluence of three biogeographic regions in the North-west of Australia. It exhibits diverse landforms, soils, and vegetation representative of the sandstone plateaux of the wetter areas of the North-west Kimberley to the broad plains and pindin scrub of the drier areas in the South-west Kimberley. The Yampi peninsula contains one of the richest amphibian records in the Kimberley. The Yampi Defence Area meets the Commonwealth heritage listing criteria a,b,c (DCCEEW, n.d.-c).</p>
Learmonth Air Weapons Range Facility	-	-	✓		<p>Description Located along the Ningaloo coastline, the Learmonth Air Weapons Range Facility was one of Australia’s most active bombing ranges until 1990. It is</p>

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					<p>of considerable importance in documenting sea level and landform changes since the late Cenozoic period (DCCEEW, n.d.-b).</p> <p>Conservation Values The area includes an ancient reef complex and cave fauna that is of exceptional importance. The ages of the reef terraces are key to understanding the timing of uplift events. The Learmonth Air Weapons Range Facility meets the Commonwealth heritage listing criteria a,b,c (DCCEEW, n.d.-b).</p>
Wetlands of International Importance (Ramsar)					
Ashmore Reef National Nature Reserve	✓	-	-	Ramsar	<p>Description The Ashmore Reef Ramsar site is located within the boundary of the Ashmore Reef Marine Park (refer AMPs below). The site was listed under the Ramsar Convention in 2002 (Commonwealth of Australia, 2002b).</p> <p>Conservation Values The Ashmore Reef Ramsar site supports internationally significant populations of seabirds and shorebirds, is important for turtles (green, hawksbill and loggerhead) and dugong, and has the highest diversity of hermatypic (reef-building) corals on the Western Australian coast. It is known for its abundance and diversity of sea snakes. However, since 1998 populations of sea snakes at Ashmore Reef have been in decline (Commonwealth of Australia, 2002b).</p> <p>Cultural Values Indonesian fishers have regularly visited Ashmore Reef since the early eighteenth century to fish within the area and use the islands for staging points before travelling to other reefs in the region. Indonesian artefacts have been found on Cartier Island, and West, Middle and East Islands (Commonwealth of Australia, 2002b).</p>
Eighty Mile Beach	-	✓	-	Ramsar	<p>Description The Eighty Mile Beach Ramsar site covers an area of 1,250 km², located along a long section of the Western Australian coastline adjacent to the Eighty Mile Beach AMP (refer below) (CALM, 2003a).</p> <p>Conservation Values The Eighty Mile Beach Ramsar site includes saltmarsh and a raised peat bog more than 7,000 years old.</p>

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					The site contains the most important wetland for waders in north-western Australia, supporting up to 336,000 birds, and is especially important as a land fall for waders migrating south for the austral summer (CALM, 2003a).
Roebuck Bay	-	✓	-	Ramsar	<p>Description The Roebuck Bay Ramsar site covers an area of 550 km², located south of Broome and adjacent to the Roebuck AMP (refer below) (CALM, 2003b).</p> <p>Conservation Values The Roebuck Bay Ramsar site is recognised as one of the most important areas for migratory shorebirds in Australia. The site regularly supports over 100,000 waterbirds, with numbers being highest in the austral spring when migrant species breeding in the Palearctic stop to feed during migration. Roebuck Bay supports one of the largest known populations of Australian snubfin dolphins (<i>Orcaella heinsohni</i>)—a species with a limited distribution, vulnerable conservation status, and high cultural value (CALM, 2003a; D’Cruz <i>et.al.</i>, 2022).</p>
Ord River Floodplain	✓			Ramsar	<p>Description The Ord River Floodplain Ramsar site is in the East Kimberley region and encompasses an extensive system of river, seasonal creek, tidal mudflat, and floodplain wetlands. The site is a nursery, feeding and/or breeding ground for migratory birds, waterbirds, fish, crabs, prawns, and crocodiles. The site supports vulnerable species under the EPBC Act, including: Freshwater Sawfish (<i>Pristis microdon</i>), Green Sawfish (<i>Pristis zijsron</i>) and the Australian Painted Snipe (<i>Rostratula australis</i>). The site is also one of the only two known habitats in WA of the nationally endangered Northern River Shark (<i>Glyphis garricki</i>) (DCCEEW, 2019a).</p> <p>Conservation Values The site represents the best example of wetlands associated with the floodplain and estuary of a tropical river system in the Tanami-Timor Sea Coast Bioregion in the Kimberley. In addition, the False Mouths of the Ord are the most extensive mudflat and tidal waterway complex in Western Australia (DCCEEW, 2019a).</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Wetlands of National Importance (DAWE, 2019)					
Ashmore Reef	✓	-	-		<p>Description Ashmore Reef is a shelf-edge platform reef located among the Sahul Banks of north-western Australia. It covers an area of 583 km² and consists of three islets surrounded by intertidal reef and sand flats (DCCEEW, 2019b).</p> <p>Conservation Values These islets are major seabird nesting sites with 20 breeding species recorded to date. The total bird population has been estimated to exceed 100,000 during the peak breeding season. The marine reserve also has the highest diversity of marine fauna of the reefs on the NWS and differs from other reefs and coastal areas in the region. The area meets criteria 1, 3, 4 and 5 for inclusion on the Directory of Important Wetlands in Australia (DCCEEW, 2019b).</p>
Mermaid Reef	-	✓	-		<p>Description Mermaid Reef Marine Park covers an area of around 540 km², located ~280 km west north-west of Broome, and is the most north-easterly atoll of the Rowley Shoals (DCCEEW, 2019b).</p> <p>Conservation Values The reefs of the Mermaid Reef Marine Park have biogeographic value due to the presence of species that are at or close to the limit of their distribution. The coral communities are one of the special values of Mermaid Reef. The area meets criteria 1, 2 and 3 for inclusion on the Directory of Important Wetlands in Australia (DCCEEW, 2019b).</p>
Exmouth Gulf East	-	-	✓		<p>Description Exmouth Gulf East covers an area of 800 km² and includes wetlands in the eastern part of Exmouth Gulf, from Giralia Bay; to Urala Creek, Locker Point (DCCEEW, 2019b).</p> <p>Conservation Values The Exmouth Gulf East is an outstanding example of tidal wetland systems of the low coast of north-west Australia, with well-developed tidal creeks, extensive mangrove swamps and broad saline coastal flats.</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					The site is one of the major population centres for dugong in WA and its seagrass beds and extensive mangroves provide nursery and feeding areas for marine fishes and crustaceans in the Gulf. The area meets criteria 1, 2 and 3 for inclusion on the Directory of Important Wetlands in Australia (DCCEEW, 2019b).
Hamelin Pool	-	-	✓		<p>Description Hamelin Pool covers an area of 900 km² in the far south-east part of Shark Bay (DCCEEW, 2019b).</p> <p>Conservation Values Hamelin Pool is an outstanding example of a hypersaline marine embayment and supports extensive microbialite (subtidal stromatolite) formations, which are the most abundant and diverse examples of growing marine microbialites in the world. The area meets criteria 1 and 6 for inclusion on the Directory of Important Wetlands in Australia (DCCEEW, 2019b).</p>
Shark Bay East	-	-	✓		<p>Description Shark Bay East covers a 250 km area of coastline comprising tidal wetlands, and marine waters less than 6 m deep at low tide, in the east arm of Shark Bay (DCCEEW, 2019b).</p> <p>Conservation Values The site is an outstanding example of a very large, shallow marine embayment, with particularly extensive occurrence of seagrass beds and substantial areas of intertidal mud/sandflats and mangrove swamp. The site supports what is probably the world's largest discrete population of dugong; it is also a major nursery and/or feeding area for turtles, rays, sharks, other fishes, prawns and other marine fauna; and is a major migration stop-over area for shorebirds. The area meets criteria 1, 2, 3, 4, 5 and 6 for inclusion on the Directory of Important Wetlands in Australia (DCCEEW, 2019b).</p>
State Marine Parks and Reserves					
North Kimberley Marine Park	✓	-	-	Sanctuary, Special Purpose and General Use Zones	<p>Description The North Kimberley Marine Park covers 18,450 km² with its south-western boundary located ~270 km north-east of Derby (DPAW, 2016a).</p> <p>Conservation Values</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					<p>The marine park covers approximately 1,845,000 hectares. The coral reefs of the North Kimberley have the greatest diversity in Western Australia and are some of the most pristine and remarkable reefs in the world. The park surrounds more than 1,000 islands and is home to listed species such as dugongs, marine turtles, and sawfishes (DPAW, 2016a).</p> <p>Social and Economic Values The park features diverse wildlife, remarkable scenery and cultural heritage which provides excellent opportunities for tourism experiences, recreational and nature-based activities such as fishing and hunting (DPAW, 2016a).</p> <p>Cultural Values The Wunambal Gaambera, Balanggarra, Ngarinyin and Miriuwung Gajerrong people have strong and ongoing cultural connections to the North Kimberley saltwater country and rely on coastal and marine environments and resources for their cultural identity, livelihoods and economy (DPAW, 2016a).</p>
Rowley Shoals Marine Park	-	✓	-	Sanctuary, Recreation and General Use Zones	<p>Description The Rowley Shoals comprise of three reef systems, Mermaid Reef, Clerke Reef and Imperieuse Reef, all 30-40 km apart. These reef systems are located ~300 km west north-west of Broome (DEC, 2007a).</p> <p>Conservation Values The three coral atolls of the Rowley Shoals Marine Park comprise of shallow lagoons inhabited by diverse corals and abundant marine life, each covering around 80 km² at the edge of Australia's continental shelf (DEC, 2007a). Further offshore, the seafloor slopes away to the abyssal plain, some 6,000 m below. Undersea canyons slice the slope; these features are commonly associated with diverse communities of deep-water corals and sponges and create localised upwellings that aggregate pelagic species like tunas and billfish (DEC, 2007a).</p> <p>Social and Economic Values Due to its remote location, the Rowley Shoals has low numbers of visitors with most arriving aboard licenced charter boats. Popular activities in the area include scuba diving, recreational fishing, and boating (DEC, 2007a).</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Yawuru Nagulagun / Roebuck Bay Marine Park	-	✓	-	Special Purpose Zone	Description Yawuru Nagulagun / Roebuck Bay Marine Park is a series of intertidal flats lying on the coast to the south-east of Broome.
					Conservation Values Roebuck Bay is an internationally significant wetland and one of the most important feeding grounds for migratory shorebirds in Australia. Australian snubfin and Australian humpback dolphins frequent the waters and humpback whales pass through on their annual migration. Flatback turtles nest on the shores and are found in the bay's waters with other sea turtle species. Seagrass and macroalgae communities provide food for protected species such as the dugong and flatback turtles (DPAW, 2016b).
					Social and Economic Values The marine park is adjacent to Broome and supports tourism activities and provides an active outdoor lifestyle for the residents of the region (DPAW, 2016b).
					Cultural Values The Yawuru people have lived along the shores of Roebuck Bay for thousands of years and have a dynamic and enduring relationship with the Yawuru country. The coastline is important for cultural activities and is a place for hunting, fishing, gathering and camping for the Yawuru people (DPAW, 2016b).
Eighty Mile Beach Marine Park	-	✓	-	Sanctuary, Recreation, Special Purpose and General Use Zones	Description Eighty Mile Beach Marine Park covers ~2000 km ² stretching across 220 km of coastline between Port Hedland and Broome (DPAW, 2014a).
					Conservation Values Eighty Mile Beach Marine Park is one of the world's most important feeding grounds for small wading birds that migrate to the area each summer, travelling from countries thousands of kilometres away. The marine park is a major nesting area for flatback turtles which are found only in northern Australia. Sawfishes, dugongs, dolphins and millions of invertebrates inhabit the sand and mud flats, seagrass meadows, coral reefs and mangroves (DPAW, 2014a).
					Social and Economic Values Social values of the marine park include tourism, nature-based recreational activities and commercial fishing (DPAW, 2014a).

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					<p>Cultural Values The Karajarri, Nyangumarta and Ngarla people have a powerful connection to the land and sea of this region. Traditional hunting and fishing are important cultural activities for the traditional owners of this marine park (DPAW, 2014a).</p>
Montebello Islands Marine Park, Barrow Island Marine Park and Barrow Island Marine Management Area (jointly managed)	-	✓	-	Sanctuary, Recreation, General Use and Special Purpose Zones	<p>Description The Montebello Islands Marine Park, Barrow Island Marine Park and Barrow Island Marine Management Area are located off the north-west coast of WA, ~1,600 km north of Perth, and cover areas of ~583 km², 42 km² and 1,147 km², respectively (DEC, 2007b).</p>
					<p>Conservation Values The Montebello/Barrow Islands marine conservation reserves have very complex seabed and island topography, resulting in a myriad of different habitats, subtidal coral reefs, macroalgal and seagrass communities, subtidal soft-bottom communities, rocky shores and intertidal reef platforms, which support a rich diversity of invertebrates and finfish. The reserves are important breeding areas for several species of marine turtles and seabirds, which use the undisturbed sandy beaches for nesting. Humpback whales migrate through the reserves and dugongs occur in the shallow warm waters (DEC, 2007b).</p>
					<p>Social and Economic Values Major commercial fishing and pearling occur within the area which provide employment and economic value to surrounding communities. Nature based-tourism, water sports and recreational fishing are popular recreational activities undertaken in the area (DEC, 2007b).</p>
					<p>Cultural Values There are no recorded seabed aboriginal sites within this park. However, it is possible there are aboriginal archaeological sites on the seabed that were created before the most recent sea level rise (DEC, 2007b).</p>
Ningaloo Marine Park and Muiron Islands Marine Management Area (jointly managed)	-	-	✓	Sanctuary, Recreation, General Use and Special Purpose Zones	<p>Description The Ningaloo Marine Park and Muiron Islands Marine Management Area are located off the North-west Cape, ~1,200 km north of Perth, and cover areas of ~2,633 km² and 286 km² respectively (CALM, 2005a).</p>

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					<p>Ecological Values Ningaloo Reef is the largest fringing coral reef in Australia. Temperate and tropical currents converge in the Ningaloo region resulting in highly diverse marine life including spectacular coral reefs, abundant fishes and species with special conservation significance such as turtles, whale sharks, dugongs, whales and dolphins. The region has diverse marine communities including mangroves, algae and filter-feeding communities and has high water quality. These values contribute to the Ningaloo Marine Park being regarded as the State's premier marine conservation icon. The Muiron Islands Marine Management Area is also important, containing a very diverse marine environment, with coral reefs, filter-feeding communities and macroalgal beds. In addition, the Islands are important seabird and green turtle nesting areas (CALM, 2005a).</p> <p>Social and Economic Values The Ningaloo region has a high number of visitors enjoying the area who come to appreciate nature-based tourism which brings important economic value to the communities of the area (CALM, 2005a).</p> <p>Cultural Values The Ningaloo Reef has a long history of occupancy by aboriginal communities and aboriginal heritage sites. The Jinigudira and Baiyungu people have lived in this region for thousands of years and use coastal areas for fishing, camping and hunting of turtles and dugongs (CALM, 2005a).</p>
Shark Bay Marine Park and Hamelin Pool Marine Nature Reserve (jointly managed)	-	-	✓	Sanctuary, Recreation, General Use and Special Purpose Zones	<p>Description The Shark Bay Marine Park and Hamelin Pool Marine Nature Reserves are located 400 km north of Geraldton, covering areas of ~7,487 km² and 1,270 km², respectively (CALM, 1996).</p> <p>Conservation Values Seagrass covers over 4,000 km² of the Shark Bay Marine Park, with 12 different species making it one of the most diverse seagrass assemblages in the world. Dugongs regularly use this habitat, with the bay containing one of the largest dugong populations in the world. Humpback whales also use the bay as a staging post in their migration along the coast. Green and loggerhead turtles occur in the bay with Dirk Hartog Island providing the most important nesting site for loggerheads in Western Australia.</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					<p>Hamelin Pool contains the most diverse and abundant examples of stromatolites found in the world. These are living representatives of stromatolites that existed some 3500 million years ago (CALM, 1996).</p> <p>Social and Economic Values Commercial fishing and tourism are important economic values of the region. Popular recreational activities include nature-based tourism, recreational fishing and water sports (DEC, 2008).</p> <p>Cultural Values The Malgana people occupy the land and waters in the vicinity of Shark Bay and have strong cultural connection to the region. The area is important for cultural practices and for fishing, hunting and camping for the Malgana people (DEC, 2008).</p>
Bardi Jawi Gaarra Marine Park	✓	-	-	Sanctuary, Recreation, Special Purpose Zones (biocultural conservation and cultural protection), and General use	<p>Description The Bardi Jawi Gaarra Marine Park is located in the West Kimberley region surrounding the northern part of the Dampier Peninsula and the western islands of the Buccaneer Archipelago covering areas of ~2,040 km².</p> <p>Conservation Values The Bardi Jawi Gaarra Marine Park has a tidal range of 11 m, which is the highest in Australia. The mangrove lined creeks, intertidal and fringing reef areas that encompass the coastline and islands are ecologically important and host a vast number of plants and animals that have adapted to the unique area. Migratory marine mammals including humpback whales migrate to the areas between June and November each year to birth their young. Dugongs visit the area in the cooler months from May to July (DBCA 2022a).</p> <p>Social and Economic Values Commercial fishing, pearling and aquaculture are important economic activities that occur within this region. The area is a popular tourism destination and hosts a number of recreational activities and water sports (DBCA 2022a).</p> <p>Cultural Values The Bardi and Jawi people have a significant connection to the animals, sites and places within this region which are connected by stories and songlines. The sea country is used for hunting, fishing, cultural activities and business (DBCA 2022a).</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Lalang-gaddam Marine Park	✓	-	-	Sanctuary, Recreation, General Use and Special Purpose Zones	<p>Description Amended joint management plan for the Lalang-gaddam / Camden Sound, Lalang-gaddam / Horizontal Falls and North Lalang-gaddam marine parks, and indicative joint management plan for the proposed Maiyalam Marine Park. The Lalang-gaddam Marine Park is located in the Kimberley region of Western Australia and adjacent to Derby and the Shire of Wyndham. The Class A marine park covers ~13,085 km² (DBCA 2022b).</p> <p>Conservation Values The Lalang-gaddam / Camden Sound Marine Park is the most important humpback whale nursery in the Southern Hemisphere. It also features the spectacular coastal Montgomery Reef. The marine park is home to six species of threatened marine turtle. Australian snubfin and Indo-Pacific humpback dolphins, saltwater crocodiles, manta rays, several species of protected sawfish, and the world's large population of dugongs (~12,000). The Lalang-gaddam Marine Park's most celebrated attraction, The Horizontal Falls is created by massive tides of up to 10 m and narrow gaps in two parallel tongues of land meaning the tide falls faster than the water can escape, producing 'horizontal falls'. There are also islands with fringing coral reefs and mangrove-lined creeks and bays. This Marine Park has a number of islands fringed with coral reef and has been identified as an ecological hotspot and supports more than 1% of the world's population of brown boobies, with up to 2,000 breeding pairs. Approximately 500 pairs of crested terns also nest on the island (DBCA 2022b).</p> <p>Social and Economic Values This Marine Park has spectacular scenery which attracts a number of tourists and generates approximately \$563 million annually. Recreational fishing and recreational maritime activities are popular within this Marine Park. Commercial fisheries can operate within the waters of this Marine Park, however many do not regularly fish within this area. Pearling and aquaculture occurs within this Marine Park and provides economic value for the region (DBCA 2022b).</p> <p>Cultural Values</p>

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					The area is of cultural significance to the Dambeemangarddee people who have lived on the land and cared for land and sea country for tens of thousands of years. Some animals such as the barramundi and rock cod have particular cultural significance and are sacred animals to the Dambeemangarddee people. Numerous coastal and marine plants continue to be an important food source for the traditional owners of this Marine Park (DBCA 2022b).
Mayala Marine Park	✓	-	-	Sanctuary, Recreation, General Use and Special Purpose Zones	<p>Description The Mayala Marine Park is a Class A reserve located in the West Kimberley region and covers ~3,150 km² (DBCA 2022c).</p> <p>Conservation Values The Mayala Marine Park has a tidal range of 11 m, the highest in Australia. The mangrove lined creeks, intertidal and fringing reef areas that encompass the coastline and islands are ecologically important and host a vast number of plants and animals that have adapted to the unique area. The seagrass communities provide habitat and food for many species including turtles and dugongs. Migratory marine mammals including humpback whales migrate to the areas between June and November each year to birth their young. Dugongs visit the area in the cooler months from May to July (DBCA 2022c).</p> <p>Social and Economic Values Due to the extraordinary natural values of the area, the number of visitors to the area has continued to grow over the years. Popular activities within the park include fishing, boating, and wildlife watching. The waters of this area provide optimal conditions for commercial fishing, pearling and aquaculture (DBCA 2022c).</p> <p>Cultural Values The area is of exceptional cultural significance to the Malaya people who are true saltwater people and use both land and sea resources and have a strong connection to the land, animals and plants of the region. This Marine Park has many sacred sites that occur on land and sea which include artefacts, fish traps, and man-made structures. This Marine Park is culturally significant to the Malaya people who care for country and use this Marine Park for fishing, hunting and camping (DBCA 2022c).</p>

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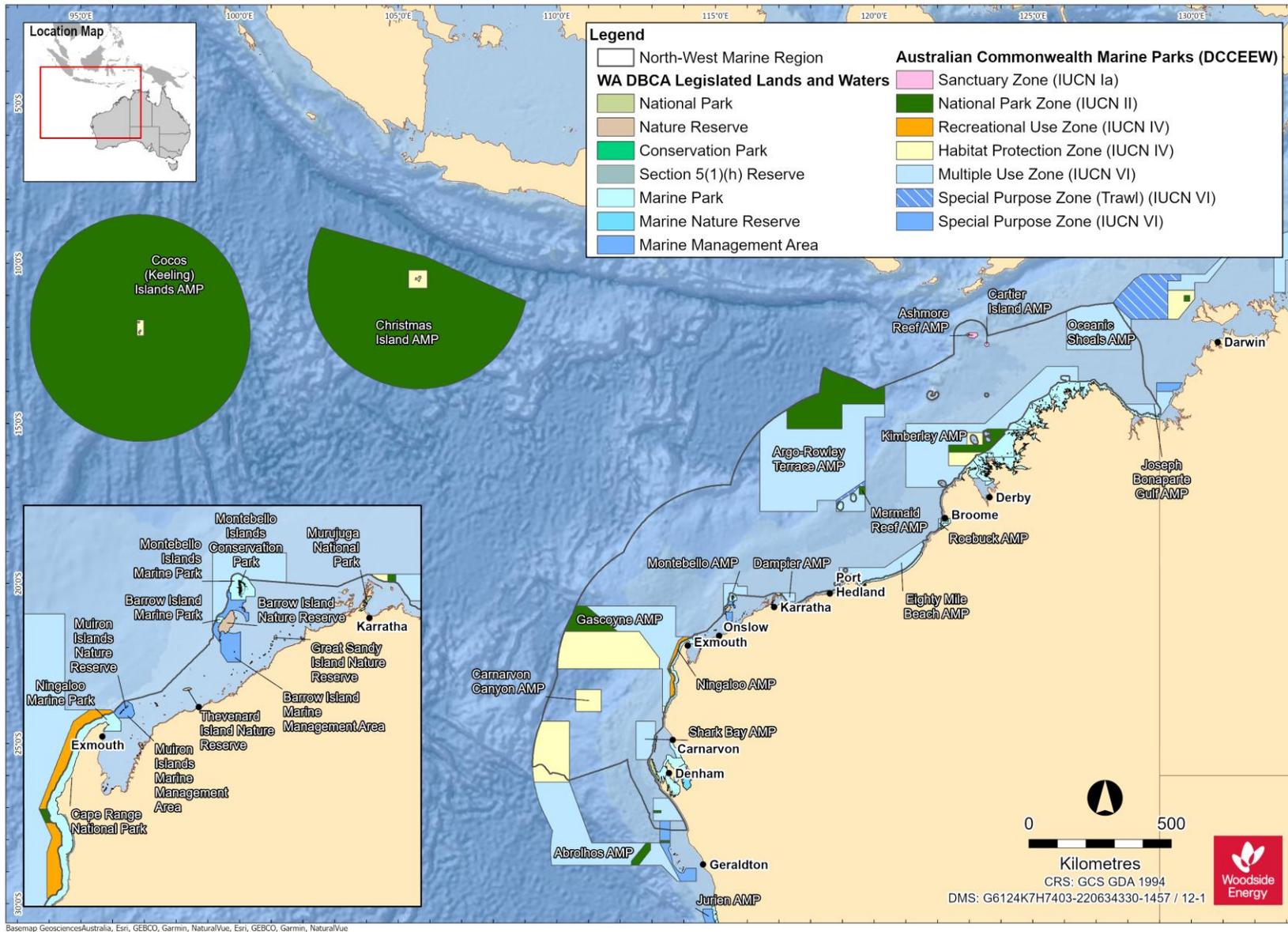


Figure 11-1 Commonwealth and State Marine Protected Areas for the NWMR and Indian Ocean Territories (data source: GA, 2024)

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Controlled Ref No: G2000RH1401743486 Revision: 2 Woodside ID: 1401743486 Page 242 of 379

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11.10 Summary of Protected Areas within the SWMR

Table 11-7 Protected Areas within the SWMR

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
World Heritage Properties		
Australian Convict Sites (Fremantle Prison)		<p>Description Fremantle Prison contains well preserved remnants of the earliest phase of European settlement of Western Australia. The Prison includes 16 intact convict-built structures surrounded by a six-metre-high limestone perimeter wall. The prison is one of the largest surviving convict establishments in the world (DCCEEW, 2021a).</p>
		<p>Conservation Values The Australian Convict Sites represent the global phenomenon of convictism— the forced migration of convicts to penal colonies in the 18th and 19th centuries (DCCEEW, 2021a).</p>
National Heritage Places— Natural		
N/A		
Commonwealth Heritage Places— Natural		
Garden Island		<p>Description Garden Island, and in particular the Cliff Point Historic Site, is highly valued by the community for its cultural associations as the site of first settlement in Western Australia. The absence of feral predators means that Garden Island provides a significant refuge for animals vulnerable to predation on the mainland (DAWE, 2004).</p>
		<p>Conservation Values It is likely that Indigenous values exist at this place. As yet these have not been identified, documented or assessed for National Estate significance by the Australian Heritage Commission. Species of particular interest include the Tammar wallaby (<i>Macropus eugenii</i>), carpet python (<i>Morelia spilota</i>), and the lined skink (<i>Lerista lineata</i>). The parabolic sand dunes on the western side of the island are among the best-preserved dunes of the Quindalup soil unit (DAWE, 2004).</p>
Wetlands of International Importance (Ramsar)		
Becher Point Wetlands	Ramsar	<p>Description Beecher Point Wetlands is a system of about sixty small wetlands located near Rockingham in south-west WA, covering an area of around 7 km². The site was listed under the Ramsar Convention in 2001 (DPAW, 2014b).</p>

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>Conservation Values The wetlands support sedgeland, herbland, grassland, open-shrubland and low open-forest. The sedgelands that occur within the linear wetland depressions of the Ramsar site are a nationally listed threatened environmental community. At least four species of amphibians and 21 species of reptiles have been recorded on the site. The site also supports the southern brown bandicoot. The site meets criteria 1 and 2 of the Ramsar Convention (DPAW, 2014b).</p>
Forrestdale and Thomsons Lakes	Ramsar	<p>Description Forrestdale Lake is located in the City of Armadale and Thomsons Lake is located in the City of Cockburn both of which lie within the southern Perth metropolitan area, in Western Australia. The site was listed under the Ramsar Convention in 1990 (CALM, 2003c).</p> <p>Conservation Values The lakes are surrounded by medium density urban development and some agricultural land. The sediments of Thomsons Lake are between 30,000 and 40,000 years old, which are the oldest lake sediments discovered in WA to date. These lakes are the best remaining examples of brackish, seasonal lakes with extensive fringing sedgeland, typical of the Swan Coastal Plain. The site meets criteria 1, 3, 5 and 6 of the Ramsar Convention (CALM, 2003c).</p>
Peel-Yalgorup System	Ramsar	<p>Description The Peel-Yalgorup System, located adjacent to the City of Mandurah in Western Australia, is a large and diverse system of shallow estuaries, coastal saline lakes and freshwater marshes. The site was listed under the Ramsar Convention in 1990 (CALM, 2003d).</p> <p>Conservation Values The Peel-Yalgorup System Ramsar site is the most important area for waterbirds in south-western Australia. It supports a large number of waterbirds, and a wide variety of waterbird species. It also supports a wide variety of invertebrates, and estuarine and marine fish. The system also includes an occurrence of thrombolites. The site meets criteria 1, 3, 5 and 6 of the Ramsar Convention (CALM, 2003d).</p>
Vasse-wonnerup system	Ramsar	<p>Description The Vasse-Wonnerup System Ramsar wetland is situated in the Perth Basin, south-western Western Australia. The site was listed under the Ramsar Convention in 1990 (DPAW, 2014b).</p> <p>Conservation Values The Vasse-Wonnerup System is an extensive, shallow, nutrient-enriched wetland system of highly varied salinities. Large areas of the wetland dry out in late summer. The Vasse-Wonnerup System supports tens of thousands of resident and migrant waterbirds of a wide variety of species. More than 80 species of waterbird have been recorded in the System such as</p>

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		red-necked avocets and black-winged stilts, wood sandpiper, sharp-tailed sandpiper, long-toed stint, curlew sandpiper and common greenshank. 13 waterbird species are also known to breed at the Ramsar site, including the largest regular breeding colony of black swans in south-western Australia. The site meets criteria 5 and 6 of the Ramsar Convention (DPAW, 2014b).
Lake Warden System	Ramsar	<p>Description The Lake Warden System Ramsar site is located adjacent to Esperance, south-western Australia. It is a system of saline lakes, lagoons and marsh areas behind beach-front dunes and at least one relatively narrow connection to the sea. The site was listed under the Ramsar Convention in 1990.</p> <p>Conservation Values The wetlands within the Lake Warden System form a system of inter-connected lakes and coastal brackish/saline lagoons connected by channels. It provides a significant habitat, nursery and refuge for waterbirds. Supporting up to 20,000 birds regularly. The System supports over 1% of Hooded Plovers in south-western Australia who breed regularly at the Lake Warden System. It meets criteria 1,5 and 6 of the Ramsar Convention (DEC, 2009b).</p>
Wetlands of National Importance (DAWE, 2019)		
Rottneest Island Lakes		<p>Description The Rottneest Island Lakes site is the cluster of 18 lakes and swamps on the north-east part of Rottneest Island (DCCEEW, 2019b).</p> <p>Conservation Values An outstanding example of a series of lakes/swamps of varied depth and salinity located on an offshore island; the only island among 200 plus in WA exceeding 10 ha in area, that has a salt-lake complex; the only known example of seasonally meromictic lakes in Australia. The area meets criteria 1, 2, 3 and 6 for inclusion on the Directory of Important Wetlands in Australia (DCCEEW, 2019b).</p>
State Marine Parks and Reserves		
Jurien Bay Marine Park	Sanctuary, Special Purpose and General Use Zones.	<p>Description The Jurien Bay Marine Park is located on the central west coast of WA ~200 km north of Perth and covers an area of 824 km² (CALM, 2005b).</p> <p>Ecological Values The Jurien Bay region is dominated by five major marine habitats: seagrass meadows, bare or sparsely vegetated mobile sand, shoreline and offshore intertidal reef platforms, subtidal limestone reefs, and reef pavement. An extensive limestone reef system parallel to the shore has created a huge shallow lagoon that provides perfect habitat for Australian sea lions, dolphins and a myriad of juvenile fish. Extensive seagrass meadows inside the reef shelter many marine animals such as western rock lobsters, octopus and cuttlefish that make up the diet of young sea lions. The marine park also surrounds dozens of ecologically important islands that contain rare and endangered animals found nowhere else in the world (CALM, 2005b).</p>

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>Social and Economic Values Commercial fishing for rock lobster has the highest economic value of any single species commercial fishery in Australia and is important for the economy of the Jurien Bay region. Recreational water activities such as fishing, boating, surfing, diving, and wind surfing are popular within the area (CALM, 2005b).</p> <p>Cultural Values The Nyungar people have occupied the land and waters in this region and depended on coastal resources for more than 30,000 years. There are burial sites, middens and other sites of significance listed within the region (CALM, 2005b).</p>
Marmion Marine Park	Sanctuary, Recreation and Special Use Zones.	<p>Description The Marmion Marine Park lies within State waters between Trigg Island and Burns Beach and encompasses a coastal area of ~95 km². Marmion Marine Park was the State's first marine park, declared in 1987 (CALM, 1992).</p> <p>Ecological Values The marine park has a number of sanctuary zones including Little Island, The Lumps and the Boyinaboat Reef protecting a variety of habitats from limestone reefs, seagrass beds and clear shallow lagoons that support a diversity of marine life. In addition, there are the general use zone and the Waterman Recreation Area. The marine park contains important habitat for the endemic Australian sea lion, an array of seabird species, and migratory whales are regular visitors (CALM, 1992; DPAW, 2016c).</p> <p>Social Values The marine park is popular for recreational water activities including boating, swimming, kayaking, snorkelling, whale watching, kite and windsurfing. Scuba diving and freediving is common at the Boyinaboat Reef which is located close to Hillary's Boat Harbour. Recreational fishing is permitted in most areas (DPAW, 2016c).</p>
Swan Estuary Marine Park	Special Purpose and Nature Reserve Zones.	<p>Description Three biologically important areas of Perth's Swan River make up the Swan Estuary Marine Park, including Alfred Cove, Pelican Point and Crawley. These three sites cover a total area of 3.4 km² (CALM, 1999).</p> <p>Ecological Values The sand flats, mud flats and beaches at the three locations of the Swan Estuary Marine Park provide the only remaining significant feeding and resting areas in the Swan Estuary for trans-equatorial migratory wading and waterbirds. This Marine Park and adjacent reserves also provide habitat for a diverse assemblage of aquatic and terrestrial flora and fauna (CALM, 1999).</p> <p>Social and Economic Values</p>

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>Nature-based wildlife tourism operates in the area and this Marine Park supports commercial net fishing. Recreational activities that occur within the area include fishing, bird watching, kayaking, windsurfing, boating, and sightseeing (DBCA, 2023).</p> <p>Cultural Values The Whadjuk people are the traditional owners of the land and waters of Swan Canning Estuary and have frequented the waters of this park for many years. The estuarine and terrestrial habitats provide a source of fish, shellfish, reptiles and birds for hunting (CALM, 1999; DBCA, 2023).</p>
Shoalwater Islands Marine Park	Sanctuary, Special Purpose and General Use Zones.	<p>Description The Shoalwater Islands Marine Park is located adjacent to Rockingham on the south-west coast of Western Australia, ~50 km south of Perth and covers an area of ~66 km² (DEC, 2007c).</p> <p>Ecological Values The Shoalwater Islands Marine Park consists of a complex seabed and coastal topography consisting of islands, limestone ridges and reef platforms, protected inshore areas and deeper basins, sandbars and beaches, and is home to five species of cetacean and 14 species of sea and shore bird. The waters of this Marine Park are also used to access feeding grounds for the little penguin (<i>Eudyptula minor</i>) colony on Penguin Island, which is close to the northernmost limit of the species' range and is the largest known breeding colony in Western Australia (DEC, 2007c). A recent study has also reported a recurrent aggregation of scalloped hammerheads (<i>Sphyrna lewini</i>) within this Marine Park (López et al., 2022).</p> <p>Social and Economic Values Commercial fisheries target a number of species within the area and this Marine Park also supports a mussel farming industry. Tourism is a popular activity within this Marine Park and includes water sports such as scuba diving, snorkelling, sailing, kayaking, kite surfing, and windsurfing. Recreational fishing is popular in this area and is likely to increase. The diversity of this Marine Park biota makes this Marine Park important for scientific research and education among tertiary institutions, schools and outdoors organisations (DEC, 2007c).</p> <p>Cultural Values This Marine Park is of cultural significance to the Gnaarla Karla Booja people who are the traditional owners and have frequented this Marine Park for thousands of years. The Gnaarla Karla Booja people have continued to use this Marine Park for fishing and hunting. Shoalwater and Garden Island areas are significant parts of the story of creation and there are a number of sites adjacent to and within this Marine Park that are registered as culturally significant (DEC, 2007c).</p>
Ngari Capes Marine Park	Sanctuary, Special Purpose and Recreation Zones.	<p>Description The Ngari Capes Marine Park is located off the south-west coast of Western Australia, ~250 km south of Perth, covering ~1238 km² (DEC, 2013).</p> <p>Ecological Values The Ngari Capes Marine Park consists of a complex arrangement of sandy bays, high energy limestone and granite reefs bordered by headlands and cliffs and two weathered capes. Coral</p>

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>communities consist of both tropical and temperate species. Cetaceans and pinnipeds are resident in and/or transient through this Marine Park as well as a diverse range of seabirds and shorebirds (DEC, 2013).</p> <p>Social and Economic Values A diverse range of commercial fisheries and aquaculture occur within and around this Marine Park targeting species such as abalone, salmon, sharks, demersal fish, baitfish, and western rock lobster. This Marine Park offers a wide range of attractions for marine based tourism which include shore-based and boat-based whale watching tours and dive and snorkel tours. Recreational activities that occur within this Marine Park include diving, fishing, snorkelling and wildlife watching (DEC, 2013).</p> <p>Cultural Values The Pibelmen and Wardani people occupy the lands adjacent to this Marine Park and utilise the coastline for fishing, hunting, ceremonial activities and resource gathering as they have continued to do for thousands of years. At least 45 sites of Indigenous significance have been identified within or adjacent to this Marine Park. Many marine species including mammang borungar (whale) and kalda (sea mullet) are culturally significant to the Indigenous people of the southwest region (DEC, 2013).</p>
Walpole and Nornalup Inlets Marine Park	Recreation Zone.	<p>Description The Walpole and Nornalup Inlets Marine Park is located adjacent to the towns of Walpole and Nornalup on the south coast of Western Australia, ~120 km west of Albany, and covers ~14 km² (DEC, 2009a).</p> <p>Conservation Values The Walpole and Nornalup Inlets Marine Park consists of a geologically complex lagoonal estuarine system comprising three significant rivers and two connected inlets that are permanently open to the ocean. Approximately 40 marine and estuarine finfish species commonly inhabit the inlet system, as well as a variety of shark and ray species and numerous seabirds and shorebirds. The sandy beaches and shoreline vegetation of the inlet system are of high ecological and social importance to this Marine Park (DEC, 2009a).</p> <p>Social Values The diversity of wildlife and easily accessible terrestrial, estuarine, and coastal scenery has enhanced nature-based tourism within the area. Popular recreational activities that occur within this Marine Park include boating, fishing, swimming, hiking, bird watching, and wildlife watching (DEC, 2009a).</p> <p>Cultural Values Estuaries are significant hunting, fishing and gathering areas for Minang people of south-western Australia who have a strong spiritual connection to the area. Aboriginal artefact scatters and other listed areas of cultural significance have been found within and adjacent to this Marine Park (DEC, 2009a).</p>

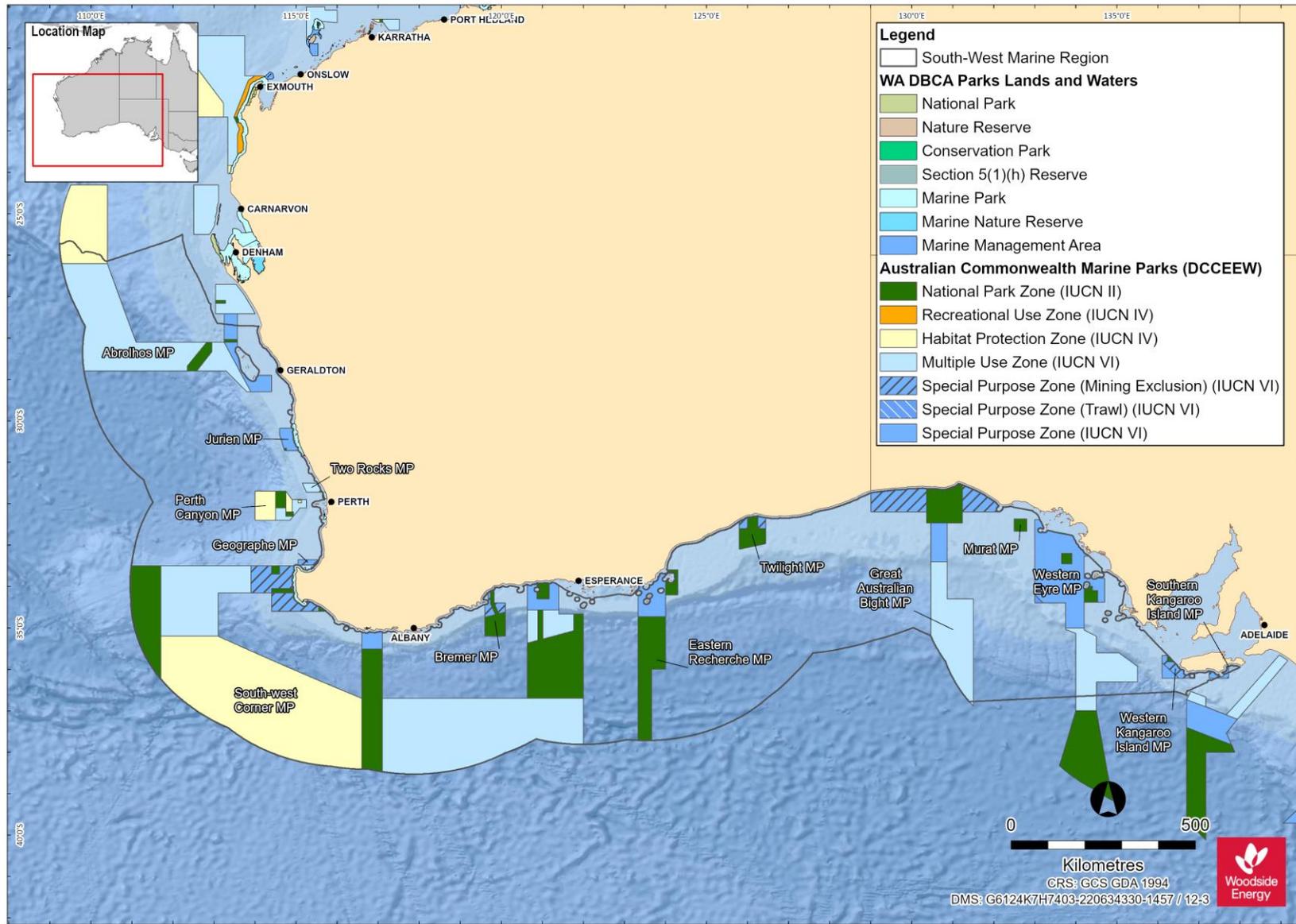


Figure 11-2 Commonwealth and State Marine Protected Areas for the SWMR (data source: GA, 2024)

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11.11 Summary of Protected Areas within the NMR

Table 11-8 Protected Areas within the NMR

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
World Heritage Properties		
Kakadu National Park		<p>Description Kakadu National Park is a living landscape with exceptional natural and cultural values. It is the largest National Park in Australia and preserves the greatest variety of ecosystems on the Australian continent including extensive areas of floodplains, mangroves, tidal mudflats, coastal areas and monsoon forests. The park was inscribed on the World Heritage list in three stages over 11 years. It is located in tropical north Australia covering a total area of 19,810 km² (Director of National Parks, 2016).</p> <p>Ecological Values The conservation values reflect the WHA Criterion: (i), (vi), (vii) and (ix): Natural features relate to Criterion (vii) – the remarkable contrast between the internationally recognised Ramsar-listed wetlands and the spectacular rocky escarpment and its outliers and Criterion (ix) – four major river systems of tropical Australia and floodplains that are dynamic environments, shaped by changing sea levels and big floods every wet season. These floodplains illustrate the ecological and geomorphological effects that have accompanied Holocene climate change and sea level rise. Kakadu National Park contains important and significant habitats supporting a diverse range of flora and fauna. Coastal areas of the park are dominated by mudflats which are mostly lined by mangroves which support breeding and nursery grounds for a variety of animals. The threatened flatback turtles nest on Field Island which is within the park. Kakadu National Park is a key habitat for threatened species including one species of river shark, two sawfish species and two inshore dolphin species (Director of National Parks, 2016).</p> <p>Social Values Kakadu National Park is a popular tourist destination which provides important economic value to the region through boat and fishing tours and wildlife tours. Commercial tours operate within the area which provides employment opportunities for local communities. Popular recreational activities within the park include bushwalking, camping, recreational fishing and boating, swimming, wildlife watching, and viewing culturally significant sites (Director of National Parks, 2016).</p> <p>Cultural Values The Bininj/Mungguy people are the traditional owners of Kakadu National Park and have had longstanding custodianship and spiritual connection with the Kakadu region and continue to use the park for cultural practices. Kakadu holds one of the world's greatest concentrations of rock art sites and there is thought to be up to 15,000 sites in total with some sites estimated to be over 20,000 years old (Director of National Parks, 2016).</p>

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
National Heritage Places— Natural		
Kakadu National Park		Refer to World Heritage property description and values above
Commonwealth Heritage Places— Natural		
N/A		
Wetlands of International Importance (Ramsar)		
Kakadu National Park		Description Australian Ramsar site number 2. The stage 1 and 2 Ramsar sites, established in 1980, 1985 and 1989, respectfully were combined into a single Ramsar site in 2010 (BMT WBM, 2010).
		Conservation Values The Kakadu National Park Ramsar site straddles the western edge of the Arnhem Land Plateau encompassing a range of landforms and extensive floodplains. It is a mosaic of contiguous wetlands comprising the catchments of two large river systems, the East and South Alligator rivers and encompasses extensive tidal mudflat areas. It is an internationally important site for migratory shorebirds as part of the EAAF (BMT WBM, 2010).
Cobourg Peninsula		Description Australian Ramsar site number 1 established in 1974. This Ramsar site includes freshwater and extensive intertidal areas but excludes subtidal areas. It is in a remote location and there has been minimal human impact on the site (BMT WBM, 2011).
		Conservation Values The wetlands encompassed in the Ramsar site are some of the better protected and near-natural wetlands in the bioregion and there is a diverse array of wetland in a confined area. The site supports important turtle nesting habitat and habitat for coastal dolphin species and is an internationally significant migratory shorebird habitat as part of the EAAF and an important location for seabird breeding colonies (BMT WBM, 2011).
Wetlands of National Importance (DAWE, 2019)		
Southern Gulf Aggregation		Description The site is a complex continuous wetland aggregation in the Gulf of Carpentaria, covering an area of ~5,460 km ² located 58 km east of Burketown, Queensland (DCCEEW, 2019b).
		Conservation Values The Southern Gulf Aggregation is the largest continuous estuarine wetland aggregation of its type in northern Australia. It is one of the three most important areas for shorebirds in Australia. The area meets criteria 1, 2, 3, 4, 5 and 6 for inclusion on the Directory of Important Wetlands in Australia (DCCEEW, 2019b).

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>Social Values The area is an important site for recreational barramundi fishing and is a popular site for ecotourism (DCCEEW, 2019b).</p>
Territory Marine Parks and Reserves		
Cobourg Marine Park	II, IV, VI	<p>Description Cobourg Marine Park covers an area of 2,290 km² and is located in the waters surrounding the Cobourg Peninsula ~220 km north-east of Darwin. This Marine Park is part of the larger Garig Gunak Barlu National Park. Garig Gunak Barlu National Park includes both this Marine Park and the Cobourg Sanctuary (Northern Territory Government, 2011)</p> <p>Conservation Values Cobourg Marine Park is located in the Cobourg and Van Diemen Gulf marine bioregions with the northern portion of the Marine Park covered by the Cobourg marine bioregion and the southern portion covered by the Van Diemen Gulf marine bioregion. This Marine Park is characterised by a number of deeply incised bays and estuaries on its northern shores. These bays are ancient river valleys that were drowned during periods of sea level rise and provide a varied environment and habitat that is quite distinct from the open water areas of the Marine Park. The areas of the Marine Park that have been studied and where extensive collections have been made indicates that the Marine Park supports rich and diverse marine life including live coral reefs, seagrass, diverse reef and pelagic fish populations, saltwater crocodiles, and six species of threatened marine turtles and dugong (Northern Territory Government, 2011).</p> <p>Social and Economic Values A variety of commercial fisheries, aquaculture and pearling occur within this Marine Park. The Marine Park has visitors who stay within the Cobourg sanctuary, sailors who moor in the area and guests who stay at onsite accommodation. Water sports such as fishing, boating, sailing, scuba diving, recreational fishing, sightseeing and wildlife viewing are popular activities undertaken in the Marine Park (Northern Territory Government, 2011).</p> <p>Cultural Values The Cobourg people have a longstanding connection to the lands and seas of Cobourg Marine Park. The Marine Park is a culturally significant place for the Cobourg people to practice customary activities including ceremonies and fishing and hunting of marine resources (Northern Territory Government, 2011).</p>

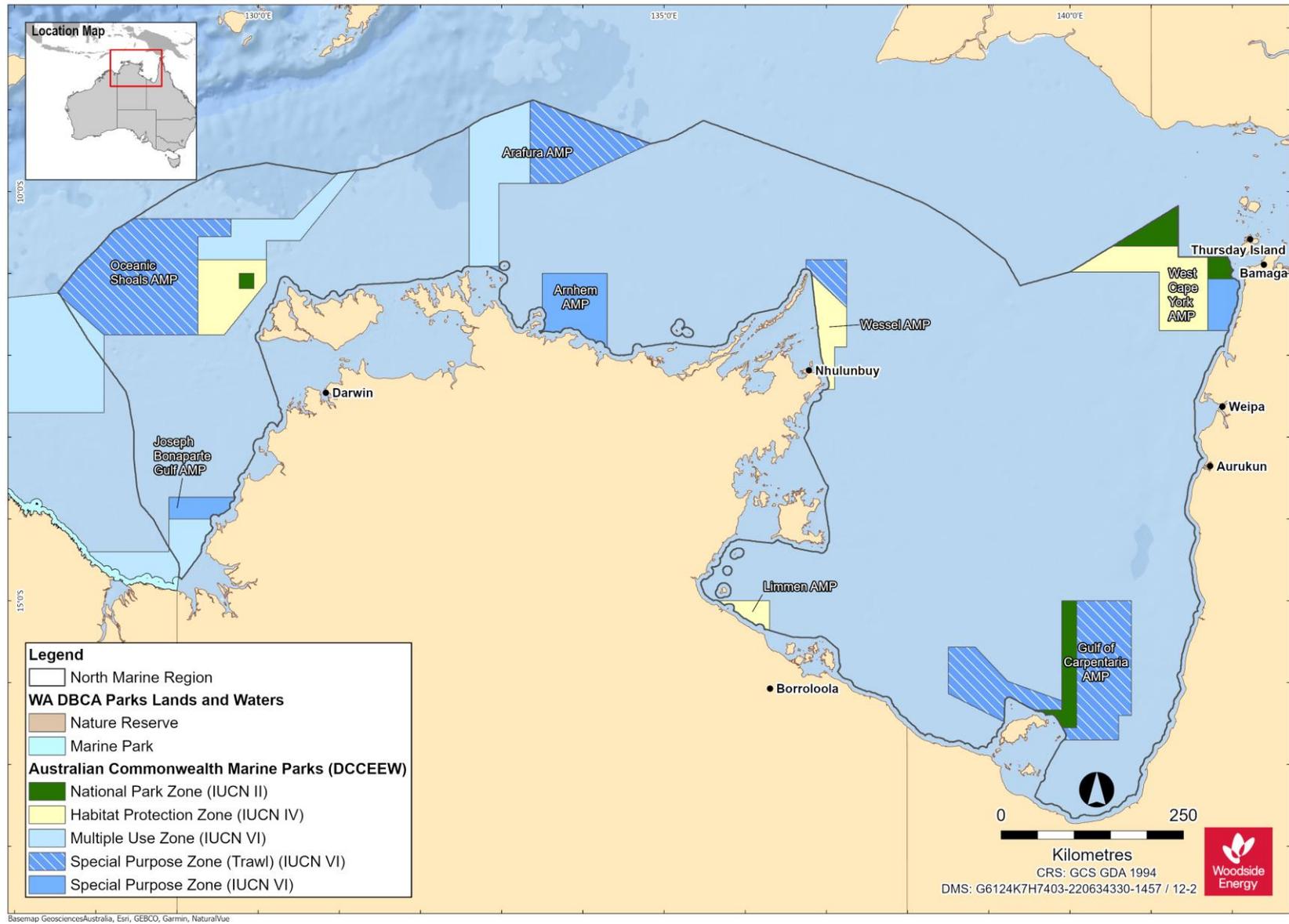


Figure 11-3 Commonwealth and State Marine Protected Areas within the NMR (data source: GA, 2024)

12. SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

This section summarises the information relating to the socio-economic and cultural environment of the regions offshore of Western Australia, with a focus on the NWMR and to a lesser extent the SWMR and NWR.

12.1 Cultural Values and Heritage

Woodside's approach to Cultural Values and Heritage management reflects our publicly available [First Nations Communities Policy](#) (Woodside 2022). This policy is underpinned by core principles that ensure our management of cultural heritage is thorough, transparent and supported by consultation and continued engagement with First Nations communities. Our approach to the identification, management and protection of cultural heritage is consistent with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), engaging with First Nations communities in ways that reflect the principles of seeking Free, Prior and Informed Consent (FPIC). Where heritage is concerned Woodside seeks to avoid impact, or if avoidance is not possible, to minimise and mitigate impact through consultation with relevant First Nations communities. We seek to ensure Traditional Owners and Custodians are central to heritage management so that cultural values are understood and remain protected.

Australia ICOMOS (International Council on Monuments and Sites) is a non-government peak body for cultural heritage professionals formed as a national committee for ICOMOS (international). Australia ICOMOS' mission is to lead cultural heritage conservation in Australia by issuing standards and practice notes. Woodside understands heritage value to mean the cultural significance of a place to an individual or group in line with the Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Australia ICOMOS 2013) (Burra Charter), and associated practice notes. A cultural feature, is therefore comparable to the Burra Charter term "fabric" and refers to a place's elements, fixtures, contents and objects which have cultural values. Although these features are necessarily physical, the place they inhabit or comprise may have tangible or intangible dimensions (Australia ICOMOS 2013).

12.1.1 Native Title

Woodside uses established systems, such as native title, to identify First Nations groups that may have functions, interests or activities that may be affected. While acknowledging that cultural features and heritage values may exist outside of the native title framework, native title claims, determinations and ILUAs are defined under the *Native Title Act 1993* (Cth). Woodside considers this to be the broadest extent over which First Nations groups have claimed native title rights and interests.

Native title claims are applications made to the Federal Court under the Native Title Act for a determination or decision about native title in a particular area. A claim is made by a native title claim group which asserts it holds native title rights and interests in an area of land and/or water, according to its traditional laws and customs. By making a claim, the native title claim group seeks a decision that native title exists so that its native title rights and interests are recognised by the common law of Australia. This is called a native title determination. A determination is a decision by a recognised body, such as the Federal Court or High Court of Australia, that native title either does or does not exist in relation to a particular area ([Native Title Tribunal](#)).

A requirement to establishing a positive determination of native title in court is proving that there is an organised society that occupied the land and/or waters at the time of British annexation. The requirement of an 'organised society' is set out by Justice Toohey in the historic judgment of *Mabo v Queensland (No 2)*) [\[1992\] HCA 23](#); [\(1992\) 175 CLR 1](#) ('Mabo'). Justice Toohey had the following to say (at 187):

it is inconceivable that indigenous inhabitants in occupation of land did not have a system by which land was utilized in a way determined by that society. There must, of course, be a society sufficiently organized to create and sustain rights and duties...

Therefore, Woodside understands that native title rights and interests are held communally by an organised society, that native title claims are understood to represent the area over which First Nations groups are claiming these rights and interests, and that native title determinations provide clarity on where native title rights and interests are found to either exist or not exist. Where native title rights or interests are determined to exist they will be held by a Registered Native Title Body Corporate (section 57, *Native Title Act 1993*) in trust or as agent for native title holders.

Indigenous Land Use Agreements (ILUAs) are voluntary agreements between native title parties and other people or bodies about the use and management of land and/or waters and are registered by the Native Title Registrar in the Register of ILUAs. An ILUA can be made over areas where:

- native title has been determined to exist in at least part of the area; or
- a native title claim has been made; or
- where no native title claim has been made.

While registered, ILUAs operate as a contract between the parties, including relevant native title holders ([Native Title Tribunal](#)).

The Native Title Act provides for a Representative Aboriginal/Torres Strait Islander Body (Native Title Representative Body) to be recognised by the Commonwealth Minister for an area. Native Title Representative Bodies have specialist functions set out in the Native Title Act within the area for which they are the Native Title Representative Body. However, the functions of a Native Title Representative Body are such that they do not hold details on the cultural features or heritage values of an area and therefore do not inform Woodside's understanding of heritage values or cultural features.

12.1.2 Coastal First Nations Groups

First Nations groups are keenly aware of the extent of their rights, interests and responsibilities for Country, and these are generally discrete, defined areas, including areas of sea (Smyth 2007). To identify cultural features and heritage values which may exist outside of native title claim, determination and ILUA areas, Woodside considers native title claims, determinations and ILUAs coastally adjacent to areas of operation to be an instructive means of identifying potentially relevant First Nations groups to be consulted.

Woodside understands from engagement with stakeholders that extending a native title group's responsibility to areas which those groups have elected to not include in their claims or ILUAs can have significant cultural consequences for groups and individuals. This may also, over time, build expectations in the broader community that a group is responsible for maintaining environmental values in areas for which they do not hold traditional knowledge.

Woodside acknowledges that a First Nations group's relative proximity to any Operational Areas is not necessarily a meaningful indicator of the connection to the area and providing advice over such areas can be culturally dangerous. As a result, caution must be used when conducting broader engagement.

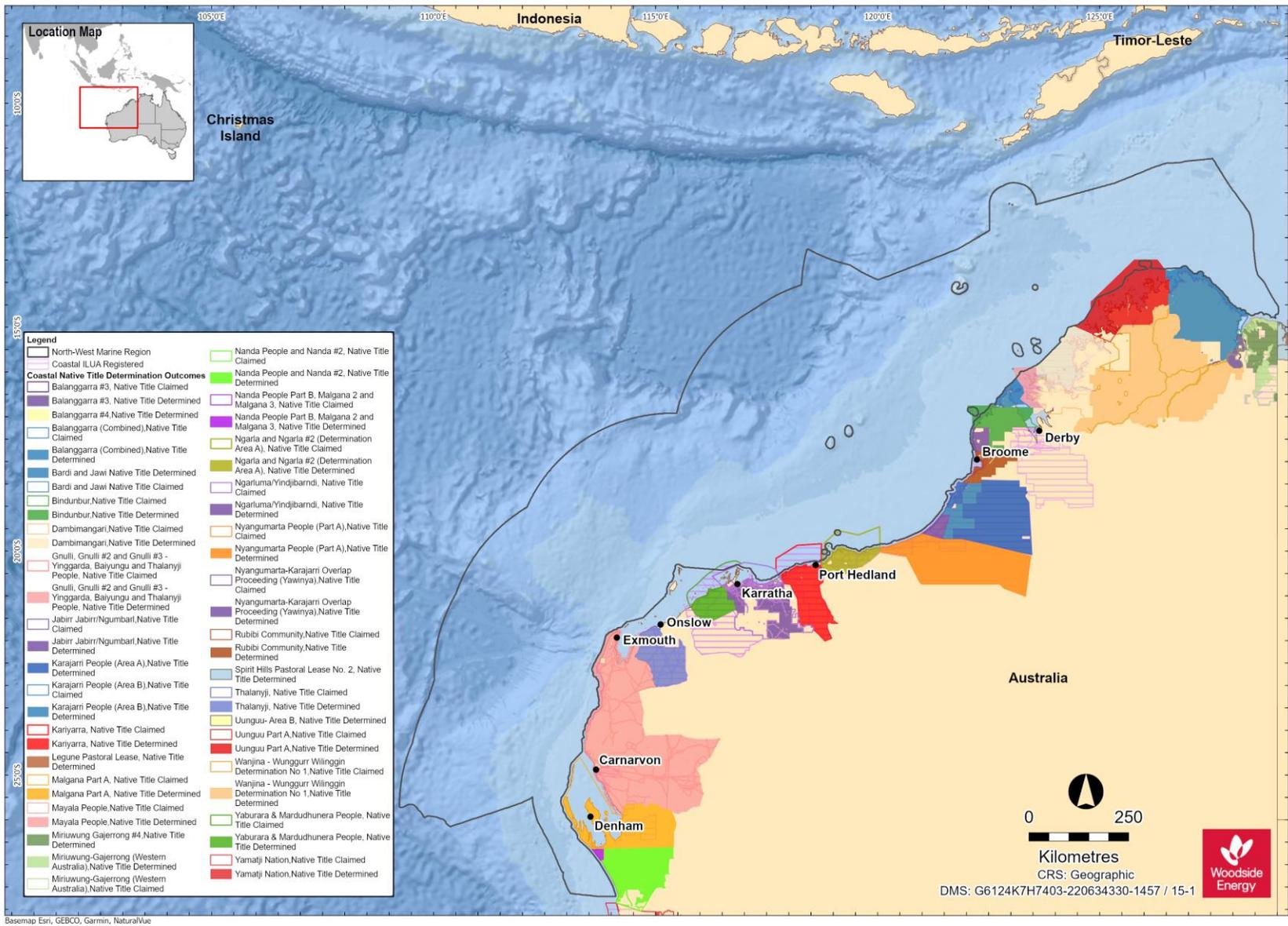


Figure 12-1 Coastal Native Title Claims/ Determinations and ILUAs in the NWMR (data source: DPLH 2024)

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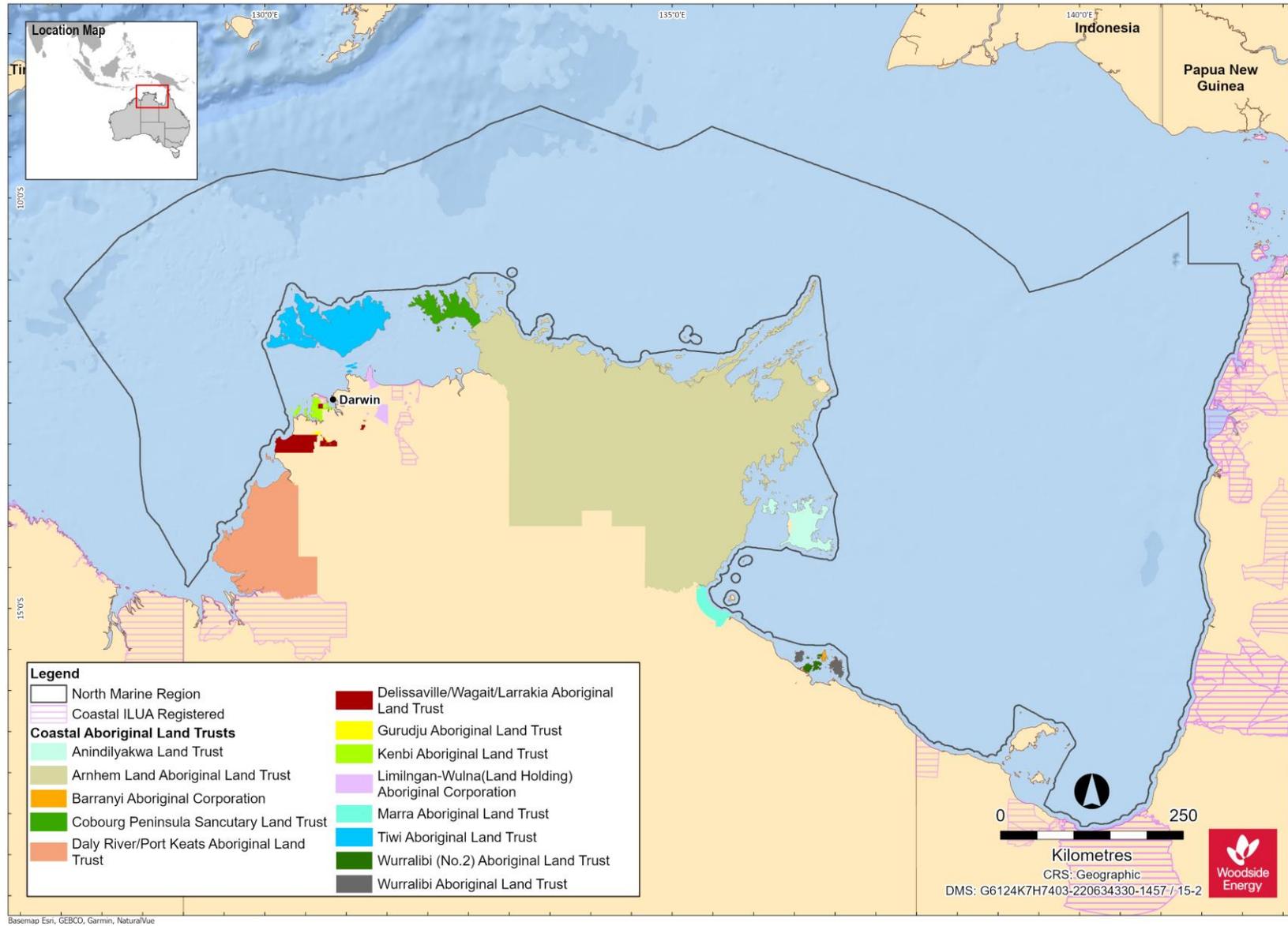


Figure 12-2 Coastal Native Title Claims/ Determinations and ILUAs in the NMR (data source: DPLH 2024)

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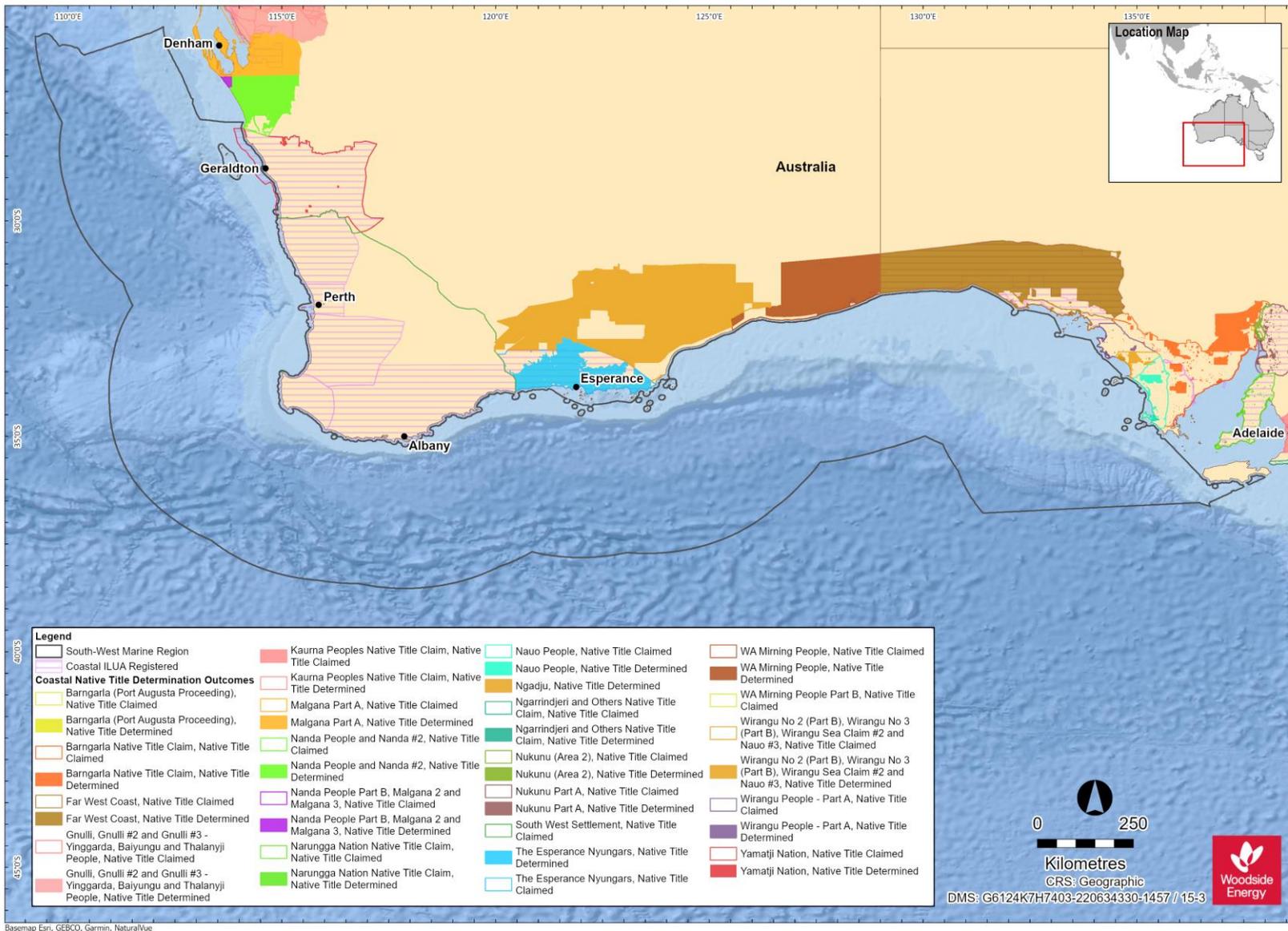


Figure 12-3 Coastal Native Title Claims/ Determinations and ILUAs in the SWMR (data source: DPLH 2024)

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12.1.3 Sea Country

“Sea country is valued for Indigenous cultural identity, health and wellbeing” (DNP 2018a, 2018b).

Woodside recognises the potential for marine ecosystems to include cultural features as well as environmental values. This is one aspect of the broader concept of “Sea Country”, which can be defined as the area of sea over which a First Nations group has interests, cultural value, connection and use. It has been noted that “the saltwater peoples of the north-west are associated with discrete clan estates or tribal areas, often referred to in contemporary Aboriginal English as ‘Saltwater Country’ or ‘Sea Country’.

‘Country’ refers to more than just a geographical area: it is shorthand for all the values, places, resources, stories and cultural obligations associated with that geographical area.” (Smyth 2007).

It necessarily follows that an impact to marine ecosystems has the potential to impact cultural features where the impact is detectable within Sea Country—the seascape which Traditional Custodians view, interact with or hold knowledge of. The link between environmental protection and cultural heritage protection is illustrated in the Australian Government’s Indigenous Protected Areas Program. The Indigenous Protected Areas program provides for “areas of land and sea managed by Indigenous groups as protected areas for biodiversity conservation...IPAs deliver environmental benefits...Managing IPAs also helps Indigenous communities protect the cultural values of their country for future generations...” (DCCEEW, 2024c).

McNiven (2004) suggests that “For those mainland groups whose exploitation of the sea was limited to littoral resources, it is likely that seascapes extended no more than c. 20–30km out to sea, out to the horizon and the limit of human visibility. ... However, in some coastal places, clouds that can be seen well over 100km out to sea are imbued with spiritual significance. For those groups with elaborate canoe technology, seascapes extend well over the horizon.” While there is some evidence of traditional watercraft in Australia’s North West, the recorded evidence is limited to travel across inland rivers (e.g. Barber and Jackson 2011) or travel between coastal islands (Paterson et al 2019).

Cultural features of coastal areas may include marine species that may travel many thousands of kilometres through areas with similar cultural values to multiple Indigenous language groups. Some species may travel as far as 5,000 km from Antarctica to the Kimberley region of Western Australia (Double et al., 2010, 2012), passing First Nations language groups along the entire west coast of Australia.

Table 12-1 Commonly identified Sea Country species and habitats.

Value	Details
Marine mammals	Whales, and in particular humpback whales and dugongs, are commonly identified through consultation with First Nations people as culturally important species, with totemic importance. Common interests include maintaining their populations, biodiversity, and migration patterns.
Marine reptiles	Turtles and sea snakes are commonly identified through consultation with First Nations people as culturally important species and a favoured resource. First Nations people that identify marine reptiles as species of totemic importance or integral to songlines may place high cultural value on their protection. Cultural knowledge of turtles at a population level (turtle migration, behaviour and the related marine environment) may all be important in ensuring the continuation of cultural functions and activities that remain valuable to First Nations people (Fijn 2021:47; Delisle et al. 2018).
Fish and Cephalopods	Fish and squid are commonly identified through consultation with First Nations people as a culturally important species, with fish generally being identified as a resource. First Nations may identify cultural values associated with fish species as important to maintaining both tangible (physical cultural sites) and intangible (cultural knowledge) cultural heritage. Tangible cultural heritage associated with fish can include important cultural sites such as midden sites, fish traps and thalu sites. There are increase ceremonies/rituals for species of squid and octopus to enhance or maintain populations. Thalu are places where these increase ceremonies are performed.

Seabirds	Seabirds, and in particular shags, are commonly identified through literature as a culturally significant species (Malgana Land and Sea Management et al. (2021), as well as a resource (seabird eggs; Smyth 2007).
Benthic habitats	First Nations groups identify benthic habitats as valuable for both their ecological and aesthetic values. Corals attract fish and seagrass providing shelters for fauna, as well as an important resource for dugongs.
Shoreline habitats	First Nations groups identify shoreline habitats as valuable for their ecological values, including mangroves for providing shelter to marine invertebrates, which are identified resources, and potential nursery for turtles. Literature also notes that mangroves are also valued for the flora and fauna they are associated with and support (Commonwealth of Australia 2002) and Smyth (2007) reports that mangrove seeds are used as a resource by Ngarda-Ngarli.

12.1.4 Marine Parks

Woodside acknowledges that Commonwealth and State Marine Park Management Plans have sought to recognise cultural values and responsibilities of First Nations groups. Australian Marine Parks (AMP) describe this framework in the following way: 'when making decisions about what can occur in marine parks and what action we will take to protect AMPs, we take values into account'. AMP summarises these values as natural values, cultural values, heritage values and socio-economic values (**Refer to section 11.5**).

12.1.5 Indigenous Protected Areas

Indigenous Protected Areas (IPAs) are areas of land and sea managed by Indigenous groups as protected areas for biodiversity conservation through voluntary agreements with the Australian Government. IPAs are an essential component of Australia's National Reserve System, which is the network of formally recognised parks, reserves and protected areas across Australia. There are currently 85 dedicated IPAs over 74 million hectares. These account for more than 50 per cent of the National Reserve System (NIAA, 2023). As of August 2024, an additional 36 Traditional Owner consultation projects to develop management plans for proposed IPAs are underway (DCCEEW, 2024c). Ten Sea Country IPA consultation projects were announced in 2022. One of these, Tujukana pa Karajarri Kura Jurrar, is in the NWMR and extends from the existing Karajarri IPA into the sea off the south-west Kimberley coast (DCCEEW, 2024c). The Indigenous Protected Areas program is administered by the National Indigenous Australians Agency in partnership with DCCEEW. Dedicated and proposed IPAs are shown in **Figure 12-12-4**.

The following IPAs are within the NWMR:

Nyangumarta Warrarn IPA

The Nyangumarta Warrarn IPA is comprised of four areas totalling approximately 28,675 km², including parts of The Great Sandy Desert, Walyarta Conservation Reserve, Kujungurru Warrarn Conservation Reserve Area and the Eighty Mile Beach Marine Park Intertidal Area. The traditional owners of the designated IPA self-identify as and are identified by other Pilbara First Nations people as Nyangumarta people. Nyangumarta people are the native title holders of the land and waters.

Ecological values in the IPA include a complex wetland system associated with Mandora Marsh, known to Nyangumarta people as Nyamaring. Walyarta (or Salt Creek). The Mandora Marsh area holds the most inland distribution of mangroves in Australia and the mound springs associated with Mandora Marsh area, such as Yalayala (Eil Eil), are recognised as important bird nesting sites (NWAC & YMAC, 2015).

Karajarri IPA

Karajarri Indigenous Protected Area (IPA) was dedicated in 2014, to manage, protect and enhance Karajarri country. The IPA covers nearly 25,000 km² of land in the southern Kimberley, including 130 km of coastline stretching from Gordon Bay to Cape Missiessy. It comprises extensive coastlines,

tidal creeks and wetlands as well as arid country that stretches into the Great Sandy Desert (NIAA, n.d.).

Karajarri people want to ensure areas of cultural and natural significance are looked after correctly according to their own protocols, and they view their environmental responsibilities as Palanapayana Tukjana Ngurra meaning “everybody looking after country properly” (KTLA, 2014a).

The IPA includes two different zoning categories to help manage country: IUCN Category 2 (National Park) and Category 6 (Protected area with sustainable use of resources). The category 2 zoning allows for the area to become part of an integrated system of protected areas with Eighty-mile beach to the south and Roebuck Bay to the north of the IPA (KTLA, 2014a).

To assist in the planning and development of the IPA, the Karajarri Traditional Lands Association (KTLA) developed a Healthy Country Plan, which provides direction for addressing threats and for working on priorities for land and cultural site management (KTLA, 2014b).

The Tukujana pa Karajarri Kura Jurrar IPA has been announced under the Sea Country IPA Program, extending from the existing Karajarri IPA into the sea off the south-west Kimberley coast (DCCEEW, 2023b). The area includes a network of coastal habitats, such as intertidal and subtidal reefs, mangrove systems, lagoons and tidal creeks, and connects the Ramsar sites of Roebuck Bay and Eighty-mile Beach (DCCEEW, 2023b).

Yawuru IPA

The Yawuru IPA was dedicated by Yawuru people in 2017, covering 2,109 km² of Yawuru coastal and inland country (YRNTBC, 2014). The Yawuru people are the Native Title holders of their land and sea— their ancestors have lived along the foreshores of Roebuck Bay, across the Pindan Plains and inland along the fringes of the Great Sandy Desert for thousands of years (NIAA, n.d.-a).

The Yawuru IPA is managed under the Walyjalajala nagulagabu birrangun buru Plan of Management for 2017-2026 (YRNTBC, 2014). The plan includes eight targets for management:

- Yawuru cultural knowledge and practice,
- Yawuru significant areas,
- Yawuru rights and responsibilities,
- Niyamarri- sand dunes,
- Bilarra- wetlands,
- Birra- bush and pindan country,
- Nagulagun- saltwater country (deep water and intertidal),
- seasonal resources and biodiversity.

Cultural values include Yawuru named sites, tracks and areas, historical sites associated with pearling and pastoral industries, archaeological sites and traditional bush/ sea resources. Ecological values include reefs and seagrass beds that provide habitat for dugongs (*Dugong dugon*) and EPBC Act-listed threatened sea turtle species including Hawksbill Turtle (*Eretmochelys imbricata*), Loggerhead Turtle (*Caretta caretta*), Green Turtle (*Chelonia mydas*) and Flatback Turtle (*Nataden depressus*). Roebuck Bay is a Ramsar site and has a known population of snubfin dolphins (*Orcaella heinsohni*) (**Figure 7-6** Australian snubfin dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)). Other ecological values include pearl shell beds for pearl oysters and habitat for a range of EPBC Act listed threatened species (YRNTBC, 2014).

Bardi Jawi IPA

Bardi Jawi IPA is located 160 km north of Broome and covers 1269.9 km² of land and sea country (NIAA, n.d.-b). The main communities on Bardi country are Djarindjin, Lombadina and Ardyaloon (One Arm Point). Bardi people live on the mainland of the Dampier Peninsula and islands immediately offshore from Ardyaloon. Jawi people call the islands further east, including Iwany (Sunday Island), their traditional country. Today people live in outstations spread along the mainland Peninsula coastline (KLC/ BJNAC RNTBC, 2013).

During the IPA consultation process, The Bardi Jawi rangers guided meetings with individual family groups to identify what they considered important to look after. An IPA steering committee was formed, who contributed cultural knowledge to the Bardi Jawi Indigenous Protected Area Management Plan (2013-2023). They were assisted by The Nature Conservancy in Conservation Action Planning (CAP). This plan highlights targets to be protected on country:

- Marnany (fringing reefs),
- aarli (fish),
- odorr (dugong) and goorlil (turtle),
- significant sites, language, law and culture,
- traditional oola (water) places,
- indigenous plant resources (KLC/ BJNAC RNTBC, 2013).

Jardagarr (coastal country) is classed under IUCN Category 4, and Niimidiman (inland country) is classed under Category 6. Niimidiman harbours many plant and animal species of high cultural value. For example, Irrgil trees are used for making boomerangs and Marrga, Joolgirr and Bilimangard trees are used for making shields. Some Niimidiman areas feature traditional Oola (water) places and stories attached to these places are culturally important. Ecological values of the Jardagarr (coastal) country includes many species of native native garrabal (birds), including Eastern Curlews and Fork-tailed Swifts (KLC/ BJNAC RNTBC, 2013).

Dambimangari IPA

Dambimangari IPA is located between Broome and Darwin, stretching east to the Prince Regent area. It covers 6,422.94 km² of landscape, including open grasslands, eucalyptus woodlands, intertidal flats and rocky reefs and shoals (NIAA, n.d.-c). Dambimangari is the traditional home of the Worrarra people. Dambimangari peoples' identity is interwoven with the sea and its reefs and islands. Reefs are important hunting grounds for jaya (saltwater fish) and warliny (dugong).

The targets for protection are identified in the Dambimangari Healthy Country Plan 2012-2022 as following:

- cultural sites
- reefs, beaches and islands
- saltwater fish
- turtle and dugong
- whales and dolphins
- rivers, waterholes, waterfalls and wetlands (freshwater systems)
- culturally important native animals
- bush fruits and medicine plants
- right-way fire (DAC, 2012).

Jurluwarra (Saltwater-turtle) and warliny (Dugong) are culturally important to Dambimangari people as a food source. Cultural sites include rock art sites, stone arrangements, burial sites and important camping beaches that were used for resting when travelling through saltwater country (DAC, 2012).

Uunguu IPA

Stage one of the Uunguu IPA was declared on May 23, 2011, coinciding with the Native Title Determination and release of the Healthy Country Plan. The IPA covers 7,598.06 km². It has been home to the Wunambal Gaambera people for many thousands of years and is part of the Wanjina Wunggurr culture. Wunambal Gaambera people call their country Uunguu – 'our living home'. Two of the reserves extend to the low water mark at Bougainville Peninsula, Vansittart Bay, Anjo Peninsula, Napier Broome Bay and islands in Rothsay Water (WGAC, 2017). A Saltwater IPA Plan of Management was created in 2017 as a sub-plan for the Wunambal Gaambera Healthy Country Plan (WGAC, 2017)²².

²² Marine areas were proposed to be added to the Uunguu IPA as an International Union for Conservation of Nature (IUCN) Category VI (Managed Resource) Protected Area, early in 2018.

Ten targets identified in the Wunambal Gaambera Healthy Country Plan are:

- Wanjina Wunggurr Law – our culture,
- right way fire,
- aamba (kangaroos and wallabies) and other meat foods,
- Wulo (rainforest),
- Yawal (waterholes),
- bush plants,
- rock art,
- cultural places on islands,
- fish and other seafoods,
- mangguru (marine turtles) and balguja (dugong) (WGAC, 2010).

The Uunguu Rangers look after land and sea country through pest control, visitor management, cultural heritage conservation, monitoring flora and fauna and fire management (NIAA, n.d.-c).

Balanggarra IPA

The Balanggarra IPA was dedicated on August 7, 2013. The IPA spans over 1 million hectares of land and sea country in the Kimberley region and has been home to the Balanggarra people for thousands of years. The five big rivers of the north Kimberley intersect on Balanggarra country. These rivers include the King River, Forest River, Pentecost River, Durack River and Ord River. The region also borders the Cambridge Gulf and Timor Sea. Three species of vulnerable sawfish are found in the waters of this region (Kimberley Land Council, n.d).

Nine targets identified in the Balanggarra Healthy Country Plan 2012-- 2022 are:

- Balanggarra law and culture,
- Our gra or country (land, sea, rivers, islands),
- Cultural sites (rock art sites, burial sites, heritage places),
- Native animals,
- Accessible bush tucker / medicine plants,
- Right way fire,
- Freshwater (places and freshwater fish),
- Saltwater fish and seafood,
- Migratory saltwater species (turtle, dugong, whales, dolphins).

The Balanggarra Rangers manage 1,000 km of river and sea frontage on their country to manage and protect and enhance the unique biodiversity values of their country (Balanggarra Aboriginal Corporation, 2011).

Wilinggin IPA

The Wilinggin IPA spans over 2.4 million hectares of remote country in the central north Kimberley region and was declared in 2013. It included basalt ranges and sandstone cliffs which rise 250 m high. The area has wooded grasslands, pockets of rainforest, extensive mangrove systems, tidal mudflats, rivers, creeks and billabongs. The Ngarinyin people are the traditional owners of this area and have lived on Wilinggin country for thousands of years (NIAA, n.d-d). Wilinggin Country is mostly landlocked, apart from two small saltwater areas which include Walcott Inlet and Prince Frederick Harbour.

Seven targets are identified in the Wilinggin Healthy Country Plan 2023 – 2032.

- Becoming strong on country
- Food and medicine plants
- Bushfire
- Law and culture sites
- Law and culture
- Freshwater places
- Wildlife and bush meats

The Wunggurr Rangers are caretakers of the unique natural and cultural values of Wilinggin country (Wilinggin Aboriginal Corporation, 2022).

12.1.6 First Nations Cultural Heritage

Woodside understands that communal cultural connection exist between Traditional Custodians and land and waters. It is understood from the onshore archaeological record that First Nations people have occupied the Australian continent for at least 65,000 years (Clarkson et al 2017) and in many places maintain a strong continuing connection that is said to extend back in Indigenous cosmology to the beginning of time.

Archaeological sites identified onshore with the potential to exist in intertidal or submerged locations include petroglyphs, fish traps and artefact scatters or burials contained within sand dunes. As archaeological sites, these features have archaeological value which relates to the preservation of their fabric (i.e. the tangible features) and their context (i.e. their location and relationship to other archaeological and natural features). Archaeological sites may also have intangible dimensions (ICOMOS, 2013) cultural value that exist in addition to their archaeological or scientific value.

Intangible values are a living expression of cultural heritage that is prevalent across generations. These values can be traditional, and they can also be new and living at the same time. An understanding of the intangible cultural heritage of different First Nations communities helps with intercultural dialogue and encourages mutual respect (UNESCO, 2011). Intangible cultural heritage is safeguarded through practicing and passing on knowledge or expressions by the people to whom it belongs to (NNTC, n.d). **Figure 12-2** provides context to common intangible themes that exist in First Nations communities.

Table 12-2 Intangible Heritage Values associated with Sea Country

Value	Details
Songlines	<p>Oral songlines are often described by First Nations people as the law of the land and make up part of the Dreaming (Neale and Kelly 2020:30). Songlines are viewed in Western academia as a framework for relating people to land and consist of a series of invisible, interconnected routes across the landscape that mark significant sites for First Nations people (Higgins 2021:723). Songlines demonstrate First Nations peoples' strong connections to land by revealing sacred knowledge that is place-specific (Roberts 2023:5). The land's physical features are instrumental in maintaining songlines because this is how ancestral spirits journeyed through, and interacted with, the physical landscape leaving sacred knowledge behind. The interconnection between the physical and spiritual is where songlines become intrinsically tied to significant places across Country. As a result, geographical landforms are recorded within songlines and become sacred places. Such landforms can include inter alia: rocks, mountains, rivers, Caves and hills (Higgins 2021:724). Songlines can become lost, fragmented or broken when there is a loss of Country or forced removal from Country (Neale and Kelly 2020:30). Physical sites that have been identified as comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge.</p> <p>In Australia, songlines can stretch thousands of kilometres, making up a complex and organic network of stories containing cultural knowledge of First Nations communities across the land (Neale and Kelly 2020:35). Songlines can also extend out to Sea Country and contain cultural knowledge that is tied to geographic features, atmospheric phenomena and marine plants and animals. Often songlines containing references to a seascape or Sea Country make mention of mythical events occurring around marine life, fishing areas, submerged rocks or coral. Songlines that embody seascapes can reflect how a group may relate to, or value, Sea Country—for example connections to nearby islands that they once inhabited in their songlines (Smyth and Isherwood 2016:307). Songlines can also be used as proof of long-standing connection to land and support a legal entitlement to land rights (Higgins 2021:74). Examples where songlines contain strong references to Sea Country are more common in Pacific Islander and Torres Strait Islander communities, who often refer to seascapes and skylines in their songlines in order to communicate sacred knowledge that assists in safe navigation of the ocean (Neale and Kelly 2020:83-84).</p>
Creation/dreaming sites, sacred sites and ancestral beings	<p>The only published sources located by Woodside with detailed descriptions of the location of ancestral beings or creation/dreaming/sacred sites place these on land, or within inland water sources such as rivers or pools. However, some ancestral beings are noted to live within or originate from the sea generally, and some creation stories talk to the creation of features from</p>

	or in the sea. Additionally, every place on shore or at sea must be assumed to have been created on some level in First Nations cosmology.
Cultural obligations to care for Country	Caring for Country collectively refers to the cultural obligations of individuals and groups, as well as rituals and ceremonies required for the physical and spiritual health of the environment. In the literature reviewed by Woodside, caring for Country was noted to include, but is not limited to, maintenance of the physical environment and ecosystem. It may also have cultural, spiritual and ritual dimensions such as caring for ancestral beings or ensuring cultural safety. Thalu are places where what are known as “increase ceremonies” are performed to enhance or maintain populations of plants, animals or phenomena. All mentions of active ceremonial sites were confined to onshore locations, though the values may extend offshore where e.g., a thalu relates to marine species populations.
Knowledge of Country/customary law and transfer of knowledge	Knowledge of and familiarity with the features of Sea Country is itself a value. The inherent potential for restricted or secret knowledge makes this difficult to assess even through consultation with Traditional Custodians. However, aspects such as limitations on access to sites or disruption/relocation of First Nations communities may have implications for the preservation of First Nations knowledge. Further, connection to Country may be damaged where people are displaced or disrupted (e.g., during colonisation) or where there is a loss of technical skills or environmental knowledge (McDonald and Phillips, 2021). Transfer of knowledge includes continuing traditional practices to pass on practical skills. This transfer of knowledge may be integral to managing a group’s intangible cultural heritage (UNESCO 2003).
Connection to Country	Describes the multi-faceted relationship between First Nations people and the landscape, which is envisioned as having personhood and spirit. It is also an aspect of personal identity for many First Nations people. In the case of Sea Country this can mean identifying as a Saltwater person, where “essence of being a ‘Saltwater’ person is ontological... it is about how people relate spiritually to the sea and engage with spiritual forces that created it, the marine flora and fauna and people” (McDonald and Phillips, 2021).
Access to Country, including Sea Country	Access is necessary for the continuation of other values including caring for Country, carrying out cultural practices and the transfer of traditional knowledge. Being on Country can be an important way of expressing or maintaining connection to Country (Australian Indigenous HealthInfoNet n.d.). Access is also a value in its own right, as a continuation of traditional Sea Country access and use.
Kinship systems and totemic species	Individuals may have kinship to specific species (Smyth 2008, Juluwarlu 2004) and/or a responsibility to care for species (Muller 2008). Kinship arises from totemic associations within First Nations “skin group” systems. It is forbidden for an individual to kill or eat a species who is from the same “skin group” (Juluwarlu 2004). They may also have certain obligations linked to the discussion of caring for Country above. It is assumed that marine species may have kinship/totemic relationships to Traditional Custodians, but it is understood that these relationships do not prohibit people outside of that “skin group” from hunting or eating that same species (Juluwarlu 2004).
Resource collection	A number of marine species are identified through consultation and literature as important resources, particularly as food sources (See Section 12.1.4). In addition to their immediate value as sustenance, the gathering and preparation of these resources is informed by cultural knowledge, and an inability to use these resources may result in a loss of ability to transfer that knowledge to future generations.

On 15 November 2023, the *Aboriginal Heritage Act 1972 (WA)* was restored as the legislation that manages Aboriginal heritage in Western Australia (DPLH, 2024). Under section 17 of that Act it is an offence to excavate, destroy, damage, conceal or alter any Aboriginal site without authorisation. Where there is a risk of injury or desecration to a significant Aboriginal area, even where permitted under the AHA, any Aboriginal person may apply to the federal Environment Minister for a declaration under sections 9 or 10 of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)* for the protection and preservation of that area.

12.1.6.1 Submerged Cultural Heritage

It is understood that the sea level has risen significantly during the 65,000 years of Indigenous occupation, and areas that were once inhabited are now submerged on the continental shelf (Veth

et al 2019; UWA 2021). At its lowest level during Indigenous occupation, the sea level was between 125 m (O’Leary et al 2020, Veth et al 2019, Williams et al 2018) and 130 m below current levels (Benjamin et al 2020, Benjamin et al 2023, UWA 2021).

Archaeological material preserved on the Ancient Landscape has the potential to provide further information about the earliest periods of human occupation (Veth et al 2019; UWA 2021).

Recent archaeological discoveries demonstrate that the now submerged landscape was occupied and inhabited, and can retain archaeological material from this time (Benjamin et al, 2020, Benjamin et al 2023; see Ward et al 2022 for an opposing view).

Certain landscapes have been identified as archaeologically prospective on the submerged Ancient Landscape, including:

- submerged water sources (rivers, waterholes, tidal channels and seeps) which have an increased likelihood of use or habitation as past generations used the associated resources (UWA 2021);
- submerged calcarenite ridges younger than human occupation of the continent which may have formed over and protected artefacts in-situ (Veth 2019);
- prominent landscape features (e.g. hills, particularly of igneous rock formations) that may have been foci for cultural activity (UWA 2021);
- karst depressions and other “catch points” where artefacts may accumulate following disturbances caused by inundation (UWA 2021, Nutley 2022, Nutley 2023a);
- Madeleine Shoals has been specifically identified by Murujuga Aboriginal Corporation (MAC) as an archaeologically prospective feature due to its igneous rock formations which have the potential to contain petroglyphs.

The sites considered most likely to survive inundation, based on the review of existing literature, were logically the more robust forms including:

- midden and artefacts within cemented dunes, relict water holes, and beach rock deposits;
- quarry outcrops, extraction pits, and associated reduction debris in fine-grained volcanic outcrops;
- curvilinear stone structures and standing stones sitting on volcanic pavements and jammed into volcanic rock piles;
- lag deposits of artefacts and possibly midden on hardpan in suitable landscape contexts with good preservation conditions (e.g. shallow declination shorelines in sheltered passages of the inner archipelago or on the leeward side of hard-rock/fringing reef cause-ways adjacent to the outer islands);
- small overhangs and shelters with preserved deposits, facing away from the dominant wave and wind action. (Veth et al., 2019).

In recognition of this, Woodside considers the Ancient Landscape between the mainland and the ancient coastline KEF as an area where potential First Nations archaeological material may exist on the seabed, as this covers the full extent of this possible occupation. Known places including archaeological sites may be protected subject to declarations under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, *Underwater Cultural Heritage Act 2018* or EPBC Act. However, these Acts only extend protection to First Nations heritage places specified by declaration or otherwise included on a statutory list. Woodside understands that there is currently no First Nations archaeology known to exist anywhere within Commonwealth waters and no areas subject to declarations or prescriptions under these Acts.

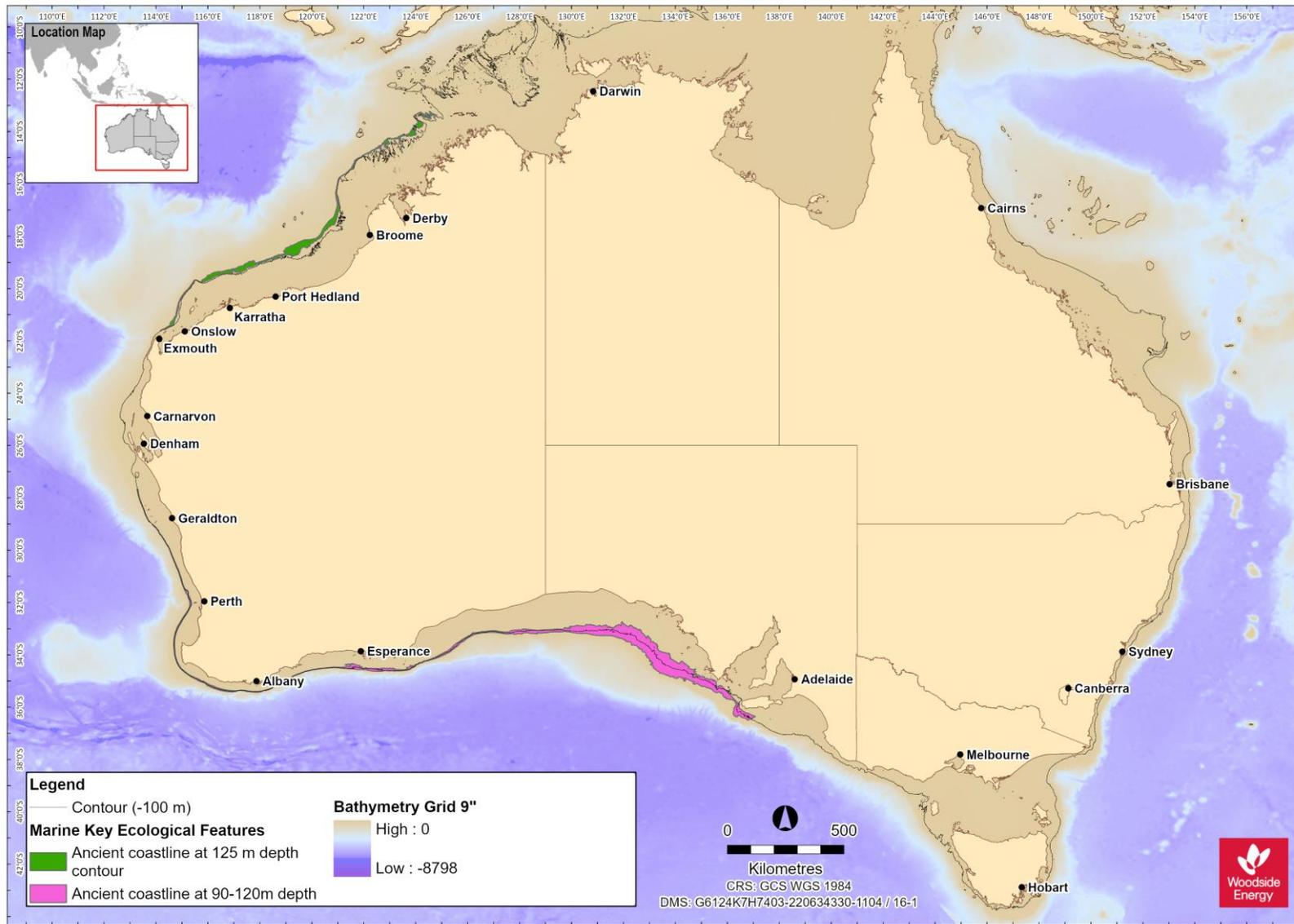


Figure 12-5 Indicative Bathymetry of the Ancient Submerged Landscape (data source: GA 2024, DCCEEW, 2024d)

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12.1.6.2 First Nations Sites of Significance

Murujuga (the Burrup Peninsula) has a very high density of significant Indigenous heritage sites and places with tangible and intangible heritage values. The area has one of the largest, densest, and most diverse collections of rock art in the world. It is estimated that the peninsula and surrounding islands contain over a million petroglyphs (rock engravings) covering a broad range of styles and subjects. The landscape also contains quarries, middens, fish traps, rock shelters, ceremonial sites, artefact scatters, grinding patches and stone arrangements that evidence tens of thousands of years of human occupation. These places are linked to First Nations cosmology, Dreaming stories and songs through the stories, knowledge and customs that are still held by traditional custodians.

In 2007 the Dampier Archipelago (including the Burrup Peninsula) was included on the National Heritage List due to outstanding heritage values relating to Australia's cultural history contained in the large number, density, diversity, distribution and fine execution of rock art. Within the National Heritage Place, the Murujuga National Park covers 4,913 ha and is co-managed by the Murujuga Aboriginal Corporation and the Department of Biodiversity, Conservation and Attractions. The Murujuga Cultural Landscape was also added to Australia's Tentative World Heritage List in 2020, with full World Heritage Listing anticipated in 2024.

The Department of Planning, Lands and Heritage maintains a register of registered sites and heritage places. There are over 1,600 registered sites on Murujuga and the Dampier Archipelago with around 1,100 other heritage places. This register is not comprehensive and will be complemented by heritage surveys where necessary. Protection of National and World Heritage values is also legislated through various provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). Murujuga National Park is managed under the *Conservation and Land Management Act 1984* (WA).

12.1.7 Historic Sites of Significance

Places of historic cultural significance are protected under Commonwealth, State and local regimes. Places inscribed on the National or World Heritage list are protected through various provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). Historic places may also be protected under the *Heritage Act 2018* (WA); under section 129 of this Act the prohibited alteration, demolition, damage, despoilment or removal of objects from a registered place may result in a fine of A\$1 million. Protection of heritage by local government typically emanates from local planning schemes produced under Part 5 of the *Planning and Development Act 2005* (WA).

Historical sites of significance and heritage value are found along adjacent foreshores of the SWMR, NWMR and NWR.

12.1.8 Historic Underwater Heritage

The remains of vessels and aircraft in Commonwealth waters, along with any associated article, are automatically protected under the *Underwater Cultural Heritage Act 2018* (Cth) after 75 years. This is applicable whether the existence or location of the article is known or unknown, as per section 16 of the Act. Other articles of underwater cultural heritage may be declared for protection as outlined in section 17 of the Act. Remains and relics of any ship lost, wrecked or abandoned in Western Australian waters before 1900 are protected by the *Maritime Archaeology Act 1973* (WA).

There are no known National Heritage listed shipwrecks in the NWMR and NMR (**Table 12-3** and **Table 12-4**). The only known National heritage listed shipwrecks are within the SWMR and include:

- The HMAS Sydney II
- The HSK Kormoran
- The Batavia

Information on National Heritage listed shipwrecks in the SWMR can be found in **Table 12-5**.

Known historical shipwreck sites in Western Australian waters are listed in the [WA Maritime Museum Shipwreck Database](#). Known historical shipwreck sites in Commonwealth waters are listed in [Australasian Underwater Cultural Heritage Database](#). These databases only cover known historical sites. Known shipwrecks listed in these databases for the NWMR, NMR and SWMR are shown in **Figure 12-6**, **Figure 12-7**, and **Figure 12-8** respectively.

12.1.9 World, National and Commonwealth Listed Heritage Places

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects the heritage values of National Heritage Listed and World Heritage Listed places. Any action that will have or is likely to have a significant impact on the heritage values of these places are offences under Part 3, Division 1 of the EPBC Act unless the action is permitted under one of the mechanisms of the EPBC Act. These mechanisms include a number of exceptions set out in Part 4, approvals granted under Part 9 and ministerial decisions under Division 2 Part 7.

Australia's National Heritage Sites are those of outstanding natural, historic and/or Indigenous significance to Australia. Indigenous Protected Areas and National Heritage places classed as natural are discussed in **Section 11.3**. Historic and/or Indigenous National Heritage Listed Places of the NWMR and SWMR include:

- Dampier Archipelago (including Burrup Peninsula)
- Dirk Hartog Landing Site/Cape Inscription
- *HMAS Sydney II*, *HSK Kormoran* Shipwreck Sites
- *Batavia* Shipwreck Site and Survivor Camps Area 1629 – Houtman Abrolhos
- Cheetup Rock Shelter

Commonwealth Heritage Places are a collection of sites recognised for their Indigenous, historical and/or natural values, which are owned or controlled by the Australian Government. A number of these sites are owned or controlled by the Department of Defence, as well as Government agencies relating to maritime safety, customs and communication. Commonwealth Heritage places classed as natural are discussed in **Section 11.3**. Listed Heritage Places in the NWMR are all natural with two related to defence activities which include:

- Yampi Defence Area (**Table 11-6**)
- Learmonth Air Weapons Range Facility (**Table 11-6**)

World Heritage Properties are those sites that hold universal value which transcends any value that may be held by any one nation. These sites and their qualities are detailed in the Convention concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention), to which Australia is a founding member. The Protected Matters Search Report (**APPENDIX A**. Protected Matter Search Reports for NWMR, SWMR and NMR) lists two natural World Heritage Properties in the NWMR (refer **Section 11.2**). There are no cultural heritage listings located within the NWMR.

Summary tables of heritage places for NWMR, SWMR and NMR are presented in **Table 12-3**, **Table 12-4** and **Table 12-5**.

Table 12-3 Heritage Places (Indigenous and Historic) within the NWMR

Heritage Places	Woodside Activity Area			Class	Description	Conservation Values
	Browse	NWS/S	NW Cape			
National Heritage Properties						
Dampier Archipelago (including Burrup Peninsula)	-	✓	-	Indigenous	The Dampier Archipelago (including the Burrup Peninsula) contains one of the densest concentrations of rock engravings in Australia with some sites containing thousands or tens of thousands of images.	The rock engravings comprise images of avian, marine and terrestrial fauna, schematised human figures, figures with mixed human and animal characteristics and geometric designs. At a national level it has an exceptionally diverse and dynamic range of schematised human figures some of which are arranged in complex scenes. The fine execution and dynamic nature of the engravings, particularly some of the composite panels, exhibit a degree of creativity that is unusual in Australian rock engravings.
Dirk Hartog Landing Site 1616 – Cape Inscription Area	-	-	✓	Historic	Cape Inscription is the site of the oldest known landings of Europeans on the WA coastline.	The Cape Inscription area displays uncommon aspects of Australia's cultural history because of the cumulative effect its association with these explorers and surveyors had on growing knowledge of the great southern continent in Europe. The association of the site with these early navigators stimulated the development of the European view of the great southern continent at a time when they began to look at the world with a modern scientific outlook.
Commonwealth Heritage Properties						
None						

Table 12-4 Heritage Places (Indigenous and Historic) within the NMR

Heritage Places	Class	Description	Conservation Values
National Heritage Properties			
None			
Commonwealth Heritage Properties			
None			

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Table 12-5 Heritage Places (Indigenous and Historic) within the SWMR

Heritage Places	Class	Description	Conservation Values
National Heritage Properties			
Cheetup Rock Shelter	Indigenous	Cheetup, meaning “place of the birds”, is the name of a spacious rock shelter located in Cape Le Grand National Park, about 55 km east of Esperance in WA. First Nations people associated with the place identify themselves as Nyungar/Noongar, Ngadju (shortened from Ngadjunmaia) or Mirning.	Cheetup rock shelter provides outstanding evidence for the antiquity of processing and use of cycad seeds by First Nations people. The seeds of the cycad are extremely toxic and can cause speedy death if eaten fresh without proper preparation to remove the toxins. The presence of <i>Macrozamia riedlei</i> seeds in a pit lined with <i>Xanthorrhoea</i> (grass tree) leaf bases indicates that First Nations people in the Esperance region had the knowledge to remove the toxins of this important source of carbohydrate and protein at least 13,200 years ago.
Batavia Shipwreck Site and Survivor Camps Area 1629 – Houtman Abrolhos	Historic	The Batavia and its associated sites hold an important place in the discovery and delineation of the WA coastline. The wreck of the Batavia, and other Dutch ships like her, convinced the VOC (Dutch East India Company) of the necessity of more accurate charts of the coastline and resulted in the commissioning of Vlamingh’s 1696 voyage.	Because of its relatively undisturbed nature the archaeological investigation of the wreck itself has revealed a range of objects of considerable value as well as to artefact specialists and historians.
HMAS Sydney II and HSK Kormoran Shipwreck Sites	Historic	The naval battle fought between the Australian warship HMAS Sydney II and the German commerce raider HSK Kormoran off the WA coast during World War II was a defining event in Australia’s cultural history. HMAS Sydney II was Australia’s most famous warship of the time and this battle has forever linked the stories of these warships to each other. The loss of HMAS Sydney II along with its entire crew of 645 following the battle with HSK Kormoran, remains as Australia’s worst naval disaster.	The shipwreck sites of HMAS Sydney II and HSK Kormoran have outstanding heritage value to the nation because of their importance in a defining event in Australia’s cultural history and for their part in development of the process of the defence of Australia.

Heritage Places	Class	Description	Conservation Values
Commonwealth Heritage Properties			
Cliff Point Historic Sites	Historic	Cliff Head is a limestone bluff on the east coast of Garden Island. Evidence of occupation has been reported from the beach just north of the head, the immediate hinterland, the ridge above and on the south face of the ridge.	The Cliff Point Historic Site, individually significant within the area of Garden Island, is important as the first site inhabited by Governor Stirling's party in 1829 when founding the colony of WA, and as WA's first official non-convict settlement. The site was occupied in the first instance by Captain Charles Fremantle before the arrival of Captain Stirling. The party occupied the site for two months before a move was made to the Swan River settlement on the mainland.
HMAS Sydney II and HSK Kormoran Shipwreck Sites	Historic	As above.	As above.
J Gun Battery	Historic	J Battery comprised two 155 mm long range guns, the other similar battery being at Cape Peron on the mainland at the entrance to Cockburn Sound. Located in the dune systems at the north western corner of Garden Island, elements of the J Battery complex are now covered in part by sand.	J Gun Battery (1942) is individually significant within the area of Garden Island (Register No. 019544) and is historically important as the first gun battery constructed on Garden Island and as one of two long range gun batteries which played a strategic role in the coastal defences of Cockburn Sound and Fremantle following the entry of Japan into the Second World War (1939-45).

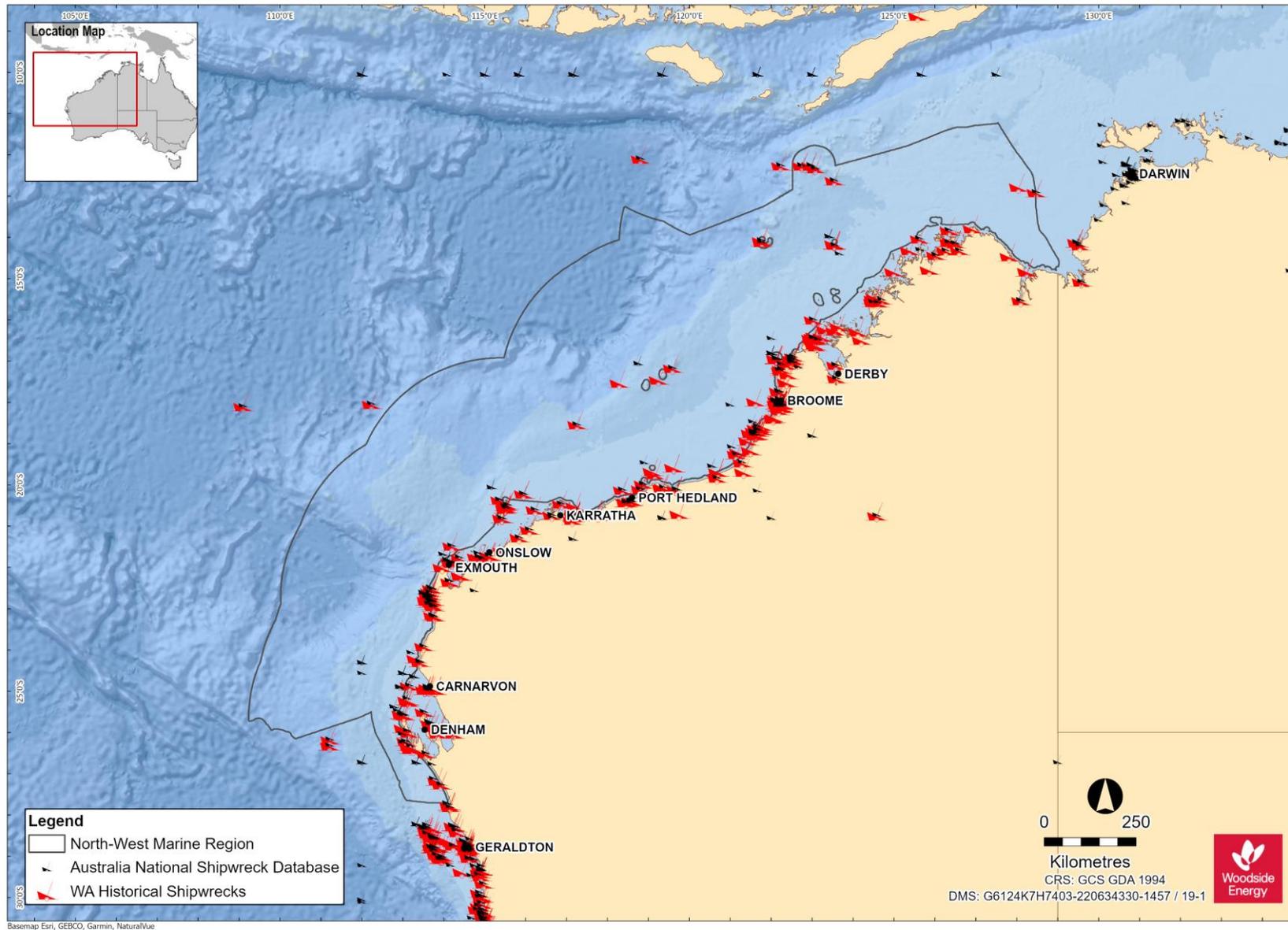


Figure 12-6 Shipwrecks in the NWMR (data source: WAM, 2018 and AODN, 2008)

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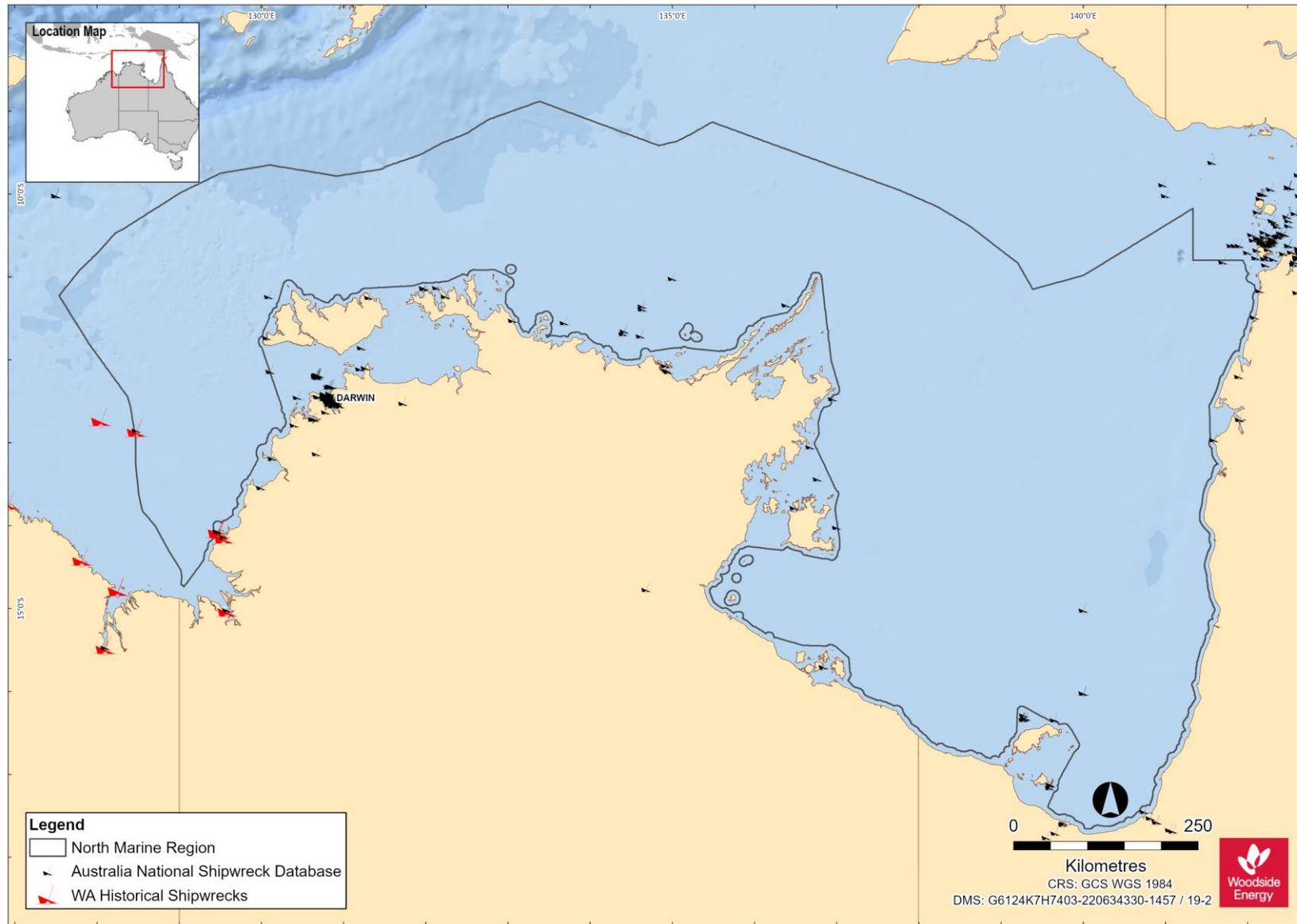


Figure 12-7 Shipwrecks in the NMR (data source: WAM, 2018 and AODN, 2008)

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Revision: 2

Woodside ID: 1401743486

Page 275 of 379

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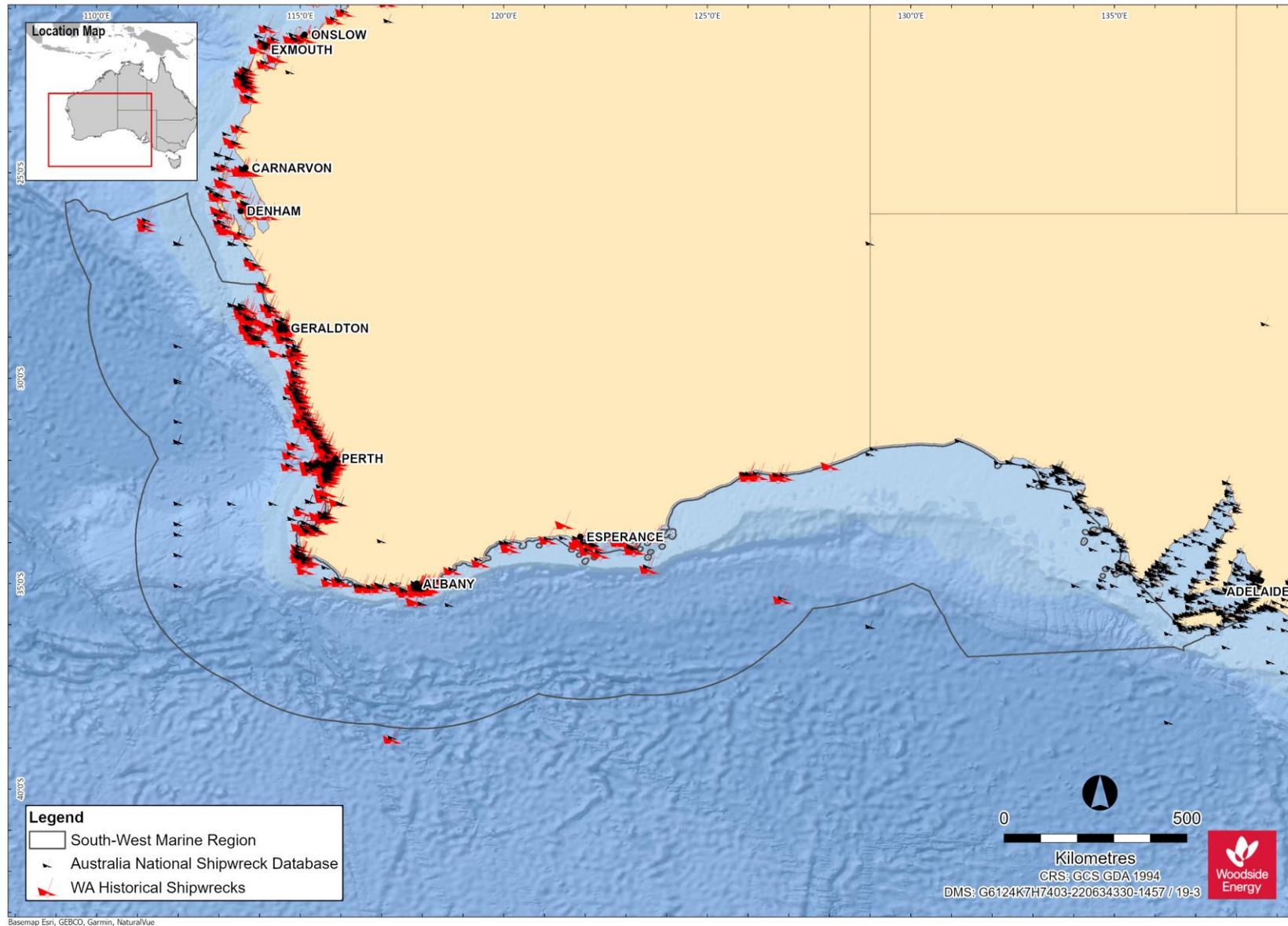


Figure 12-8 Shipwrecks in the SWMR (data source: WAM, 2018 and AODN, 2008)

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12.2 Socio-Economic Values

Socio-economic values include commercial and traditional fishing, tourism and recreation, shipping, oil and gas activities and defence activities.

12.2.1 Commercial Fisheries Commonwealth and State

The Australian Fisheries Management Authority (AFMA) manages fisheries on behalf of the Commonwealth Government and is bound by objectives under the *Fisheries Management Act 1991* (Cth).

WA State commercial fisheries are managed by the WA Department of Primary Industries and Regional Development (WA DPIRD) under the *Fish Resources Management Act 1994* (WA), *Fisheries Resources Management Regulations 1995* (WA), relevant gazetted notices and licence conditions, and applicable Fishery Management Plans.

Commonwealth and State managed fisheries that are licensed to operate within the NWMR are summarised in **Table 12-6**.

Table 12-6 Commonwealth and State managed fisheries

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
Commonwealth Managed Fisheries						
Southern Bluefin Tuna Fishery	✓	✓	✓	Management area The Southern Bluefin Tuna Fishery covers the entire EEZ around Australia, out to 200 nm from the coast. They do not fish in the Woodside activity area.		
				Species targeted Southern bluefin tuna (<i>Thunnus maccoyii</i>)	Fishing methods Longline, purse seine fishing, and minor line (troll and poling).	Fishing depth Southern bluefin tuna is a pelagic species which can be found to depths of 500 m (AFMA, 2021a).
				Fishing effort	<p>Most of the Australian fishing effort is by purse-seine vessels in the Great Australian Bight and waters off South Australia during summer months, and by longline off the New South Wales coastline during winter months (Patterson and Dylewski, 2023a).</p> <p>The Southern Bluefin Tuna Fishery is shared amongst countries. Australia currently has a 35% share of the total global allowable catch. Whilst wild capture fishing in Australia to sell directly to market can occur anywhere throughout the fisheries range, currently most of that quota is value-added through ranching (on-growing the wild captured fish for an extra 5-6 months). Ranching requires significant infrastructure, a resident labour force, plus proximity to a fishery able to supply a large quantity of natural feed/sardines (40,000+ tonnes). North-west WA is critically important regardless of how the quota is fished because of the proximity to the single spawning ground of this global roaming species. Young fish (1–4 years of age) move from the spawning ground in the north-east Indian Ocean into the Australian EEZ and southwards along the Western Australian coast (Patterson and Dylewski, 2023).</p> <p>The stock is classified as not overfished (Patterson and Dylewski, 2023a).</p> <p>A total of 5,972 t bluefin tuna catch was recorded for the 2021-22 fishing season, an increase from 5,646 t in the 2020-21 period (Patterson and Dylewski, 2023a). Of the total catch, 4,957 t were collected using purse seine and 1,015 from pelagic longline.</p>	
				Active licences/vessels	Eight purse seine vessels and 22 longline vessels, an increase from 7 purse seine vessels and 20 longline vessels in the 2020-21 period (Patterson and Dylewski, 2023a).	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
Western Skipjack Tuna Fishery	✓	✓	✓	Management area	The combined western and eastern skipjack tuna (<i>Katsuwonus pelamis</i>) fisheries encompass the entire Australian EEZ. The Western Skipjack Tuna Fishery extends westward from the SA/ Victorian border across the Great Australian Bight and around the west coast of WA to the Cape York Peninsula.	
				Species targeted	Fishing methods	Fishing depth
				Western skipjack tuna (<i>Katsuwonus pelamis</i>)	Fishers use purse seine gear (about 98% of catch) and sometimes pole and line when fishing for skipjack tuna.	Western skipjack tuna is a pelagic species that can be found to depths of 260 m (AFMA, 2021b).
				Fishing effort:	The Skipjack Tuna Fishery has not been actively fished since the 2008-2009 fishing season (Patterson and Delewski, 2023b). The management arrangements for this fishery will be reviewed if active boats re-enter the fishery.	
				Active licences/vessels:	No active vessels operating since 2009 (Patterson and Delewski, 2023b).	
Western Tuna and Billfish Fishery	✓	✓	✓	Management area	The Western Tuna and Billfish Fishery extends to the Australian EEZ boundary in the Indian Ocean.	
				Species targeted	Fishing methods	Fishing depth
				Key species caught in the fishery are bigeye tuna (<i>Thunnus obesus</i>), yellowfin tuna (<i>T. albacares</i>) and swordfish (<i>Xiphias gladius</i>). Striped marlin (<i>Kajikia audax</i>) is a minor component of the catch. Catch of albacore (<i>T. alalunga</i>), a non-quota species, can approach levels similar to yellowfin tuna catch in some years (Blake et al., 2022a).	Fishers mainly use pelagic longline fishing gear to catch the targeted species. Minor line (including handline, troll, rod and reel) can also be used, and purse seine.	Species have a broad depth distribution, with tuna occurring at 150 – 300 m, striped marlin at 150 m and swordfish at up to 600 m (BRS, 2007).
				Fishing effort:	The fishery operates in Australia's EEZ and high seas of the Indian Ocean. Fishing effort in recent years has been concentrated off south-west WA, with occasional activity off SA (Patterson et al., 2023).	

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Fishery	Woodside Activity Area			Description					
	Browse	NWS/S	NW Cape						
				<p>A total of 145 t catch was landed in the 2021-22 seasons, a decrease from 252 t in the 2020-21 period (Patterson, et al., 2023). The striped marlin, bigeye tuna, and yellowfin tuna are classified as subject to overfishing (Patterson et al., 2023).</p> <p>Active licences/vessels: Two pelagic longline and 3 minor line vessels were active during the 2021-22 season (Patterson, et al., 2023).</p>					
Western Deepwater Trawl Fishery			✓	<p>Management area The Western Deepwater Trawl Fishery is in deep water off WA, from the line approximating the 200 m isobath to the edge of the Australian Fishing Zone (AFZ). (Blake et.al. 2021).</p>					
			<table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td> <p>More than 50 species, historically dominated by six commercial finfish species or species groups:</p> <ul style="list-style-type: none"> • Orange roughy (<i>Hoplostethus atlanticus</i>) • Oreos (Oreosomatidae) • Boarfish (Pentacerotidae) • Eteline snapper (Lutjanidae: Etelinae) • Apsiline snapper (Lutjanidae: Apsilinae) • Sea bream (Lethrinidae). </td> <td>Demersal trawl.</td> <td>Water deeper than 200 m. (Blake <i>et.al.</i> 2021).</td> </tr> </tbody> </table>	Species targeted	Fishing methods	Fishing depth	<p>More than 50 species, historically dominated by six commercial finfish species or species groups:</p> <ul style="list-style-type: none"> • Orange roughy (<i>Hoplostethus atlanticus</i>) • Oreos (Oreosomatidae) • Boarfish (Pentacerotidae) • Eteline snapper (Lutjanidae: Etelinae) • Apsiline snapper (Lutjanidae: Apsilinae) • Sea bream (Lethrinidae). 	Demersal trawl.	Water deeper than 200 m. (Blake <i>et.al.</i> 2021).
			Species targeted	Fishing methods	Fishing depth				
			<p>More than 50 species, historically dominated by six commercial finfish species or species groups:</p> <ul style="list-style-type: none"> • Orange roughy (<i>Hoplostethus atlanticus</i>) • Oreos (Oreosomatidae) • Boarfish (Pentacerotidae) • Eteline snapper (Lutjanidae: Etelinae) • Apsiline snapper (Lutjanidae: Apsilinae) • Sea bream (Lethrinidae). 	Demersal trawl.	Water deeper than 200 m. (Blake <i>et.al.</i> 2021).				
<p>Fishing effort: The number of vessels active in the fishery and total hours trawled have fluctuated from year to year. Notably, total hours trawled were relatively high for a brief period during the early 2000s when fishers targeted ruby snapper and deep-water bugs (Patterson et al., 2020). Total trawl hours have been variable but relatively low since 2005-06. In 2021-22, 76 trawl-hours were recorded in the fishery, down from a recent peak of 1,108 in 2017-18 (Keller et al., 2023)</p>									

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
					<p>The total catch was 12 t in the 2021-22 season, up from 5 t in the 2020-21 season and no deepwater bugs were caught between 2020 and 2022 (Keller et al., 2023). Ruby snapper made up 40% of the catch in 2021-22 and 31% in 2020-21 (Keller et al., 2023). Ruby snapper and deepwater bugs stock are considered not subject to overfishing but the biomass status of deepwater bugs are classified as uncertain (Keller, et al., 2023).</p>	
				Active licences/vessels:	Since 2004-05, 1-3 vessels have been active in the fishery, with 2 active vessels in 2021-22 (Keller, et al., 2023).	
North-west Slope Trawl Fishery	✓	✓		Management area	The North-west Slope Trawl Fishery extends from 114 °E to 125 °E, from the 200 m isobath to the outer limit of the AFZ (200 nm from the coastline, which is the boundary of the Australian EEZ).	
				Species targeted	Fishing methods	Fishing depth
				<p>Australian scampi (<i>Metanephrops australiensis</i>) and smaller quantities of velvet and Boschma's scampi (<i>M. velutinus</i> and <i>M. boschmai</i>). A quantity of prawns is harvested each season, and squids are becoming an increasingly significant component of the catch. Mixed snappers (<i>Lutjanidae</i>) and redspot emperor (<i>Lethrinus lentjan</i>) have historically been an important component of the catch (Blake et al., 2021).</p>	<p>Fishing for scampi occurs over soft, muddy sediments or sandy habitats, using demersal trawl gear on the continental slope (Patterson et al., 2017).</p>	<p>Typically depths of 350 to 600 m (Patterson et al., 2017)</p>
				Fishing effort:	<p>The North-west Slope Trawl Fishery commenced in 1985 and the number of active vessels peaked at 21 in the 1986-1987 season, decreasing to between 1 and 6 vessels per year since 2005-06 (Keller and Curtotti, 2023). A total catch of 85.8 t was recorded in 2021-22, a decrease from 87.05 t in 2020-21 (Keller and Curtotti, 2023). Of the total catch, the Australian scampi species comprised of approximately 33% (29 t), down from 50% (44 t) in 2020-21. The stock assessment of scampi in the fishery are classified as not subject to overfishing (Keller and Curtotti, 2023).</p>	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Active licences/vessels: Three vessels were active in the 2021-22 season, decline from 4 in the 2021-22 season, and trawl-hours decreased from 4,420 in 2020-21 to 3,950 in 2021-22 (Keller and Curtottie, 2023).</p>		
State Managed Fisheries						
Pilbara Fish Trawl (Interim) Managed Fishery		✓		<p>Management area The Pilbara Trawl (Interim) Managed Fishery is a high intensity fishery divided into two zones and an area governed by Schedule 5 (prohibited to trawling). In addition to the Prohibited Trawl Fishing area, no fish trawl units are allocated for use in Zone 1 or Areas 3 and 6 of Zone 2 (which comprises six management areas) (Newman et al., 2021a).</p>		
				<p>Species targeted The fishery targets more than 50 scalefish species. The main demersal scalefish species landed by the fisheries in the Pilbara region are bluespotted emperor, red emperor and rankin cod (Newman et al., 2021a). The key species caught by the Pilbara Trawl (Interim) Managed Fishery include crimson snapper, bluespotted emperor trevally and threadfin bream (DPIRD, 2020).</p>	<p>Fishing methods Demersal trawl. The fishery operates with standard stern trawling gear (single net with extension sweeps) (Newman et al., 2021a).</p>	<p>Fishing depth The fishery operates in waters between 50 and 200 m water depth (Allen et al., 2014, Newman et al. 2015).</p>
				<p>Fishing effort: Based on State of the Fisheries annual reports provided by DPIRD, catch trends were seen to be increasing over the past reporting years, until the past two seasons: The Pilbara Trawl (Interim) Managed Fishery catch was 1784 t in 2022, 1928 t in 2021, 2087 t in 2020, 2142 t in 2019, 1996 t in 2018, 1780 t in 2017, 1529 t in 2016, 1172 t in 2015 and 1105 t in 2014. (Wakefield et al., 2023a) The fishery landed 72% of total commercial catches of the demersal scale fish in the Pilbara in 2022. Increasing catch rates and fishing mortality spawning biomass estimates indicate that imposed effort reductions since 2008 have resulted in increased fish abundance and stock rebuilding in the fishery (Wakefield et al., 2023a). In 2021, the total catch of the indicator species red emperor in the Pilbara Demersal Scalefish Fisheries (includes trawl, trap and line sectors) was 192 t, which is within the acceptable catch range (Wakefield et al., 2023).</p>		

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Fishery	Woodside Activity Area			Description	
	Browse	NWS/S	NW Cape		
				<p>The biological stocks for the Pilbara Demersal Scalefish Fisheries are classified as sustainable-adequate (Wakefield et al., 2023a).</p> <p>Active licences/vessels: Four active vessels in the trawl sector in 2022 (Wakefield et al., 2023a).</p>	
Pilbara Trap Managed Fishery	✓	✓	Management area	The Pilbara Trap Managed Fishery covers the area from Exmouth northwards and eastwards to the 120° line of longitude, and offshore as far as the 200 m isobath. Like the trawl fishery, the trap fishery is also managed using input controls in the form of individual transferable effort allocations monitored with a satellite-based vessel management system. The fishery includes six licences allocated to three vessels, operating principally from Onslow.	
			Species targeted	Fishing methods	Fishing depths
			The catch is made up of around 45-50 different fish species. The fishery generally targets long-lived, high-value demersal scalefish such as red emperor and Rankin cod but also lands significant catches of shorter-lived species such as blue spotted emperor (DPIRD, 2020).	Demersal fish traps.	Approximately 30 m isobath to 200 m isobath (DPIRD n.d.).
			Fishing effort	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The Pilbara Trap Managed Fishery caught 597 t in 2022, 662 t in 2021, 584 t in 2020, 680 t in 2019, 563 t in 2018, 573 t in 2017, 495 t in 2016, 510 t in 2015 and 268 t in 2014. (Wakefield et al., 2023a) The total catch of 597 t in 2022 made up 24% of the total catch by the Pilbara Demersal Scale Fishery and exceeded the acceptable catch range for the total catch (Wakefield et al., 2023a).	
			Active licences/vessels	Three active vessels in the trap sector in 2022 (Wakefield et al., 2023a).	
	✓	✓	Management area	The Pilbara Line Managed Fishery boat licences are permitted to operate anywhere within "Pilbara water", bounded by a line commencing at the intersection of 21° 56'S latitude and the high-water mark on the western side	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
Pilbara Line Managed Fishery				of the North-west Cape on the mainland of WA; west along the parallel to the intersection of 21° 56'S latitude and the boundary of the AFZ and north to longitude 120°E.		
				Species targeted	Fishing method	Fishing depths
				The Pilbara Line Managed Fishery catch is made up around 45-50 different fish species. The fishery targets similar demersal species to the Pilbara Trap and Trawl fisheries, as well as some deeper offshore species such as ruby snapper and eightbar grouper (DPIRD, 2020).	Demersal long line.	Information not available.
				Fishing effort	Based on State of the Fisheries annual reports provided by DPIRD, catch trends are as follows: The Pilbara Line Managed Fishery caught 104 t in 2022, 124 t in 2021, 167 t in 2020, 148 t in 2019, 93 t in 2018, 143 t in 2017, 126 t in 2016, 97 t in 2015 and 40 t in 2014. (Wakefield et al., 2023a) The total catch of 104 t in 2022 made up 4% of the total catch by the Pilbara Demersal Scalefish Fishery and was within the acceptable catch range (Wakefield et al., 2023a).	
				Active licences/vessels	Four active vessels in 2022 (Wakefield et al., 2023a).	
Mackerel Managed Fishery	✓	✓	✓	Management area		
				The commercial fishery extends from the West Coast Bioregion to the WA/ NT border. There are three managed fishing areas: Area 1: Kimberley (121° E to the WA/NT border); Area 2: Pilbara (114° E to 121° E) and Area 3: Gascoyne (27° S to 114° E) and West Coast (Cape Leeuwin to 27° S) (Lewis et al., 2020).		
				Species targeted	Fishing methods	Fishing depth
Spanish mackerel (<i>Scomberomorus commerson</i>) Grey mackerel (<i>S. semifasciatus</i>)	Trolling, baits or lures cast, jigging (Lewis et al., 2020).	Information not available.				

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Fishery	Woodside Activity Area			Description						
	Browse	NWS/S	NW Cape							
				<p>Other species from the genus <i>Scomberomorus</i></p> <p>Fishing effort: Most of the catch is taken from waters off the Kimberley and Pilbara coasts (Lewis et al., 2020), reflecting the tropical distribution of mackerel species (Molony et al., 2015). Most fishing activity occurs around the coastal reefs of the Dampier Archipelago and Port Hedland area, with the seasonal appearance of mackerel in shallower coastal waters most likely associated with feeding and gonad development before spawning (Mackie et al., 2003). Previous years catch based on State of the Fisheries annual reports provided by DPIRD: 212 t in 2022, 310 t in 2021, 290 t in 2020, 291 t in 2019, 214 t in 2018 (the lowest on record (Lewis et al., 2020), 283 t in 2017, 276 t in 2016, 302 t in 2015 and 322 t in 2014. (Lewis, P., Rynvis, L. 2023) The landed catch in 2021 was 238 t for Spanish mackerel and 10 t for grey mackerel (Lewis and Watt. 2023). The commercial landings for other large pelagic species, such as the amberjack and cobia were 19.7t and 18.2t, and other species contributed to the remaining <10t of the total catch (Lewis and Watt. 2023). All species stocks are sustainable-adequate (Lewis, P., Rynvis, L. 2023).</p> <p>Active licences/vessels: There were 16 vessels in 2022, primarily from May to November (Lewis, P., Rynvis, L. 2023).</p>						
Marine Aquarium Fish Managed Fishery	✓	✓	✓	<p>Management area The Marine Aquarium Fish Managed Fishery can operate throughout WA State waters. The fishery is typically more active in waters south of Broome and higher levels of effort around the Capes region, Perth, Geraldton, Exmouth, Dampier, and Broome (Newman et al., 2021b). There has been recent effort in the waters from Broome northwards to the NT border. (Newman et al., 2023a)</p> <table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td>Finfish, hard coral, soft coral, tridacnid clams, syngnathids (seahorses and pipefish), other invertebrates (including molluscs, crustaceans, echinoderms etc.), algae, seagrasses and 'live rock'. The resource potentially includes over 1500 species of marine aquarium fishes (Newman et al., 2021b).</td> <td>The fishery is diver-based, which typically restricts effort to safe diving depths (less than 30 m).</td> <td>Information not available.</td> </tr> </tbody> </table>	Species targeted	Fishing methods	Fishing depth	Finfish, hard coral, soft coral, tridacnid clams, syngnathids (seahorses and pipefish), other invertebrates (including molluscs, crustaceans, echinoderms etc.), algae, seagrasses and 'live rock'. The resource potentially includes over 1500 species of marine aquarium fishes (Newman et al., 2021b).	The fishery is diver-based, which typically restricts effort to safe diving depths (less than 30 m).	Information not available.
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Fishery	Woodside Activity Area			Description						
	Browse	NWS/S	NW Cape							
				<p>Fishing effort: Total catch for the Marine Aquarium Fish Managed Fishery in 2022 was 98,694 fishes and invertebrates, 17.83 t of coral, live rock, and living sand, and 39L of marine plants and live feed. (Newman et al., 2023a) In 2021, the total catch for the Marine Aquarium Fish Managed Fishery was 92,227 fishes (including syngnathids, invertebrates and sponges), 27.97 t of coral. Live rock, and living sand, and 42 L of marine plants and live feed (Newman et al., 2023). In 2020 was 89,925 fishes, 32.12 t of coral, live rock & living sand and <20L of marine plants and live feed (Newman et al., 2021b). Dominant fish species caught in 2022 include spotted blenny (<i>Istiblennius meleagris</i>), scribbled angelfish (<i>Chaetodontoplus duboulayi</i>), black-axil chromis (<i>Chromis atripectoralis</i>), stripey (<i>Microcanthus strigatus</i>), Vachell's Glassfish (<i>Ambassis vachellii</i>), Margined Coralfish (<i>Chelmon marginalis</i>), Black-axil Chromis (<i>Chromis atripectoralis</i>), and Blue and Yellow Wrasse (<i>Anampses lennardi</i>). (Newman et al., 2023a). The breeding stocks of landed species are classified as sustainable-adequate (Newman et al., 2023a)</p> <p>Active licences/vessels: 13 licences were active in 2022 across the Marine Aquarium Fish Managed Fishery and the Hermit Crab Fishery (Newman et al., 2023a).</p>						
Western Australian Sea Cucumber Fishery (formerly Beche-de-mer Fishery)	✓	✓	✓	<p>Management area Fishing occurs mostly in the northern half of WA from Exmouth Gulf to the NT border and is managed under Ministerial Exemptions. Shark Bay was fished for the first time in 2020 (Hart et al., 2023a) and again in 2021 (Newman et al., 2022).</p>						
				<table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td>The Western Australian Sea Cucumber Fishery targets two main species: sandfish (<i>Holothuria scabra</i>) and redfish (<i>Actinopyga echinites</i>).</td> <td>Diving and wading. Collected by hand.</td> <td>The targeted species typically inhabit nearshore in shallow depths.</td> </tr> </tbody> </table>	Species targeted	Fishing methods	Fishing depth	The Western Australian Sea Cucumber Fishery targets two main species: sandfish (<i>Holothuria scabra</i>) and redfish (<i>Actinopyga echinites</i>).	Diving and wading. Collected by hand.	The targeted species typically inhabit nearshore in shallow depths.
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<p>Fishing effort Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The Western Australian Sea Cucumber Fishery caught 56.5 t in 2022, 41.3 t in 2021 3.6 t in 2020, 6.9 t in 2019, 62 t in 2018 (Gaughan and Santoro, 2020), 135 t in 2017, 93 t in 2016 and 38 t in 2015. In 2022, 45.2 t of the total catch consisted of sandfish (<i>Holothuria scabra</i>), 10.8 t deepwater redfish (<i>Actinopyga echinites</i>), and 0.5 t of black teatfish (<i>Holothuria whitmaei</i>) (Newman et al., 2023d). Sandfish were collected from the Kimberley only, which was last fished in 2017 (Hart et al., 2023).</p>										

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Fishery	Woodside Activity Area			Description						
	Browse	NWS/S	NW Cape							
				<p>Deepwater redfish and black teatfish were harvested from Shark Bay (under an exception licence granted to native title holders), which was the second time this stock had been fished (Hart et al., 2023). The stock status of sandfish, in the Kimberly, and red fish species landed are considered to be sustainable-adequate, while the sandfish in the Pilbara are not sustainable – inadequate. (Hart et al., 2023f).</p> <p>Active licences/vessels 2 operating vessels operating 2022 (Hart et al., 2023f)</p>						
Onslow Prawn Managed Fishery		✓		<p>Management area The Onslow Prawn Managed Fishery encompasses a portion of the continental shelf off the Pilbara.</p>						
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<p>Fishing effort: The total landings for the Onslow Prawn Managed Fishery in 2022 are not available due to data confidentiality (Wilkin, et al. 2023b). In 2021 were less than the target catch range of 60 t (Kangas et al., 2023a). 37 days of fishing took place in 2021, compared to 13 days in 2020 (Kangas et al., 2023a). The breeding stocks of banana, brown tiger, and western king prawns are considered sustainable-adequate (Kangas et al., 2023a).</p>										
<p>Active licences/vessels: One vessel active in 2021 (Kangas et al., 2023a).</p>										
Pearl Oyster	✓	✓	✓	<p>Management area The Pearl Oyster Managed Fishery is located in shallow coastal waters, designated by four zones extending from Exmouth to Kununurra and the seaward boundary demarcated by the 200 nm EEZ. The fishery is currently managed under the <i>Pearling Act 1990</i> (Hart et al., 2023b)</p>						

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Fishery	Woodside Activity Area			Description			
	Browse	NWS/S	NW Cape				
Managed Fishery				Species targeted		Fishing methods	
				Silver lipped pearl oysters (<i>Pinctada maxima</i>).		Drift diving.	
				Fishing effort:		In 2021, catch was taken from Zones 2 and 3 only with no fishing in Zone 1, which has not been fished from 2017 to 2021 (Hart et al., 2023b). In 2022, the number of wild-caught pearl oysters was 756,531 (Hart et al., 2023d). Total dive hours increased in 2022 from 8,175 hours in 2021 to 10,906 hours due to a 28% increase in harvest. (Hart et al., 2023d). Zones one to three are all considered to be sustainable – adequate (Hart et al., 2023b).	
				Active licences/vessels:		Six active vessels in 2022 (Hart et al., 2023b).	
Pilbara Crab Managed Fishery		✓	✓	Management area			
				The Pilbara Crab Managed Fishery covers inshore waters from Onslow to Port Hedland (between longitudes 115° 5' 60" E and 120° E), with most activity around Nickol Bay (Johnston et al., 2020b). Areas of the fishery north and east of Exmouth and nearshore are currently closed as per Schedule 2 of the Draft Management Plan for the Pilbara Crab Managed Fishery (DPIRD, 2018b).			
				Species targeted		Fishing methods	Fishing depth
				Blue swimmer crab (<i>Portunus armatus</i>) (Johnston et al., 2021).		Hourglass traps (Johnston et al., 2021).	Up to 50m deep (Johnston et al., 2020a).
Fishing effort:		Previous years catch based on State of the Fisheries annual reports provided by DPIRD: Catch for the Pilbara Crab Managed Fishery was 11.2 t in 2022, 9.7 t in 2021, 0.6 t in 2020 and 19.3 t in 2019. (Johnston et al., 2023a). The total catch in 2021 was a substantial increase from the 2.1 t caught in 2020, which was the lowest landed catch in 20 years (Johnston et al., 2023a). In 2022 the blue swimmer crab catch accounted for 2% of the State commercial catch, all taken by the fishery (Johnston et al., 2023a). The blue swimmer crab stock status is considered sustainable – adequate (Johnston et al., 2023a).					

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Active licences/vessels:	No information available currently.	
South West Coast Salmon Managed Fishery	✓	✓	✓	Management area	The South-west Coast Salmon Managed Fishery operates on various beaches south of the metropolitan area and includes all WA waters north of Cape Beaufort except Geographe Bay.	
				Species targeted	Fishing methods	Fishing depth
				Western Australian salmon (<i>Arripis truttaceus</i>)	Beach seine nets.	Information not available.
				Fishing effort:	No fishing occurs north of the Perth metropolitan area, despite the managed fishery boundary extending to Cape Beaufort (WA/Northern Territory border), as advised by WAFIC. The commercial catch for the entire West Coast Nearshore and Estuarine Finfish resource was 302.5 t in 2022. The total catch of Western Australian salmon was 82.9 t in 2022, a decrease from 88.5 t in 2021. The Western Australian Salmon stock status is considered sustainable – adequate. (Duffy et al., 2023c).	
				Active licences/vessels:	The number of active vessels or licences in 2021 is unknown however there were approximately 12 commercial fishers employed in 2018 (Duffy et al., 2023)	
Specimen Shell Managed Fishery	✓	✓	✓	Management area	The Specimen Shell Managed Fishery encompasses the entire WA coastline, but effort is concentrated in areas adjacent to the population centres such as Broome, Exmouth, Shark Bay, Geraldton, Perth, Mandurah, the Capes area and Albany (Hart et al., 2023c). There are several closed areas where the fishery is not permitted to operate. These include various marine parks and aquatic reserves, such as Ningaloo Marine Park. The Perth metropolitan area is also important because of its populations of two rare cowrie species (Hart et al., 2023c).	
				Species targeted	Fishing methods	Fishing depth
				The Specimen Shell Managed Fishery targets the collection of specimen shells for display, collection, cataloguing and sale. About 200 species of Specimen Shell are collected each year. There is some focus of effort on mollusc families that are most	Collection is predominantly by hand when diving to wading in shallow, coastal waters, though in deeper water collection may be conducted by remotely operated vehicles (limited to one per licence).	For collection by hand, (diver-based) this typically restricts effort to safe diving depths (less than 30 m). ROV collection could enable depths up to 300 m (Hart et al., 2023c).

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				popular with shell collectors, such as cowries, cones, murexes and volutes (Hart et al., 2023c).		
				Fishing effort:	A total of 5,074 specimen shells were collected in 2022, distributed over 200 species. (Hart et al., 2023f) A total of 5,443 specimen shells were collect distributed over 200 species in 2021 (Hart et al., 2023b). Total number of specimen shells collected in 2020 was 4,258 shells, across 206 species (Hart et al., 2021c). Stocks of landed species in the Specimen Shell Managed Fishery are classified at sustainable-adequate (Hart et al., 2023f).	
				Active licences/vessels:	An exemption for the trial of remotely operated underwater vehicles (limited to one per licence) was in place during 2021 (Hart et al., 2023c). There was a total of 30 licences in the fishery, of which 16 licences were fished in 2022. (Hart et al., 2023f). Effort in 2022 was 388 days (Hart et al., 2023f).	
West Australian Abalone Fishery	✓	✓	✓	Management area	The Western Australian Abalone Managed Fishery includes all coastal waters from the WA and SA border to the WA and NT border. The fishery is concentrated on the south coast and the west coast. It is divided into eight management areas. The fishery for Greenlip and Brownlip abalone operates in areas 1-4 and the Roe's abalone fishery operates in areas 1, 2, 5, 6, 7 and 8 (DoF, 2011).	
				Species targeted	Fishing methods	Fishing depth
				Greenlip abalone (<i>Haliotis laevis</i>) Brownlip abalone (<i>Haliotis conicopora</i>) Roe's abalone (<i>Haliotis roei</i>)	Divers.	Distribution to 5 m depth for Roe's abalone and 40 m depth for greenlip / brownlip abalone (DOF, 2011).
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The total catch for greenlip and brownlip abalone in 2022 was 40.1 t whole weight (26.6 t Greenlip and 13.5 t Brownlip), (Strain et al., 2023d), an increase from 2021 which was 39 t whole weight (greenlip 25.9 t and brownlip 13.1 t) (Strain et al., 2023a). The total catch in 2021 was the lowest catch recorded for Greenlip/Brownlip in 53 years (Strain et al., 2023d). The Roe's abalone resource catch for 2022 was 28.9 t, a 2.6% decrease from the previous season. (Strain et al., 2023c) In 2021 was 29.7 t whole weight, an increase from 18.2 t whole weight in 2020 (Strain et al., 2023a).	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
					The stock status of greenlip abalone is considered inadequate and brownlip abalone is adequate (Strain et al., 2023a). The stock status of the Roe's abalone is considered adequate (Strain et al., 2023c).	
				Active licences/vessels:	There were 16 registered vessels in 2022 for Greenlip and Brownlip Abalone Fishery (Strain et al., 2023d) and 21 for Roe's, however only a small proportion were active (Strain et al., 2023c).	
Western Australia Joint Authority Northern Shark Fishery	✓			Management area	The Western Australia Joint Authority Northern Shark Fishery extends from longitude 12° 45'E to the Northern Territory border.	
				Species targeted	Fishing methods	Fishing depth
				Blacktip sharks (<i>Carcharhinus tilstoni</i>) and spot-tail shark (<i>Carcharhinus sorrah</i>).	Gillnets and longlines.	Information not available.
				Fishing effort	Since 2005, 60% of the waters have been closed to finishing and limited on the number of fishing days. No catch has been reported since 2008/2009 (Braccini and Watt. 2023).	
				Active licences/vessels	Information not available.	
West Coast Deep Sea Crustacean Managed Fishery	✓	✓	✓	Management area	The West Coast Deep Sea Crustacean Managed Fishery extends north from Cape Leeuwin to the WA/NT border in water depths greater than 150 m within the AFZ.	
				Species targeted	Fishing methods	Fishing depth
				The fishery targets deepwater crustaceans: <ul style="list-style-type: none"> Crystal (snow) crab (<i>Chaceon albus</i>) 	Baited pots, or traps, are operated in long-lines which have between 80 and 180 pots attached to a main line marked by a float at each end.	Deeper than 150 m (and mostly at depths of between 500 m – 800 m). Most of the

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Fishery	Woodside Activity Area			Description					
	Browse	NWS/S	NW Cape						
				<ul style="list-style-type: none"> Giant (king) crab (<i>Pseudocarcinus gigas</i>) Champagne (spiny) crabs (<i>Hypothalassia acerba</i>) <p>Catches are dominated by crystal crabs of which 99% of their Total Allowable Catch (TAC) was landed in 2020 (How and Baudains, 2021).</p>					
				<p>Fishing effort: Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The total landings were 133.5 t in 2022, 155.5 t in 2021, 156.1 t in 2020, 155.7 t in 2019 and 168 t in 2018. The total landings of crustaceans in 2022 was dominated by crystal crabs (123.2 t). A further 10 t of champagne crabs and 0.1 t of giant crab were also landed in 2022 (How, et al. 2023c). The stock status for crystal crab is considered adequate. However, it is likely that the stock biomass is near or below its threshold level, but above its limit level (How and Wiberg. 2023a).</p>					
				<p>Active licences/vessels: There were seven licence holders with five vessels active in 2022 (How, et al. 2023c).</p>					
Abrolhos Islands and Mid-West Trawl Fishery			✓	<p>Management area The Abrolhos Islands and Mid-West Trawl Fishery operates around the Abrolhos Islands within the SWMR.</p>					
			<table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td>Saucer scallops (<i>Ylistrum balloti</i>, formerly <i>Amusium balloti</i>)</td> <td>Otter trawl.</td> <td>Saucer Scallops occur in inshore waters around 40m depth at the Abrolhos Islands (Kangas et.al., 2021a).</td> </tr> </tbody> </table>	Species targeted	Fishing methods	Fishing depth	Saucer scallops (<i>Ylistrum balloti</i> , formerly <i>Amusium balloti</i>)	Otter trawl.	Saucer Scallops occur in inshore waters around 40m depth at the Abrolhos Islands (Kangas et.al., 2021a).
			Species targeted	Fishing methods	Fishing depth				
			Saucer scallops (<i>Ylistrum balloti</i> , formerly <i>Amusium balloti</i>)	Otter trawl.	Saucer Scallops occur in inshore waters around 40m depth at the Abrolhos Islands (Kangas et.al., 2021a).				
<p>Fishing effort: Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The Abrolhos Islands and Mid-West Trawl Fishery did not fish in 2022 due to the stock being environmentally limited. (Wilkin, et al. 2023a) The fishery landed 123.1 t meat weight (615.1 t whole weight) in 2021, 238.6 t meat</p>									

²³ <https://www.wafic.org.au/fishery/west-coast-deep-sea-crustacean-fishery/>

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
					weight (1192.8 t whole weight) in 2020, 159.1 t meat weight (795.6 t whole weight) in 2019 and 31.0 t meat weight (154.8 t whole weight) in 2018. Between 2011 and 2015, the annual pre-season surveys showed very low recruitment (1-year old), due to the 2011 extreme marine heatwave and subsequent poor pawning stock (Kangas et al., 2020). The fishery was closed in 2009, and between 2011 and 2016 (Kangas et al., 2023b).	
				Active licences/vessels:	The number of vessels is unreported. There were 10 licenses in 2021 (Kangas et al., 2023b).	
Broome Prawn Managed Fishery	✓			Management area	The Broome Prawn Managed Fishery operates off Broome and forms part of the North Coast Prawn Fishery.	
				Species targeted	Fishing methods	Fishing depth
				Western king prawn (<i>Penaeus latisulcatus</i>) Brown tiger prawns (<i>Penaeus esculentus</i>) Blue endeavour prawns (<i>Metapenaeus endeavouri</i>)	Low opening, otter prawn trawl systems	Trawling is generally in waters between 30 and 60 m deep, however can occur down to 100 m (DOEH, 2004).
				Fishing effort:	The DPIRD state of State of the Fisheries annual reports indicate that no fishing efforts occurred in 2022 and extremely low fishing effort occurred in 2021, 2020 and 2019. (Wilkin, et al. 2023b). The stock status of Western king prawns is considered sustainable-adequate (Kangas et al., 2023a).	
				Active licences/vessels:	No boats undertook trial fishing activities in 2022 (Wilkin, et al. 2023b).	
Exmouth Gulf Prawn Managed Fishery			✓	Management area	The Exmouth Gulf Prawn Managed Fishery operates within the sheltered waters of Exmouth Gulf. The fishery occupies a total area of 4000 km ² , with only half of this area being trawled (Fletcher and Santoro, 2015).	
				Species targeted	Fishing methods	Fishing depth
				Western king prawn (<i>Penaeus latisulcatus</i>) Brown tiger prawn (<i>Penaeus esculentus</i>)	The fishery uses low opening, otter prawn trawl systems (Kangas et al., 2021c).	Information not available.

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Fishery	Woodside Activity Area			Description	
	Browse	NWS/S	NW Cape		
				<p>Blue endeavour prawn (<i>Metapenaeus endeavouri</i>) Banana prawn (<i>Penaeus merguinensis</i>)</p> <p>Fishing effort: Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The Exmouth Gulf Prawn Managed Fishery landed 898 t in 2022, 777 t in 2021, 673 t in 2020, 821 t in 2019, 880 t in 2018, 713 t in 2017 and 822 t in 2016. (Wilkin et al., 2023c) The total catch comprised of 411 t of brown tiger prawns, 218 t of western king prawns, and 269 t of blue endeavour prawns (Wilkin et al., 2023c). Stock status of landed species is considered sustainable-adequate (Kangas et al., 2023c).</p> <p>Active licences/vessels: The number of participation vessels is six. Approximately 126 people, including skippers and other crew were employed in 2022 (Wilkin et al., 2023c).</p>	
Gascoyne Demersal Scalefish Managed Fishery			✓	<p>Management area The Gascoyne Demersal Scalefish Managed Fishery is located between the southern Ningaloo Coast to south of Shark Bay with a closure area at Point Maud to Tantabiddi (WAFIC²⁴).</p>	
			<p>Species targeted</p> <p>Pink snapper (<i>Chrysophrys auratus</i>) Goldband snapper (<i>Pristipomoides multidentis</i>) Other demersal species caught include:</p> <ul style="list-style-type: none"> • Tropical snappers, • Emperors, • Cods, • Mulloway <p>Trevallies.</p>	<p>Fishing methods</p> <p>Mechanised handlines.</p>	<p>Fishing depth</p> <p>The target species inhabit waters deeper than 20m (Jackson et.al., 2021a).</p>
			<p>Fishing effort: Previous years catch based on State of the Fisheries annual reports provided by DPIRD:</p>		

²⁴ <https://www.wafic.org.au/fishery/gascoyne-demersal-scalefish-fishery/>

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>The Gascoyne Demersal Scalefish Managed Fishery reported a total commercial catch of 166 t in 2022, 164 t in 2020-21, 207 t in 2019-20, 173 t in 2018-19 and 210 t in 2017-18. The total of commercial catches comprised 42 t of pink snapper, 83 t goldband snapper, and 41 t of other mixed species (Jackson et.al., 2023c). The stock status for pink snapper is considered recovering, with goldband snapper considered sustainable-adequate (Jackson et.al., 2023c).</p> <p>Active licences/vessels: Ten vessels fished during 2022, six of which fished for more than 10 days during peak pink snapper season (Jackson et.al., 2023c).</p>		
Kimberley Crab Managed Fishery (formerly Kimberley Developing Mud Crab Fishery)	✓			<p>Management area Kimberley Crab Managed Fishery is one of two small trap-based crab fisheries that exist in the North Coast Bioregion between Cambridge Gulf and Broome (Gaughan and Santoro, 2018). In November 2018, the fishery transitioned from developing to fully managed (Johnston et al., 2020b).</p>		
				<p>Species targeted</p> <p>Brown mud crab (<i>Scylla olivacea</i>) Green mud crab (<i>Scylla serrata</i>)</p>	<p>Fishing methods</p> <p>Trap. Exemption holders use crab traps and drop nets in waters adjacent to native title lands (Johnston et al., 2023).</p>	<p>Fishing depth</p> <p>Information not available.</p>
				<p>Fishing effort:</p> <p>Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The total crab landed was 13.6 t in 2022, 9.7 t in 2021, 1.5 t in 2020, 3.2 t in 2018 and 7.4 t in 2019. In 2022, Kimberley Crab Managed Fishery landed a total catch of 2.4 t of brown mud crab represented the entire reported commercial mud crab catch (Johnston et al., 2023a). Mud crab species in the managed fishery is considered sustainable-adequate (Johnston et al., 2023a).</p>		
				<p>Active licences/vessels:</p> <p>There is an allocation of 1200 units (equivalent to 600 traps) to license holders (Johnston et al., 2023). An equivalent allocation of 600 traps for commercial purposes was provided to Traditional Owner groups through the granting of non-transferable Instruments of Exemption under the <i>Fish Resources Management Act 1994</i>. Two people were employed in 2022 between August and Octobr (Johnston et al., 2023a).</p>		

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
Nickol Bay Prawn Managed Fishery		✓		Management area	The Nickol Bay Prawn Managed Fishery operates in nearshore and offshore waters of the Pilbara region along the NWS. Trawling has been reported to occur at several locations along the Pilbara coast to the east of the Burrup Peninsula, including within the waters of Nickol Bay (Fletcher and Santoro, 2015).	
				Species targeted	Fishing methods	Fishing depth
				Banana prawn (<i>Penaeus merguensis</i>) Western king prawn (<i>Penaeus latissulcatus</i>) Brown tiger prawn (<i>Penaeus esculentus</i>) Blue endeavour prawn (<i>Metapenaeus endeavouri</i>)	Low opening, otter prawn trawl systems	Information not available.
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The Nickol Bay Prawn Managed Fishery landed 51 t in 2022, 123.4 t in 2021, 202.4 t in 2020, 254 t in 2019 and 81 t in 2018. (Wilkin, et al. 2023b) Of the total landings in 2022, landings were dominated by 42 t banana prawns and 7 t brown tiger, and 2 t Blue Endeavour (Wilkin, et al. 2023b). Fishing effort was 62 boat days, a decrease from 175 days in 2021 (Wilkin, et al. 2023b). The banana prawn stock status within the Nickol Bay Prawn Managed Fishery is considered sustainable-adequate (Wilkin, et al. 2023b).	
Active licences/vessels:	There were three participating vessels in 2022 (Wilkin, et al. 2023b).					
Northern Demersal Scalefish Managed Fishery	✓			Management area	The Northern Demersal Scalefish Managed Fishery is divided into two fishing areas: an inshore sector (Area 1) and an offshore sector (Area 2) (Newman et al., 2018). Area 1 permits line fishing only, between the high-water mark and the 30 m isobath. Area 2 permits handline, dropline and fish trap fishing methods and is further divided into zones. Zone A is an inshore area, Zone B comprises the area with most historical fishing activity, and Zone C is an offshore deep slope area representing waters deeper than 200 m (Fletcher et al., 2017).	
				Species targeted	Fishing methods	Fishing depth

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Goldband snapper (<i>Pristipomoides multidentis</i>) Blue-spotted emperor (<i>Lethrinus punctulatus</i>) Red emperor (<i>Lutjanus sebae</i>) Rankin cod (<i>Epinephelus multinotatus</i>)	Handline, dropline and fish trap	Information not available.
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The Northern Demersal Scalefish Managed Fishery landed 1,458 t in 2022, 1,544 t in 2021, 1,419 t in 2020, 1,507t in 2019, and 1,297 t in 2018. In 2022, the majority of the catch was landed from Zone B, with 1,235 t in 2022. The 2022 catch of jobfish group (<i>Pristipomoides spp.</i>) was 552 t, 91% of which was goldband snapper (Wakefield et al., 2023a). The stock status of landed species in the managed fishery is classified as sustainable-adequate (Wakefield et al., 2023a).	
				Active licences/vessels:	Eight active vessels in 2022 (Wakefield et al., 2023a).	
Octopus Interim Management Fishery	-	-	-	Management area	The Octopus Interim Management Fishery operates from Kalbarri Cliffs in the north to Esperance in the south.	
				Species targeted	Fishing methods	Fishing depth
				<i>Octopus djinda</i> , which is closely related to <i>Octopus tetricus</i> .	Primary method is baited octopus trap (combination of active trapping via trigger mechanisms, and passive trapping – shelter traps) (Hart et al., 2023d).	In inshore waters to a depth of 70 m (DPIRD, 2018a).
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: Commercial catch for the Octopus Interim Management Fishery was 744 t in 2022, 487 t in 2021, 254 t in 2020, 453 t in 2019, 314 t in 2018, 257 t in 2017 and 252 t in 2016 (Hart et al., 2023g). In 2022, the total catch of octopus was 744 t live weight, which was 53% higher than 2021 with a total catch of 487 t (Hart et al., 2023g).	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
					Octopus stock status in 2022 is considered sustainable-adequate (Hart et al., 2023g).	
				Active licences/vessels:	27 active vessels in 2022 (Hart et al., 2023g).	
Shark Bay Beach Seine and Mesh Net Managed Fishery	-	-	-	Management area	The Shark Bay Beach Seine and Mesh Net Managed Fishery operates from Denham.	
				Species targeted	Fishing methods	Fishing depth
				Whiting (<i>Sillago schomburgkii</i>) Sea mullet (<i>Mugil cephalus</i>) Tailor (<i>Pomatomus saltatrix</i>) Western yellowfin bream (<i>Acanthopagrus australis</i>)	Beach seine and mesh net.	Information not available.
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: Total catch was 131 t in 2022, 135 t in 2021, 171 t in 2020, 175 t in 2019 and 176 t in 2018. Of the total catch in 2022, 78 t consisted of whiting, 25 t of sea mullet, 16 t of western yellowfin bream, 6 t of tailor, and 1.5 t of pink snapper (Jackson et al., 2023b). The stock status of targeted species is sustainable - adequate (Jackson et al., 2023b).	
				Active licences/vessels:	Five vessels were active in 2022 (Jackson et al., 2023b).	
Shark Bay Crab Managed Fishery	-	-	-	Management area	The Shark Bay Crab Managed Fishery operates within the NWMR. It is based primarily in Carnarvon but operates throughout the waters of Shark Bay.	
				Species targeted	Fishing methods	Fishing depth
				Blue swimmer crab (<i>Portunus armatus</i>)	Trap and trawl.	Information not available.
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD:	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>The fishery landed 401 t in 2022, 549 t in 2020-21, 638 t in 2019-20, 529 t in 2018-19 and 518 t in 2017-18. The fishery closed for a period of 18 months in 2012 and 2013 to promote stock recovery, following a series of adverse environmental conditions between 2010 and 2011 (Chandrapavan et al., 2023). Limited commercial fishing resumed under a national quota management system between 2013 and 2017 (Chandrapavan et al., 2023). The current stock status is sustainable-adequate (Chandrapavan et al., 2023).</p> <p>Active licences/vessels: In the trawl sector in 2022 there were 10 licenced vessels based in Carnarvon with an additional eight vessels traveling to Carnarvon. There were three trap vessels. (Chandrapavan et al., 2023a).</p>		
Shark Bay Prawn and Scallop Managed Fishery	-	-	-	<p>Management area The Shark Bay Prawn Managed Fishery is the highest producing WA fishery for prawns. The Shark Bay Scallop Managed Fishery is usually Western Australia's most valuable scallop fishery (Kangas et al., 2021b).</p>		
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>
				<p>Western king prawn (<i>Penaeus latisulcatus</i>) Brown tiger prawn (<i>Penaeus esculentus</i>) Endeavour prawns (<i>Metapenaeus endeavouri</i>) Coral prawns (<i>Metapenaeopsis sp.</i>) Saucer scallop (<i>Amusium balloti</i>)</p>	<p>Low-opening otter trawls.</p>	<p>Information not available.</p>
				<p>Fishing effort:</p>	<p>Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The Shark Bay Prawn Managed Fishery landed 831 t in 2022, 1,303 t in 2021, 1268 t in 2020, 1214 t in 2019, 1091 t in 2018 and 1608 t in 2017. Of the total landings, 503 t comprised of western king prawn, 326 t of brown tiger prawn, and 2 t of blue endeavour prawn (Wilkin et al., 2023d). The Shark Bay Scallop Managed Fishery has been managed under a quota management framework since the fishery reopened in 2015 (Kangas et al., 2021b). Scallop landings for Shark Bay were 35 t (177 t meat weight) in 2022, 123.6 t meat weight (618.2 t whole weight) in 2021, 177.1 t meat weight (885.5 t whole weight) in 2020 and 339 t meat weight (1,694 t whole weight) in 2019. All stocks for target species are considered sustainable-adequate (Wilkin et al., 2023a).</p>	

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Fishery	Woodside Activity Area			Description						
	Browse	NWS/S	NW Cape							
				<p>Active licences/vessels: In the trawl sector in 2022 there were 10 licenced vessels based in Carnarvon with an additional eight vessels traveling to Carnarvon (Wilkin et al., 2023d). In the Shark Bay Scallop Managed Fishery there are boats licensed to take scallops (11 Class A licenses) and boats that also fish for prawns (18 Class B licenses). There were eight vessels. (Wilkin et al., 2023a).</p>						
South Coast Crustacean Managed Fishery	-	-	-	<p>Management area The South Coast Crustacean Managed Fishery comprises four fisheries: the Windy Harbour/Augusta Rock Lobster Managed Fishery, the Esperance Rock Lobster Managed Fishery, the Southern Rock Lobster Pot Regulation Fishery and the South Coast Deep-Sea Crab Fishery.</p>						
				<table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td>Southern rock lobster (<i>Jasus edwardsii</i>) Western rock lobster (<i>Panulirus cygnus</i>) Giant crab (<i>Pseudocarcinus gigas</i>) Crystal crab (<i>Chaceon albus</i>) Champagne crab (<i>Hypothalassia acerba</i>)</td> <td>Pots.</td> <td>Information not available.</td> </tr> </tbody> </table>	Species targeted	Fishing methods	Fishing depth	Southern rock lobster (<i>Jasus edwardsii</i>) Western rock lobster (<i>Panulirus cygnus</i>) Giant crab (<i>Pseudocarcinus gigas</i>) Crystal crab (<i>Chaceon albus</i>) Champagne crab (<i>Hypothalassia acerba</i>)	Pots.	Information not available.
				Species targeted	Fishing methods	Fishing depth				
				Southern rock lobster (<i>Jasus edwardsii</i>) Western rock lobster (<i>Panulirus cygnus</i>) Giant crab (<i>Pseudocarcinus gigas</i>) Crystal crab (<i>Chaceon albus</i>) Champagne crab (<i>Hypothalassia acerba</i>)	Pots.	Information not available.				
				<p>Fishing effort: Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The South Coast Crustacean Managed Fishery reported a total catch of 23.8 t in 2022, 27.4 t in 2020-21, 52.5 t in 2019-20, 67.5 t in 2018-19 and 101.2 t in 2017-18 season. In 2022, the total crustacean landings comprised of champagne crabs (3.6 t), southern rock lobster (6.4 t), giant crabs (5.7 t), western rock lobster (5 t), and crystal crabs (3.1 t) (How, et al, 2023d). The stock status is sustainable-adequate (How and Wiberg, 2023b).</p>						
<p>Active licences/vessels: The South Coast Crustacean Managed Fishery is based on mobile vessels that employ a skipper and one to three crew. In 2022, there were nine participating vessels. (How, et al, 2023d).</p>										
South Coast Purse Seine Managed Fishery	-	-	-	<p>Management area The South Coast Purse Seine Managed Fishery is active in coastal waters between Cape Leeuwin and the South Australia border. Landings are primarily off Albany, Bremer Bay and Esperance (Norriss and Blazeski, 2020). The managed fishery has five management zones: centred on King George Sound (Zone 1), Albany (Zone 2), Bremer Bay (Zone 3), Esperance (Zone 4) and a developmental zone near Cape Leeuwin (Zone 5) where catches have been negligible (Norriss and Blazeski et al., 2023a).</p>						

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Species targeted Small pelagic finfish. Australian sardine (pilchards, <i>Sardinops sagax</i>) Yellowtail scad (Trachurus novaezelandiae) Australian anchovy (<i>Engraulis australis</i>) Scaly mackerel (<i>Sardinella lemuru</i>) Maray (<i>Etrumeus jacksoniensis</i>). Entitled to take sandy sprat (<i>Hyperlophus vittatus</i>) and blue sprat (<i>Spratelloides robustus</i>), however not reported caught since 1993/94	Fishing methods Purse seine nets from vessels.	Fishing depth Information not available.
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The South Coast Purse Seine Managed Fishery landed 1,636 t in 2022, 1,255 t in 2020-21, 1498 t in 2019-20, 1064 t in 2018-19 and 2168 t in the 2017-18 season. The total catch in 2022, consisted of >99% of Australian sardines (Norriss and Blazeski et al., 2023c). Fishing effort in 2022 was 576 boat days. (Norriss and Blazeski et al., 2023c). The stock status for the Australian sardine is considered sustainable-adequate (Norriss and Blazeski et al., 2023c).	
				Active licences/vessels:	Seven active vessels in 2022 (Norriss and Blazeski et al., 2023c).	
South-west Trawl Managed Fishery	-	-	-	Management area	The South-west Trawl Managed Fishery is a multi-species fishery and includes two of WA's smaller scallop fishing grounds at Fremantle and north of Geographe Bay (Fairclough and Walters, 2018).	
				Species targeted	Fishing methods	Fishing depth

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Scallops (<i>Ylistrum balloti</i> , formerly <i>Amusium balloti</i>) and associated by-products In years of low scallop catches licensees may use trawl gear to target fin-fish species.	Trawl.	Information not available.
				Fishing effort:	Catch levels are unavailable for recent years. The fishery was not active in 2015 or 2016 (Fairclough and Walters, 2018). Effort in the fishery is highly variable and typically fluctuates in response to recruitment variability in saucer scallops and prawns. In 2021 <1% of the allowable area was trawled in the South-west Trawl Managed Fishery (Kangas et al., 2023b). The stock status of scallops is considered sustainable-adequate (Wilkin et al., 2023a).	
				Active licences/vessels:	One vessel fished in 2022 (Wilkin et al., 2023a).	
The South Coast Salmon Managed Fishery	-	-	-	Management area	The South Coast Salmon Managed Fishery is one of two fisheries operating in the South Coast Bioregion that target nearshore and estuarine finfish.	
				Species targeted	Fishing methods	Fishing depth
				Western Australian salmon (<i>Arripis truttaceus</i>) Southern school whiting (<i>Sillago bassensis</i>) Australian herring (<i>Arripis georgianus</i>) King George whiting (<i>Sillaginodes punctatus</i>) Sea mullet (<i>Mugil cephalus</i>) Estuary cobbler (<i>Cnidoglanis macrocephalus</i>) Black bream (<i>Acanthopagrus butcheri</i>)	Beach seines, haul nets and gill nets.	Information not available.
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD:	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Total catch for the South Coast Estuarine and Nearshore Scalefish and Invertebrates Resource was 267.6 t for 2022, 275.1 t in 2021 and 334 t in 2020. Of this, the South Coast Salmon Managed Fishery landed 48.5 t of Western Australian salmon in 2021, 76 t in 2020 and 56.5 t in 2019.</p> <p>The stock status of target species is sustainable-adequate (Duffy et al., 2023b).</p>		
				<p>Active licences/vessels: Catch was recorded against eight licences in 2022 (Duffy et al., 2023d).</p>		
West Coast Beach (Beach Bait Fish Net) Managed Fishery	-	-	-	<p>Management area Primarily active in the Bunbury areas in the SWMR, operates between 26° and 33° S</p>		
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>
				Whitebait	Beach-based haul nets.	Information not available.
				<p>Fishing effort: Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The total catch of whitebait in 2022 was 23.3 t, an increase from 21.3 t in 2021 (Duffy et al., 2023c). The fishery continues to be environmentally limited with stocks recovering from the 2010/11 marine heat wave (Duffy et al., 2023a). The stock status is inadequate – environmentally limited (Duffy et al., 2023c).</p>		
				<p>Active licences/vessels: The number of active vessels in 2021 is unknown, however five licensees reported landings of whitebait in 2011 (Smith, et al., 2011)</p>		
West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery	-	-	-	<p>Management area The West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery is part of the Temperate Demersal Gillnet and Demersal Longline Fishery, which operates between 26° and 33° S, and the Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery, which operates from 33° S to the WA/SA border (Braccini and Blay, 2020).</p>		
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>
				<p>Gummy shark (<i>Mustelus antarcticus</i>) Dusky shark (<i>Carcharhinus obscurus</i>) Whiskery shark (<i>Furgaleus macki</i>)</p>	Gillnet and longline.	Information not available.

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Sandbar shark (<i>C. plumbeus</i>) Scalefish are a byproduct.</p> <p>Fishing effort: Catches of elasmobranchs and fishing effort for the Temperate Demersal Gillnet and Demersal Longline Fishery peaked during the late 1980s and early 1990s and have stabilised at lower levels in recent years (Braccini and watt, 2021). Previous years values from State of the Fisheries annual reports provided by DPIRD: Estimated annual value to the fishery was \$0.23 million for 2021-22, \$0.17 million for 2020-21, \$0.11 million for 2019-20, \$0.2 million for 2018-19 and \$0.3 million for 2017-18. Stock status for the gummy and whiskery shark is considered sustainable-adequate, with the dusky and sandbar shark status sustainable-recovering (Braccini and Rynvis. 2023).</p> <p>Active licences/vessels: Vessel and license data is not available. There were approximately 10 to 11 skippers and crew employed during 2020-22 period (Braccini and Rynvis. 2023).</p>		
West Coast Demersal Scalefish Interim Managed Fishery	-	-	-	<p>Management area The West Coast Demersal Scalefish Interim Managed Fishery is the main commercial fishery that targets demersal species in the West Coast Bioregion. It encompasses the waters from just south of Shark Bay down to just east of Augusta and extends seaward to the 200 nm boundary. The fishery is divided into four inshore management areas and one offshore management area.</p>		
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>
				<p>The resource comprises over 100 species, including:</p> <ul style="list-style-type: none"> Baldchin groper (<i>Choerodon rubescens</i>) Dhufish (<i>Glaucosoma hebraicum</i>) Pink snapper (<i>Pagrus auratus</i>). 	<p>Lines.</p>	<p>Information not available.</p>
				<p>Fishing effort:</p>	<p>Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The West Coast Demersal Scalefish Interim Managed Fishery retained 240 t in 2022, 259 t in 2021, 227 t in 2020, 254 t in 2019 and 230 t in 2018.</p>	

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Fishery	Woodside Activity Area			Description						
	Browse	NWS/S	NW Cape							
				<p>Management commenced to recover stocks for the West Coast Demersal Scalefish Resource in 2008. Landings since 2008 have been below the stock recovery benchmark of 450 t (Fisher et al., 2023a).</p> <p>Active licences/vessels: 30 licenced vessels operated in 2022 (Fisher et al., 2023a).</p>						
West Coast Purse Seine Managed Fishery	-	-	-	<p>Management area Most of the catch in the West Coast Purse Seine Managed fishery are taken from between Cape Leeuwin and Geraldton. This region is separated into three zones (Northern Development Zone, Perth Metropolitan, and Southern Development zone (Norriss and Blazeski. 2023b).</p>						
				<table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td> Small pelagic finfish such as: Scaly mackerel (<i>Sardinella lemuru</i>) Pilchards (<i>Sardinops sagax</i>) Australian anchovy (<i>Engraulis australis</i>) Yellowtail scad (<i>Trachurus novaezelandiae</i>) Maray (<i>Etrumeus teres</i>) </td> <td>Purse seine.</td> <td>Information not available.</td> </tr> </tbody> </table>	Species targeted	Fishing methods	Fishing depth	Small pelagic finfish such as: Scaly mackerel (<i>Sardinella lemuru</i>) Pilchards (<i>Sardinops sagax</i>) Australian anchovy (<i>Engraulis australis</i>) Yellowtail scad (<i>Trachurus novaezelandiae</i>) Maray (<i>Etrumeus teres</i>)	Purse seine.	Information not available.
				Species targeted	Fishing methods	Fishing depth				
				Small pelagic finfish such as: Scaly mackerel (<i>Sardinella lemuru</i>) Pilchards (<i>Sardinops sagax</i>) Australian anchovy (<i>Engraulis australis</i>) Yellowtail scad (<i>Trachurus novaezelandiae</i>) Maray (<i>Etrumeus teres</i>)	Purse seine.	Information not available.				
				<p>Fishing effort: Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The total combined catch taken by the West Coast Purse Seine Managed Fishery and developmental licensees was 259 t in 2022, 504 t in 2021, 493 t in 2020, 527 t in 2019 and 340 t in 2018. In 2022, the total catch consisted of 66% scaly mackerel and 31% Australian sardine (Norriss and Blazeski. 2023d). Both the scaly mackerel and Australian sardine have a stock status classified as sustainable-adequate (Norriss and Blazeski. 2023d).</p>						
<p>Active licences/vessels: Five active vessels in 2022 (Norriss and Blazeski. 2023d).</p>										
West Coast Rock Lobster			✓	<p>Management area The West Coast Rock Lobster Fishery operates from Shark Bay south to Cape Leeuwin. The fishery is managed using zones, seasons and total allowable catch. The recreational fishery targets the western rock lobsters using baited pots and by diving between North-west Cape and Augusta.</p>						

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Fishery	Woodside Activity Area			Description				
	Browse	NWS/S	NW Cape					
Managed Fishery				Species targeted	Fishing methods	Fishing depth		
				Western rock lobster (<i>Panulirus cygnus</i>)	Baited pots.	Information not available.		
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The total catch for the West Coast Rock Lobster Fishery was 6342 t in 2022. (De Lestang, S., and Walsh, A. 2023). Due to COVID-19 related logistics and marketing issues, the 2020-21 season was extended from 12 to 18 months. Since the current extended season is still in progress, data has been reported on a 12-month period (15 Jan 2021 – 14 Jan 2022) (How and Wiberg, L. 2023a). Landings for the 12-month (2021-22) season was 6,334 t and the 18-month 2020-21 season was 9,132 t. Commercial landings over the traditional 12-month season (15 Jan 2020- 14 Jan 2021) were 5,696 t. The fishery landed 6397 t in 2019 and 6400 t in 2018 and 2017. The stock status for the western rock lobster is classified as sustainable-adequate (How and Wiberg, 2023a).			
				Active licences/vessels:	218 vessels were active in the 2022 season (De Lestang, S., and Walsh, A. 2023).			

12.2.1.1 Fish Habitat Protection Areas

Fish Habitat Protection Areas (FHPA's) are areas of special protection and management in Western Australian waters. They are established in areas identified as having a particular value for the protection of fish and their habitats, education and/or aquaculture and which is considered to require a higher level of protection than other parts of the marine environment (DPIRD, 2013). They are set under section 115 of the *Fish Resources Management Act 1994* (WA) for the following purposes:

- the conservation and protection of fish, fish breeding areas, fish fossils or the aquatic ecosystem,
- the culture and propagation of fish and experimental purposes related to that culture and propagation; or
- the management of fish and activities relating to the appreciation or observation of fish.

Under the Act, fish can include a range of organisms including finfish, crustaceans, molluscs, corals, seagrass and algae at all stages of their life cycles. FHPAs and a marine reserve declared under the *Conservation and Land Management Act 1984* (WA) cannot exist in the same area (DPIRD, 2013).

Management of an FHPA is designed and carried out to achieve the purposes outlined in a Plan of Management. FHPAs may restrict non-fishing related activities, such as the use of anchors, if they are considered to be inconsistent with the purpose of the FHPA; for example, if there is a risk to damage of fragile marine formations such as coral reefs. Protection may also involve the management of human activities such as dredging, draining of wetlands, and fishing or diving near sensitive marine habitats (DPIRD, 2013). Western Australia has six FHPA's (four within the NWMR and 2 within the SWMR):

- Abrolhos Islands
- Kalbarri Blue Holes
- Miaboolya Beach
- Point Quobba
- Cottesloe Reef
- Lancelin Island Lagoon.

FHPAs within the NWMR

Abrolhos Islands

The Houtman Abrolhos Islands (Abrolhos) is an archipelago of up to 210 small islands and associated reefs located approximately 65-90 km offshore from Geraldton, Western Australia (WA) (Evans *et. al*, 2022). The Abrolhos FHPA includes all waters from the high-water mark of the Abrolhos Islands out to three nautical miles; an area of about 2500 km² (Evans *et. al*, 2022).

The islands and waters of the Abrolhos are of significance for both land based (e.g., seabird breeding, migratory shorebirds, carpet pythons, tamar wallabies, and significant flora and vegetation) and marine based values (e.g., diverse and unique range of fish and marine aquatic species, significant commercial and recreational fisheries, aquaculture and marine tourism) (Evans *et al.*, 2022). The reefs of the Abrolhos are extremely diverse, with approximately 184 species of coral, 295 species of marine algae and 389 species of fish (Evans *et al.*, 2022).

The Abrolhos Includes specific regulations such as:

- temporal (seasonal) closures (e.g., closed season for baldchin groper, *Choerodon rubescens*, between the 1st of November and 31st of January),
- spatial closures (e.g., Reef Observation Areas (ROAs) ~64.3km² or 2.6% of Abrolhos FHPA),

- recreational fishing specific bag and possession limits (Evans et al., 2022).

The marine state territorial waters of the Abrolhos continue to be managed by the Department of Primary Industries and Regional Development.

Kalbarri Blue Holes

The Blues Holes form part of an inshore coastal limestone reef system to the west of the town of Kalbarri. The northern boundary of the FHPA is located immediately west of the northern end of the Blue Holes car park and extends south from this point for approximately 420 m. The width of the FHPA varies from around 130 m wide at the southern end, to approximately 140 m wide at the northern end (DoF, 2007).

The Kalbarri Blue Holes FHPA includes part of a near-shore limestone reef system, which stretches intermittently from Red Bluff in the South to the Murchison River Mouth in the North (DoF, 2007). To First Nations people, access to the reef system – near to the river mouth – is likely to have made it a significant site for hunting fish and gathering seafood. The river mouth beside Kalbarri, is called ‘Wudumalu’ or ‘Wutumalu’ by the local Nhanda language group (DoF, 2014a).

The reef provides a base for a range of recreational activities including swimming, scuba diving and snorkelling. There is an abundance of finfish, shellfish, crustaceans, corals, seagrasses and sponges living there. There are up to 70 species of finfish, 10 types of sponge, and 11 species of coral found in the reef system (DoF, 2014a).

Regulations for protection of Kalbarri Blue Holes include:

- All marine life is protected, and no fishing activities are permitted.
- The use of all motorised vessels (boats and jet skis) is prohibited within the FHPA’s waters (DoF, 2014a).

Miaboolya Beach

Miaboolya Beach is an area of the Gascoyne River delta near Carnarvon. The FHPA covers the nearshore waters and extends north to South Bejaling and south to the northern side of the Gascoyne River mouth. In addition, it includes the adjoining mangrove system, associated seasonal creeks and salt marshes (DoF, 2003).

The Miaboolya system has regional importance as a fish nursery and general fish habitat. Native fauna includes juvenile finfish species such as tailor (*Pomatomus saltatrix*), mullet (*Argyrosomus spp.*) and sand whiting (*Sillaginops ciliata*), and various crab species including mud crabs, blue swimmer and green mud crabs (family *Portunidae*). The fish and crab stocks use this environment for breeding, growth and development. Resident and migratory populations of birds, marine turtles and dolphins also exist within the area and contribute to its environmental value (DoF, 2003).

The Miaboolya area is of important cultural and historical value to the Gnulli native title group. The area is a place for traditional food collection and gathering for social occasions (DoF, 2003).

Recreational fishing is permitted however there are restrictions in place by the Department of Fisheries (DoF, 2014b).

Point Quobba

The Point Quobba FHPA adjoins the well-known ‘Blowholes’ tourist attraction at Quobba Station, 75 km north-west of Carnarvon WA, at the northernmost point of Shark Bay (DoF, 2004).

The marine life and habitats of the area are of considerable scientific and recreational interest and are highly valued in the local community. However, the area is at risk from a high level of use and conflict between users, due to the area’s proximity to popular tourism sites, the boat ramp, camping and settlement areas (DoF, 2004).

The marine habitat at Point Quobba is in a transition zone between tropical and temperate climatic zones and is therefore highly diverse. It contains a mix of endemic temperate south-west Australian

species and tropical and temperate Indo-Pacific species. The FHPA provides relatively sheltered breeding and feeding habitat for more than 100 species (DoF, 2015)

Point Quobba lies within the traditional area of the Baiyungu people, who are members of the Gnulli Group. The Baiyungu people use the area regularly, sometimes to collect trochus for consumption at Point Quobba and Black Rock (DoF, 2004).

There is a designated 'restricted area' within the FHPA to protect vulnerable habitats and fish species from human activity. Within this area commercial and recreational fishing and jet-skiing are prohibited. Restrictions on fishing in the rest of the FHPA are defined by the Department of Fisheries (DoF, 2015).

FHPAs within the SWMR

Cottesloe Reef

The Cottesloe reef system stretches intermittently for approximately 4.4 km from a point 300 m south of the artificial surfing reef at the Cable Station to North Street, Cottesloe. It is located on a limestone shelf, which is known locally as the Cottesloe Fringing Bank. This shelf extends approximately 1.5 km offshore from the beach. Limestone pinnacles, elevated platforms, and water-eroded limestone outcrops form most of the surface reef structure. In places, sea-grass patches and kelp beds occur within 100 m of the shoreline (DoF, 2001a).

The reef is readily accessible to the public and intensively used by locals and other Perth metropolitan residents and is therefore vulnerable to human impacts. The reef system and its waters are highly popular for recreational activities including surfing, windsurfing, swimming, paddle skiing, line fishing, spear fishing, snorkelling and scuba diving.

The Cottesloe Reef system contains a unique and diverse range of marine habitats. These include sand, sand with seagrass, limestone reef with large kelp and macroalgae, sponge beds and garden bottoms. In deeper water, corals, sea cucumbers and sponge gardens thrive and the slope of the reef platform at Mudurup Rocks provides habitat for animals such as feather stars and small molluscs, which are protected from heat and drying during low summer tides. An abundance of finfish can be found in and around the reef system, including herring, tailor, skipjack (silver trevally), whiting, morwong and tarwhine (silver bream). The reef is also a breeding ground for squid, Port Jackson sharks and other elasmobranchs including stingrays (DoF, 2001a; DoF 2010).

Regulations for protection of Cottesloe Reef include:

- Spearfishing is prohibited throughout the FHPA.
- Commercial fishing is prohibited throughout the FHPA.
- Recreational fishing (except net fishing) for fish such as tailor, herring, whiting, skipjack and garfish is permitted in the FHPA, subject to recreational fishing rules for the West Coast region.
- Anchoring of any craft in the FHPA is prohibited.
- Five yellow moorings have been provided within the FHPA for use by boats up to 12 m. These moorings are removed during winter (April – November) to prevent damage from winter storms (DoF, 2010).

Lancelin Island Lagoon

Lancelin Island is an emergent limestone feature of the coastal marine environment of the mid-west coast of Western Australia. The island is located approximately 110 km north of Perth and 800 m offshore from the Lancelin town site (DoF, 2001b).

The Lancelin Island Lagoon is a small area of reef habitat on the western side of Lancelin Island and a popular snorkelling and diving destination. Water depth ranges from less than 0.3 m on the intertidal reefs to less than 3 m on the sand or seagrass-covered bottom. The area has a diverse array of benthic marine habitat. During a marine survey of the area, over 200 flora and fauna species

were positively identified, with more remaining unidentified due to the diversity of species (DoF, 2001a).

The management strategy for the Lancelin Island Lagoon includes the following regulations:

- Prohibit all recreational and commercial fishing, aquaculture and collecting in the FHPA.
- Prohibit boat anchorage within the FHPA.
- Investigate the means to prohibit mining and exploration within the FHPA and in adjacent areas where the environmental values of the FHPA may be compromised (DoF, 2001a).

12.2.2 Aquaculture

Aquaculture operations in the northwest are typically restricted to inland and shallow coastal waters.

West Coast Bioregion

Aquaculture activities in the West Coast bioregion, defined by the Department of Primary Industries and Regional Development (DPIRD) (as the government body responsible management of primary industries in WA) are focused on blue mussels and edible oysters (mainly in Cockburn Sound) and marine algae for production of beta-carotene, used as a food additive and as a nutritional supplement. Offshore marine finfish production is also being developed, initially focusing on yellowtail kingfish near Geraldton.

There is also an emerging black pearl industry (from the *Pinctada margaritifera* oyster) in the Abrolhos Islands. As well as expansion in the production of Akoya pearls (small white pearls from *Pinctada fucata martensi*), *Pinctada albina* (small, yellow pearls) and *Pteria penguin*, which are often used to produce half (mabe) pearls in pink and bluish shades.

Aquaculture licences for producing coral and live rock (pieces of old coral reefs colonised by marine life, such as beneficial bacteria, for aquariums) at the Abrolhos Islands have also been issued and other applications are being assessed (DPIRD, 2023).

Gascoyne Coast Bioregion

In the Gascoyne Coast bioregion, aquaculture activities are focused on the blacklip oyster (*Pinctada margaritifera*) and Akoya pearl oyster (*Pinctada imbricata*) (Gaughan and Santoro, 2020). Several hatcheries supply *P. margaritifera* juveniles to the region's developing black pearl farms.

Other aquaculture developments in the Gascoyne Coast bioregion include emerging producers of coral and live rock species for aquariums (DPIRD, 2023).

North Coast Bioregion

Aquaculture activities in the North Coast bioregion is dominated by the production of pearls (from the *Pinctada margaritifera* oyster). A large number of pearl oysters for seeding are obtained from wild stocks and supplemented by hatchery produced oysters, with major hatcheries operating at Broome and around the Dampier Peninsula (DPIRD, 2023). Primary spawning of the pearl oyster occurs from mid-October to December. A smaller secondary spawning occurs in February and March (Gaughan and Santoro, 2020).

Finfish aquaculture in the Kimberley region is dominated by Barramundi located in the Kimberley Aquaculture Development Zone which lies approximately 200 km north-east of Broome. Rock oyster trials are nearing completion near Karratha in the Pilbara region, however there is no commercial production of the species in this region at this stage (DPIRD, 2023).

There is one indigenous project at One Arm Point that operates a marine hatchery that focuses on a variety of ornamental and edible marine species (DPIRD, 2023).

South Coast Bioregion

Aquaculture activities in the South Coast bioregion is dominated by the production of edible oysters (Akoya and rock oysters) and mussels within King George Sound in Albany. Other forms of private aquaculture in the region include sea cage farming of abalone, which are restricted to the South Coast near Augusta (Flinders Bay) and Esperance (Wylie Bay) (DPIRD, 2023).

12.3 Fisheries – Traditional

Traditional or customary fisheries are typically restricted to shallow coastal waters and/or areas with structures such as reef. The Western Australia Recreational Fishing Guide (2024) states that First Nations people do not need a recreational fishing licence in any waters if it is in accordance with continuing tradition and for individual or familial consumption, not for a commercial purpose.

Dugong, fish and marine turtles that move between coastal and Commonwealth waters are important components of the First Nations people's culture and diet. First Nations people continue to actively manage their sea country in coastal waters of WA in order to protect and manage the marine environment, its resources and cultural values.

Indonesian fishers can fish within designated areas under the Australia-Indonesia Memorandum of Understanding regarding the Operations of Indonesian Traditional Fishermen in Areas of the Australian Fishing Zone and Continental Shelf – 1974 (MoU 74). Traditional fishing is allowed within the MoU Box (Figure 12-9), which encompasses: Ashmore Reef (Pulau Pasir), Cartier Island (Pulau Baru), Seringapatam Reef (Afringan), Scott Reef (Pulau Dato) and Browse Island (Berselan). Restrictions have since been introduced around Ashmore Reef and Cartier Island following their designation as Nature Reserves under the Commonwealth's *National Parks and Wildlife Conservation Act 1975* in 1983 and 2000, respectively.

The MoU allows Indonesian fishers to fish in designated areas using traditional methods only. These methods include reef gleaning, free-diving, hand lining and other non-mechanised methods. Scott Reef is currently the principal reef in the MoU 74 Box and is utilised seasonally by Indonesian fishers to harvest trepang, trochus shells and other reef species. The peak season is July to October due to more favourable wind conditions, and to allow fishers to sun dry their catch on their boat decks (ERM, 2009). Browse Island is also frequently visited by shark fishers who mostly fish along the eastern margin of the MoU 74 Box.

The Agreement between the Government of Australia and the Government of the Republic of Indonesia Relating to Cooperation in Fisheries (*1992 Fisheries Cooperation Agreement*) provides the framework for fisheries and marine cooperation between Australia and Indonesia. Cooperation under the Agreement today takes place under the auspices of the Working Group on Marine Affairs and Fisheries. Research reports on reef top species in the MoU Box indicate that stocks in the area are severely depleted. In 2009 the Working Group on Marine Affairs and Fisheries agreed to a Roadmap for MoU Box Cooperative Management (DAWE, 2020a).

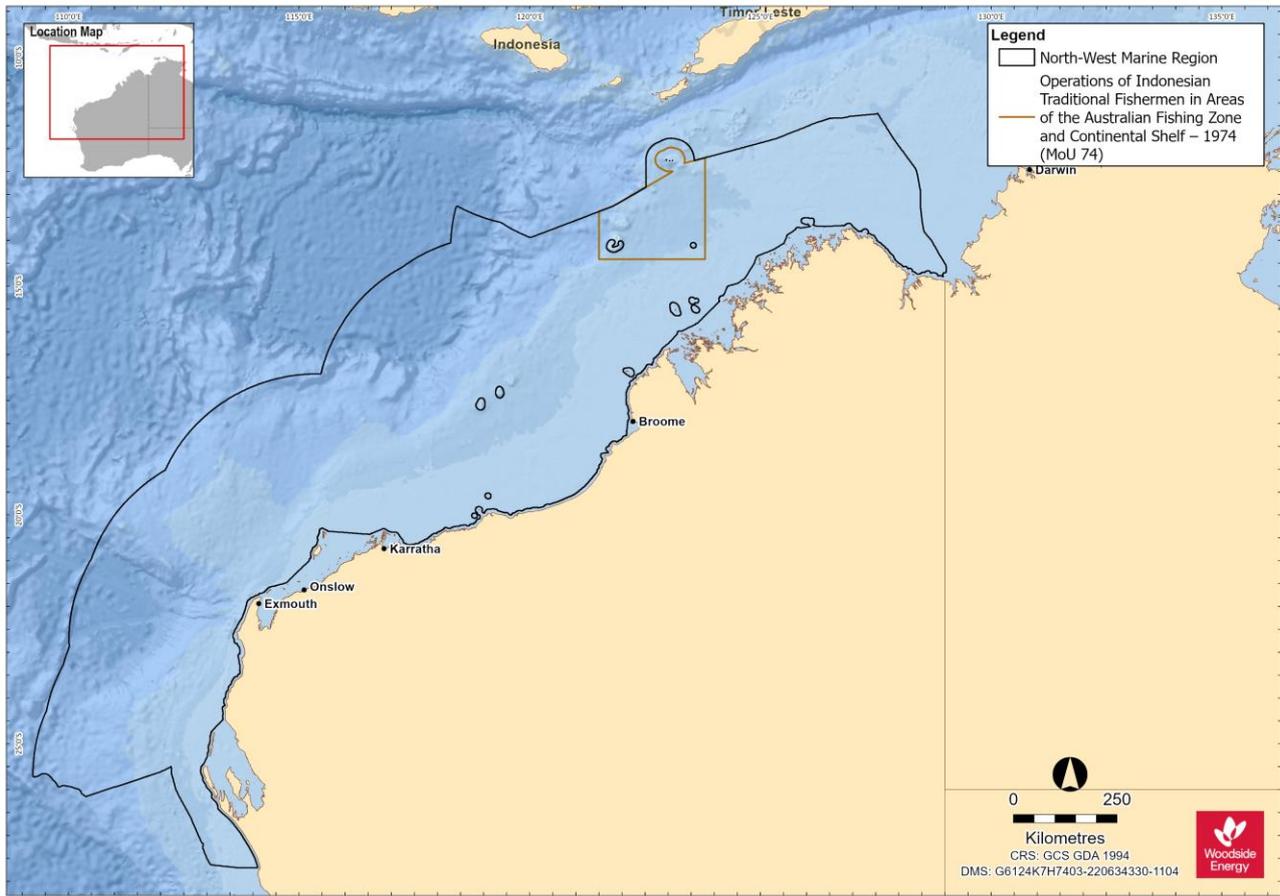


Figure 12-9: MOU 74 Box. Operations of Indonesian Traditional Fishermen in Areas of the Australian Fishing Zone and Continental Shelf – 1974

12.4 Tourism and Recreation

Western Australia’s tourism sector is important to industry and the economy. In 2022-2023, tourism accounted for 6.8% of WA’s total jobs and generated a Gross Total Value Added of \$11.9 billion (Tourism Western Australia, 2024a).

The Kimberley, Pilbara and Gascoyne regions are popular visitor destinations for Australian and international tourists. Tourism is concentrated in the vicinity of population centres including Broome, Dampier, Exmouth, Coral Bay and Shark Bay. Recreational and tourism activities include: charter fishing, recreational fishing, diving, snorkelling, marine fauna watching, and yachting (Tourism Western Australia, 2024b).

Australia’s Coral Coast and North West had a 27% and 22% growth respectively, in intrastate spend compared to 2019. The state’s highest intrastate spend on record occurred with WA residents spending \$9.3 billion on trips within the state (Tourism Western Australia, 2024b).

12.4.1 Gascoyne Region

Tourism has the fourth largest economic output of all the major industries of the Gascoyne region (GDC, 2023). It contributes significantly to the local economy in terms of both income and employment. In 2022, the region had over 271,100 overnight visitors and tourism had an average economic output of \$182 million between 2021 and 2022 (GDC, 2023).

The COVID-19 pandemic disrupted the tourism industry of the Gascoyne region in previous years, particularly by reducing availability of the overseas workforce. However, the phasing out of restrictions has increased interstate and international travel, and visitor numbers have remained high with inter-state tourism numbers increasing in 2021 in comparison to 2020 (GDC, 2022). The main

attraction of the coastline for tourists is the quality of marine life. The region supports extensive scuba diving, snorkelling and fishing and specialised eco-tourism activities include whale shark and manta ray observation at Ningaloo, and dolphin and dugong viewing in Shark Bay (Newman et al., 2023b). In 2018-19, the Ningaloo region (Ningaloo Reef and the surrounding coastal region Exmouth Gulf, communities of Exmouth and Coral Bay, and adjacent proposed southern coastal reserves and pastoral leases) contributed an estimated \$110 million in value added to the WA economy (DCBA, 2020). Ningaloo's economic contribution to WA is attributed to four key types of economic activity, tourism expenditure by international, interstate and WA visitors to the Ningaloo region, commercial fishing in the Exmouth Gulf, recreation activity involving the Reef by residents of the Ningaloo region and management and research relating to the Reef (DCBA, 2020). More than 90% of this value added is attributed to the domestic and international tourists who visit Ningaloo each year (DCBA, 2020). Dark sky tourism flourished in 2023 with an influx of visitors coming together in Exmouth to witness a rare hybrid solar eclipse (GDC, 2023). The natural phenomena brought 1,000's of visitors both interstate and international to the region in April 2023.

The first Cultural Tourism experience was launched in 2022 on the Ningaloo Coast. Departing from Coral Bay, the Cultural Tour provides visitors the opportunity to experience a unique perspective on the coastline's rich cultural heritage and unique environment. The main marine nature-based tourist activities are concentrated around and within the Ningaloo WHA (GDC, 2022). The Aboriginal AstroTourism Project was launched where First Nations people were consulted on night sky constellations and trained in dark sky tourism. Through this program star gazing experiences were successfully delivered to approximately 665 visitors over 10 nights during the Ningaloo Eclipse (GDC, 2023).

12.4.2 Pilbara region

Recreation and tourism activities within the Pilbara are of high social value. Tourism is a key economic driver for the Pilbara with more than 1 million visitors to the region every year. Tourism visitation continued to grow in 2022, with the number of visitors to Karajini National Park in 2022 having doubled in comparison to 2020 (PDC, 2022). Multi-year tourism infrastructure development funding has been provided for the Niminjarra Highway to provide easier access to the Karlamilyi National Park and enhance cultural tourism opportunities and to the Whim Creek Hotel to re-establish a tourism destination between Karratha and Hedland (PDC, 2023).

Recreational fishing within the Pilbara region tends to be concentrated in State waters adjacent to population centres. Recreational fishing is known to occur around the Dampier Archipelago with boats launched from boat ramps around Dampier and Karratha. Once at sea, charter vessels may also frequent the waters surrounding the Montebello Islands (Williamson et al., 2006).

12.4.3 Kimberley Region

Tourism is one of the main industries in the Kimberley region, alongside resources, construction, agriculture and retail (KDC, 2022).

Recreation and tourism activities in the Kimberley region occur predominantly in WA State waters (extending offshore 3 nm from the mainland), adjacent to coastal population centres (e.g. Broome), with a peak in activity during the winter months (dry season). These activities include recreational fishing, diving, snorkelling, wildlife watching and boating (Newman et al., 2023b).

Primary dive locations in the Kimberley region include the Rowley Shoals, including Mermaid Reef AMP, Scott Reef, Seringapatam Reef, Ashmore Reef AMP and Cartier Island (Newman et al., 2023b).

12.5 Shipping

Commercial shipping traffic is high within the NWMR with vessel activities including commercial fisheries, tourism such as cruises, international shipping and oil and gas operations. There are 12 ports adjacent to the NWMR, including the major ports of Dampier, Port Hedland and Broome,

which are operated by their respective port authorities. These ports handle large tonnages of iron ore and petroleum exports in addition to salt, manganese, feldspar chromite and copper (DEWHA, 2008).

Heavy vessel traffic exists within the Pilbara Port Authority management area which recorded 9,594 vessel movements in the Port of Dampier, 6,786 vessel movements in the Port of Port Hedland, and 807 vessel movements in the Port of Ashburton in the 2022/23 reporting period (PPA, 2023). Twenty-six designated anchorages for bulk carriers, petroleum and gas tankers, drilling rigs, offshore platforms, and pipelay vessels are located offshore of Rosemary Island.

In 2012, AMSA established a network of shipping fairways off the northwest coast of Australia. The shipping fairways, while not mandatory, aim to reduce the risk of collision between transiting vessels and offshore infrastructure. The fairways are intended to direct large vessels such as bulk carriers and LNG ships trading to the major ports into pre-defined routes to keep them clear of existing and planned offshore infrastructure (AMSA, 2013).

12.6 Petroleum Basins

The NWMR supports a number of industries including petroleum exploration and production.

Within the NWMR there are seven sedimentary petroleum basins: Northern and Southern Carnarvon basins, Perth, Browse, Roebuck, Offshore Canning and Bonaparte basins (GA, 2023). Of these, the Northern Carnarvon, Browse and Bonaparte basins hold large quantities of gas and comprise most of Australia's reserves of natural gas (DEWHA, 2008), which is reflected by the level of development in the area. In addition to existing facilities, there are proposed developments in the region. This includes proposals to develop gas and condensate from a number of fields within the NWMR.

In addition to the oil and gas industry, other land-based industries depend upon the marine environment in the nearshore area. These include ports, salt mines such as Karratha and Onslow, LNG onshore processing facilities such as Burrup Hub, Thevenard Island, Barrow Island, Varanus Island, and small-scale desalination plants at Barrow Island, Burrup, Cape Preston, and Onslow.

12.7 Defence

Key Australian Department of Defence (DoD) operational areas and facilities areas of the NWMR for training and operational activities, include:

- An operating logistics base has been established in Dampier to support vessels patrolling the waters around offshore oil and gas facilities. A dedicated navy administrative support facility is also being constructed at the nearby township of Karratha (DEWHA, 2008).
- The Taylor Barracks are the headquarters of the Pilbara regiment, one of three Regional Force Surveillance Units conducting surveillance and reconnaissance of remote areas of northern Australia. This base is located in Karratha (DoD, n.d.).
- The Royal Australian Air Force currently maintains two 'bare bases' in remote areas of WA that are used for military exercises. One of these is the Royal Australian Air Force Base in Learmonth. The Royal Australian Air Force maintains the Commonwealth Heritage listed Learmonth Air Weapons Range Facility, which is located between Ningaloo Station and the Cape Range National Park. The air training area associated with the Learmonth base extends over the offshore region.
- The Royal Australian Air Force Base Curtin is located on the north coast of WA, south-east of Derby and 170 km east of Broome. It provides support for land, air and sea operations aimed to support Australia's northern approaches.
- The Naval Communications Station Harold E. Holt is located ~6 km north of Exmouth. The main role of the station is to communicate at very low frequencies (19.8 kHz) with Australian and United States submarines and ships in the eastern Indian Ocean and the western Pacific Ocean (DEWHA, 2008).

- Areas may be subject to Unexploded Ordnance (UXO) as a result of military activities. These are offshore sites where ammunition and explosives have been dumped, or which have been used as live bombing or firing ranges. Defence maintains a record of sites confirmed as, or reasonably suspected of being affected by UXO. There are several suspected UXO sites in the NWMR (Australian Government Defence, n.d.).

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APPENDIX A. PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR

The PMST tool conducts searches on a grid-based function. Accordingly, the PMST results can indicate features or species that do not actually intersect or have a presence in the area. To validate search results, comprehensive literature and scientific expertise is used. As such, only species considered relevant to the scope of this document have been described.



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 06-Jun-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



Figure 1: NWMR PMST subarea 1

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	2
National Heritage Places:	5
Wetlands of International Importance (Ramsar)	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	9
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	105
Listed Migratory Species:	97

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	65
Commonwealth Heritage Places:	5
Listed Marine Species:	174
Whales and Other Cetaceans:	34
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	29
Habitat Critical to the Survival of Marine Turtles:	5

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	78
Regional Forest Agreements:	None
Nationally Important Wetlands:	8
EPBC Act Referrals:	317
Key Ecological Features (Marine):	13
Biologically Important Areas:	92
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [\[Resource Information \]](#)

Name	State	Legal Status
Shark Bay, Western Australia	WA	Declared property
The Ningaloo Coast	WA	Declared property

National Heritage Places [\[Resource Information \]](#)

Name	State	Legal Status
Historic		
Dirk Hartog Landing Site 1616 - Cape Inscription Area	WA	Listed place

Indigenous

Dampier Archipelago (including Burrup Peninsula)	WA	Listed place
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Natural

Shark Bay, Western Australia	WA	Listed place
The Ningaloo Coast	WA	Listed place
The West Kimberley	WA	Listed place

Wetlands of International Importance (Ramsar Wetlands) [\[Resource Information \]](#)

Ramsar Site Name	Proximity
Eighty-mile beach	Within Ramsar site
Roebuck bay	Within 10km of Ramsar site

Commonwealth Marine Area [\[Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name

Commonwealth Marine Areas (EPBC Act)

Feature Name

Commonwealth Marine Areas (EPBC Act)

Listed Threatened Ecological Communities

[[Resource Information](#)]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula	Endangered	Community likely to occur within area

Listed Threatened Species

[[Resource Information](#)]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Breeding known to occur within area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area
Erythrura gouldiae Gouldian Finch [413]	Endangered	Species or species habitat known to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area
Falcunculus frontatus whitei Crested Shrike-tit (northern), Northern Shrike-tit [26013]	Vulnerable	Species or species habitat likely to occur within area
Geophaps smithii blaauwi Partridge Pigeon (western) [66501]	Vulnerable	Species or species habitat likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Malurus leucopterus edouardi White-winged Fairy-wren (Barrow Island), Barrow Island Black-and-white Fairy-wren [26194]	Vulnerable	Species or species habitat likely to occur within area
Malurus leucopterus leucopterus White-winged Fairy-wren (Dirk Hartog Island), Dirk Hartog Black-and-White Fairy-wren [26004]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Breeding known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat likely to occur within area
FISH		
Milyeringa veritas Cape Range Cave Gudgeon, Blind Gudgeon [66676]	Vulnerable	Species or species habitat known to occur within area
Ophisternon candidum Blind Cave Eel [66678]	Vulnerable	Species or species habitat known to occur within area
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Breeding known to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Bettongia lesueur Barrow and Boodie Islands subspecies Boodie, Burrowing Bettong (Barrow and Boodie Islands) [88021]	Vulnerable	Species or species habitat known to occur within area
Bettongia lesueur lesueur Burrowing Bettong (Shark Bay), Boodie [66659]	Vulnerable	Species or species habitat known to occur within area
Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isoodon auratus auratus Golden Bandicoot (mainland) [66665]	Vulnerable	Species or species habitat likely to occur within area
Isoodon auratus barrowensis Golden Bandicoot (Barrow Island) [66666]	Vulnerable	Species or species habitat known to occur within area
Lagorchestes conspicillatus conspicillatus Spectacled Hare-wallaby (Barrow Island) [66661]	Vulnerable	Species or species habitat known to occur within area
Lagorchestes hirsutus bernieri Rufous Hare-wallaby (Bernier Island) [66662]	Vulnerable	Species or species habitat known to occur within area
Lagorchestes hirsutus Central Australian subspecies Mala, Rufous Hare-Wallaby (Central Australia) [88019]	Endangered	Translocated population known to occur within area
Lagorchestes hirsutus dorrae Rufous Hare-wallaby (Dorre Island) [66663]	Vulnerable	Species or species habitat known to occur within area
Lagostrophus fasciatus fasciatus Banded Hare-wallaby, Merrnine, Marnine, Munning [66664]	Vulnerable	Species or species habitat known to occur within area
Leporillus conditor Wopilkara, Greater Stick-nest Rat [137]	Vulnerable	Translocated population known to occur within area

Scientific Name	Threatened Category	Presence Text
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat known to occur within area
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat known to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area
Osphranter robustus isabellinus Barrow Island Wallaroo, Barrow Island Euro [89262]	Vulnerable	Species or species habitat likely to occur within area
Perameles bougainville Shark Bay Bandicoot [278]	Endangered	Species or species habitat known to occur within area
Petrogale concinna monastria Nabarlek (Kimberley) [87607]	Endangered	Species or species habitat known to occur within area
Petrogale lateralis lateralis Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647]	Endangered	Species or species habitat known to occur within area
Phascogale tapoatafa kimberleyensis Kimberley brush-tailed phascogale, Brush-tailed Phascogale (Kimberley) [88453]	Vulnerable	Species or species habitat likely to occur within area
Pseudomys fieldi Shark Bay Mouse, Djoongari, Alice Springs Mouse [113]	Vulnerable	Species or species habitat likely to occur within area
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Trichosurus vulpecula arnhemensis Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat likely to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
PLANT		
Caladenia barbarella Small Dragon Orchid, Common Dragon Orchid [68686]	Endangered	Species or species habitat may occur within area
Caladenia hoffmanii Hoffman's Spider-orchid [56719]	Endangered	Species or species habitat likely to occur within area
Eucalyptus beardiana Beard's Mallee [18933]	Vulnerable	Species or species habitat likely to occur within area
Minuria tridens Minnie Daisy [13753]	Vulnerable	Species or species habitat known to occur within area
REPTILE		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Ctenotus zasticus Hamelin Ctenotus [25570]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Egernia stokesii badia Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink [64483]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Congregation or aggregation known to occur within area
Lerista neviniae Nevin's Slider [85296]	Endangered	Species or species habitat known to occur within area
Liasis olivaceus barroni Pilbara Olive Python [66699]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Tiliqua scincoides intermedia Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat known to occur within area
Varanus mertensi Mertens' Water Monitor, Mertens's Water Monitor [1568]	Endangered	Species or species habitat known to occur within area
Varanus mitchelli Mitchell's Water Monitor [1569]	Critically Endangered	Species or species habitat likely to occur within area
SHARK		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Congregation or aggregation known to occur within area

Scientific Name	Threatened Category	Presence Text
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Centrophorus uyato Little Gulper Shark [68446]	Conservation Dependent	Species or species habitat likely to occur within area
Glyphis garricki Northern River Shark, New Guinea River Shark [82454]	Endangered	Breeding likely to occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

SPIDER

Idiosoma nigrum Shield-backed Trapdoor Spider, Black Rugose Trapdoor Spider [66798]	Vulnerable	Species or species habitat known to occur within area
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Listed Migratory Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Ardena carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Ardena pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Breeding known to occur within area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Breeding known to occur within area
Sula dactylatra Masked Booby [1021]		Breeding known to occur within area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Sula sula Red-footed Booby [1023]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Dugong dugon Dugong [28]		Breeding known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Congregation or aggregation known to occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Cecropis daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
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Defence

Defence - EXMOUTH VLF TRANSMITTER STATION [50122]	WA
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Defence - EXMOUTH VLF TRANSMITTER STATION [50123]	WA
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Defence - LEARMONTH - RAAF BASE [50106]	WA
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Defence - LEARMONTH - RAAF BASE [50109]	WA
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Defence - LEARMONTH - RAAF BASE [50108]	WA
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Defence - LEARMONTH - RAAF BASE [50101]	WA
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Defence - LEARMONTH - RAAF BASE [50107]	WA
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Defence - LEARMONTH - RAAF BASE [50097]	WA
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Defence - LEARMONTH - RAAF BASE [50103]	WA
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Defence - LEARMONTH - RAAF BASE [50100]	WA
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Defence - LEARMONTH RADAR SITE - VLAMING HEAD EXMOUTH [50001]	WA
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Defence - YAMPI SOUND TRAINING AREA [50145]	WA
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Unknown

Commonwealth Land - [51698]	WA
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Commonwealth Land - [51699]	WA
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Commonwealth Land - [51707]	WA
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Commonwealth Land - [51704]	WA
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Commonwealth Land - [51696]	WA
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Commonwealth Land - [51705]	WA
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Commonwealth Land - [51709]	WA
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Commonwealth Land - [51700]	WA
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Commonwealth Land - [51706]	WA
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Commonwealth Land Name	State
Commonwealth Land - [52110]	WA
Commonwealth Land - [51695]	WA
Commonwealth Land - [51671]	WA
Commonwealth Land - [52104]	WA
Commonwealth Land - [51672]	WA
Commonwealth Land - [51670]	WA
Commonwealth Land - [51055]	WA
Commonwealth Land - [51054]	WA
Commonwealth Land - [51702]	WA
Commonwealth Land - [51053]	WA
Commonwealth Land - [51708]	WA
Commonwealth Land - [51703]	WA
Commonwealth Land - [52198]	WA
Commonwealth Land - [51716]	WA
Commonwealth Land - [52236]	WA
Commonwealth Land - [52099]	WA
Commonwealth Land - [52097]	WA
Commonwealth Land - [51719]	WA
Commonwealth Land - [52100]	WA
Commonwealth Land - [52195]	WA
Commonwealth Land - [52109]	WA
Commonwealth Land - [52098]	WA
Commonwealth Land - [51710]	WA
Commonwealth Land - [51714]	WA
Commonwealth Land - [51715]	WA
Commonwealth Land - [52106]	WA
Commonwealth Land - [52107]	WA

Commonwealth Land Name	State
Commonwealth Land - [51947]	WA
Commonwealth Land - [52108]	WA
Commonwealth Land - [52105]	WA
Commonwealth Land - [52103]	WA
Commonwealth Land - [52102]	WA
Commonwealth Land - [52101]	WA
Commonwealth Land - [51404]	WA
Commonwealth Land - [51403]	WA
Commonwealth Land - [51668]	WA
Commonwealth Land - [51666]	WA
Commonwealth Land - [51667]	WA
Commonwealth Land - [51718]	WA
Commonwealth Land - [51720]	WA
Commonwealth Land - [51717]	WA
Commonwealth Land - [51712]	WA
Commonwealth Land - [51713]	WA
Commonwealth Land - [51711]	WA

Commonwealth Heritage Places [\[Resource Information \]](#)

Name	State	Status
Natural		
Learmonth Air Weapons Range Facility	WA	Listed place
Mermaid Reef - Rowley Shoals	WA	Listed place
Ningaloo Marine Area - Commonwealth Waters	WA	Listed place
Scott Reef and Surrounds - Commonwealth Area	EXT	Listed place
Yampi Defence Area	WA	Listed place

Listed Marine Species [\[Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text
Bird		

Scientific Name	Threatened Category	Presence Text
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area overfly marine area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Breeding known to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area overfly marine area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area overfly marine area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area overfly marine area
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Breeding known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area overfly marine area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area
Larus pacificus Pacific Gull [811]		Breeding known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area
Pterodroma macroptera Great-winged Petrel [1035]		Foraging, feeding or related behaviour known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Sternula albifrons as Sterna albifrons Little Tern [82849]		Breeding known to occur within area
Sternula nereis as Sterna nereis Fairy Tern [82949]		Breeding known to occur within area
Stiltia isabella Australian Pratincole [818]		Roosting known to occur within area overfly marine area
Sula dactylatra Masked Booby [1021]		Breeding known to occur within area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Sula sula Red-footed Booby [1023]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Thalasseus bengalensis as Sterna bengalensis Lesser Crested Tern [66546]		Breeding known to occur within area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area overfly marine area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area overfly marine area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Acentronura larsonae Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bhanotia fasciolata Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Breeding known to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area
Reptile		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus fuscus Dusky Sea Snake [1119]		Species or species habitat known to occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Aipysurus pooleorum Shark Bay Sea Snake [66061]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis coggeri Cogger's Sea Snake [25925]		Species or species habitat may occur within area
Hydrophis czeblukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowellii as Hydrophis mcdowellii MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Hydrophis zweiffei as Enhydrina schistosa Australian Beaked Sea Snake [93514]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Congregation or aggregation known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area

Whales and Other Cetaceans [[Resource Information](#)]

Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Globicephala melas Long-finned Pilot Whale [59282]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Indopacetus pacificus Longman's Beaked Whale [72]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Mesoplodon ginkgodens Gingko-toothed Beaked Whale, Gingko-toothed Whale, Gingko Beaked Whale [59564]		Species or species habitat may occur within area
Mesoplodon grayi Gray's Beaked Whale, Scamperdown Whale [75]		Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks		[Resource Information]
Park Name	Zone & IUCN Categories	
Abrolhos	Habitat Protection Zone (IUCN IV)	
Carnarvon Canyon	Habitat Protection Zone (IUCN IV)	
Dampier	Habitat Protection Zone (IUCN IV)	
Gascoyne	Habitat Protection Zone (IUCN IV)	
Gascoyne	Habitat Protection Zone (IUCN IV)	
Kimberley	Habitat Protection Zone (IUCN IV)	

Park Name	Zone & IUCN Categories
Kimberley	Habitat Protection Zone (IUCN IV)
Abrolhos	Multiple Use Zone (IUCN VI)
Abrolhos	Multiple Use Zone (IUCN VI)
Argo-Rowley Terrace	Multiple Use Zone (IUCN VI)
Argo-Rowley Terrace	Multiple Use Zone (IUCN VI)
Dampier	Multiple Use Zone (IUCN VI)
Eighty Mile Beach	Multiple Use Zone (IUCN VI)
Gascoyne	Multiple Use Zone (IUCN VI)
Kimberley	Multiple Use Zone (IUCN VI)
Montebello	Multiple Use Zone (IUCN VI)
Roebuck	Multiple Use Zone (IUCN VI)
Shark Bay	Multiple Use Zone (IUCN VI)
Abrolhos	National Park Zone (IUCN II)
Argo-Rowley Terrace	National Park Zone (IUCN II)
Dampier	National Park Zone (IUCN II)
Gascoyne	National Park Zone (IUCN II)
Kimberley	National Park Zone (IUCN II)
Mermaid Reef	National Park Zone (IUCN II)
Ningaloo	National Park Zone (IUCN II)
Ningaloo	Recreational Use Zone (IUCN IV)
Ningaloo	Recreational Use Zone (IUCN IV)
Abrolhos	Special Purpose Zone (IUCN VI)
Argo-Rowley Terrace	Special Purpose Zone (Trawl) (IUCN VI)

Habitat Critical to the Survival of Marine Turtles

[[Resource Information](#)]

Scientific Name

Behaviour

Presence

Aug - Sep

Scientific Name	Behaviour	Presence
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
May - Jul		
Lepidochelys olivacea Olive Ridley Turtle [1767]	Nesting	Known to occur
Nov-Feb		
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Nov - May		
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Adele Island	Nature Reserve	WA
Airlie Island	Nature Reserve	WA
Bardi Jawi	Indigenous Protected Area	WA
Barrow Island	Nature Reserve	WA
Barrow Island	Marine Management Area	WA
Barrow Island	Marine Park	WA
Bedout Island	Nature Reserve	WA
Bernier And Dorre Islands	Nature Reserve	WA
Bessieres Island	Nature Reserve	WA
Boodie, Double Middle Islands	Nature Reserve	WA
Bundegi Coastal Park	5(1)(h) Reserve	WA
Cape Range (South)	National Park	WA

Protected Area Name	Reserve Type	State
Coulomb Point	Nature Reserve	WA
Dambimangari	Indigenous Protected Area	WA
Dirk Hartog Island	National Park	WA
Eighty Mile Beach	Marine Park	WA
Faure Island	Private Nature Reserve	WA
Francois Peron	National Park	WA
Freycinet, Double Islands etc	Nature Reserve	WA
Gnandaroo Island	Nature Reserve	WA
Great Sandy Island	Nature Reserve	WA
Hamelin Pool	Marine Nature Reserve	WA
Jarrkunpungu	Nature Reserve	WA
Jurabi Coastal Park	5(1)(h) Reserve	WA
Karajarri	Indigenous Protected Area	WA
Koks Island	Nature Reserve	WA
Lacepede Islands	Nature Reserve	WA
Lalang-garram / Camden Sound	Marine Park	WA
Lalang-garram / Horizontal Falls	Marine Park	WA
Little Rocky Island	Nature Reserve	WA
Locker Island	Nature Reserve	WA
Lowendal Islands	Nature Reserve	WA
Miaboolya Beach	Fish Habitat Protection Area	WA
Montebello Islands	Conservation Park	WA
Montebello Islands	Marine Park	WA
Montebello Islands	Conservation Park	WA
Muiron Islands	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Muiron Islands	Marine Management Area	WA
Nanga Station	NRS Addition - Gazettal in Progress	WA
Ningaloo	Marine Park	WA
North Kimberley	Marine Park	WA
North Lalang-garram	Marine Park	WA
North Sandy Island	Nature Reserve	WA
North Turtle Island	Nature Reserve	WA
Nyangumarta Warrarn	Indigenous Protected Area	WA
Nyingguulu (Ningaloo) Coastal Reserve	5(1)(h) Reserve	WA
Rocky Island	Nature Reserve	WA
Round Island	Nature Reserve	WA
Rowley Shoals	Marine Park	WA
Scott Reef	Nature Reserve	WA
Sedimentary Deposits Reserve	5(1)(g) Reserve	WA
Serrurier Island	Nature Reserve	WA
Shark Bay	Marine Park	WA
Swan Island	Nature Reserve	WA
Tanner Island	Nature Reserve	WA
Tent Island	Nature Reserve	WA
Thevenard Island	Nature Reserve	WA
Unnamed WA28968	5(1)(h) Reserve	WA
Unnamed WA36909	5(1)(h) Reserve	WA
Unnamed WA36913	Nature Reserve	WA
Unnamed WA36915	Nature Reserve	WA
Unnamed WA37168	5(1)(h) Reserve	WA

Protected Area Name	Reserve Type	State
Unnamed WA37338	5(1)(h) Reserve	WA
Unnamed WA37383	5(1)(h) Reserve	WA
Unnamed WA40322	5(1)(h) Reserve	WA
Unnamed WA40828	5(1)(h) Reserve	WA
Unnamed WA40877	5(1)(h) Reserve	WA
Unnamed WA41080	5(1)(h) Reserve	WA
Unnamed WA44665	5(1)(h) Reserve	WA
Unnamed WA44667	5(1)(h) Reserve	WA
Unnamed WA44669	5(1)(h) Reserve	WA
Unnamed WA44672	5(1)(h) Reserve	WA
Unnamed WA44673	5(1)(h) Reserve	WA
Victor Island	Nature Reserve	WA
Whalebone Island	Nature Reserve	WA
Yawuru	Indigenous Protected Area	WA
Yawuru Nagulagun / Roebuck Bay	Marine Park	WA
Y Island	Nature Reserve	WA

Nationally Important Wetlands [\[Resource Information \]](#)

Wetland Name	State
Cape Range Subterranean Waterways	WA
Eighty Mile Beach System	WA
Exmouth Gulf East	WA
Hamelin Pool	WA
Leslie (Port Hedland) Saltfields System	WA
Mermaid Reef	EXT
Shark Bay East	WA
Yampi Sound Training Area	WA

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Browse to North West Shelf Development, Indian Ocean, WA	2018/8319		Approval
Cockatoo Island Multi-User Supply Base, WA	2017/7986		Assessment
Gorgon Gas Development	2003/1294		Post-Approval
Koolan Island Operations	2022/09392		Assessment
Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia West	2024/09826		Referral Decision
Midwest Offshore Wind Farm	2022/09264		Assessment
Ningaloo Lighthouse Development, 17km north west Exmouth, Western Australia	2020/8693		Post-Approval
North West Shelf Project Extension, Carnarvon Basin, WA	2018/8335		Approval
Ocean Barramundi Expansion Project	2022/09272		Assessment
Optimised Mardie Solar Salt Project	2022/9169		Approval
Project Highclere Cable Lay and Operation	2022/09203		Completed
Ridley Magnetite Project	2023/09477		Referral Decision
Action clearly unacceptable			
Asian Renewable Energy Hub Revised Proposal, WA	2021/8891	Action Clearly Unacceptable	Completed
Highlands 3D Marine Seismic Survey	2012/6680	Action Clearly Unacceptable	Completed
Controlled action			
'Van Gogh' Petroleum Field Development	2007/3213	Controlled Action	Post-Approval
2-D seismic survey Scott Reef	2000/125	Controlled Action	Post-Approval
Anketell Point Iron Ore Processing & Export Port	2009/5120	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Balmoral South Iron Ore Mine	2008/4236	Controlled Action	Post-Approval
Binowee Iron Ore Project	2001/366	Controlled Action	Proposed Decision
Browse FLNG Development, Commonwealth Waters	2013/7079	Controlled Action	Post-Approval
Cape Lambert Port B Development	2008/4032	Controlled Action	Post-Approval
Conduct an exploration drilling campaign	2010/5718	Controlled Action	Completed
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Construction and operation of a Solar Salt Project, SW Onslow, WA	2016/7793	Controlled Action	Assessment Approach
Develop Ichthys gas-condensate field permit area W	2006/2767	Controlled Action	Completed
Develop Jansz-10 deepwater gas field in Permit Areas WA-18-R, WA-25-R and WA-26-	2005/2184	Controlled Action	Post-Approval
Development of Angel gas and condensate field, North West Shelf	2004/1805	Controlled Action	Post-Approval
Development of an iron ore mine and associated infrastructure	2010/5630	Controlled Action	Assessment Approach
Development of Browse Basin Gas Fields (Upstream)	2008/4111	Controlled Action	Completed
Development of Coniston/Novara fields within the Exmouth Sub-basin	2011/5995	Controlled Action	Post-Approval
Development of Stybarrow petroleum field incl drilling and facility installation	2004/1469	Controlled Action	Post-Approval
Echo-Yodel Production Wells	2000/11	Controlled Action	Post-Approval
Enfield full field development	2001/257	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Eramurra Industrial Salt Project	2021/9027	Controlled Action	Assessment Approach
Eramurra Industrial Salt Project, near Karratha, WA	2019/8448	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Gorgon Gas Revised Development	2008/4178	Controlled Action	Post-Approval
Greater Enfield (Vincent) Development	2005/2110	Controlled Action	Post-Approval
Greater Gorgon Development - Optical Fibre Cable, Mainland to Barrow Island	2005/2141	Controlled Action	Completed
Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval
Iron ore mine	2006/2522	Controlled Action	Post-Approval
Light Crude Oil Production	2001/365	Controlled Action	Post-Approval
Mardie Project, 80 km south west of Karratha, WA	2018/8236	Controlled Action	Post-Approval
Mauds Landing Marina	2000/98	Controlled Action	Completed
Nava-1 Cable System	2001/510	Controlled Action	Completed
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Pluton Irvine Island Iron Ore Project	2011/6064	Controlled Action	Proposed Decision
Port Hedland Outer Harbour Development and associated marine and terrestrial in	2008/4159	Controlled Action	Post-Approval
Port Hedland Spoilbank Marina, WA	2019/8520	Controlled Action	Post-Approval
Proposed West Pilbara Iron Ore Project	2009/4706	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval
Shark Bay Resources Dredging	2020/8717	Controlled Action	Post-Approval
Shark Bay Salt Facilities upgrade for direct ocean disposal of bitterns discharge	2011/5984	Controlled Action	Completed
Simpson Development	2000/59	Controlled Action	Completed
Simpson Oil Field Development	2001/227	Controlled Action	Post-Approval
The Scarborough Project - FLNG & assoc subsea infrastructure, Carnarvon Basin	2013/6811	Controlled Action	Post-Approval
Torosa South Initial Appraisal Drilling	2007/3500	Controlled Action	Completed
Vincent Appraisal Well	2000/22	Controlled Action	Post-Approval
Yannarie Solar Salt Project	2004/1679	Controlled Action	Completed
Yardie Creek Road Realignment Project	2021/8967	Controlled Action	Assessment Approach
Not controlled action			
'Goodwyn A' Low Pressure Train Project	2003/914	Not Controlled Action	Completed
'Van Gogh' Oil Appraisal Drilling Program, Exploration Permit Area WA-155-P(1)	2006/3148	Not Controlled Action	Completed
3D marine seismic survey in WA 314P and WA 315P	2004/1927	Not Controlled Action	Completed
Adele Trend TQ3D Seismic Survey	2001/252	Not Controlled Action	Completed
Airlie Island soil and groundwater investigations, Exmouth Gulf, offshore Pilbara coast	2014/7250	Not Controlled Action	Completed
APX-West Fibre-optic telecommunications cable system, WA to Singapore	2013/7102	Not Controlled Action	Completed
Aquaculture - Barramundi grow out, Yampi Sound	2005/2476	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
archaeological surveys & excavation at historic sites, Cape Inscription	2006/3027	Not Controlled Action	Completed
Baniyas-1 Exploration Well, EP-424, near Onslow	2007/3282	Not Controlled Action	Completed
Barrow Island 2D Seismic survey	2006/2667	Not Controlled Action	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed
Bultaco-2, Laverda-2, Laverda-3 and Montesa-2 Appraisal Wells	2000/103	Not Controlled Action	Completed
Cape Lambert Port A Marine Structures Refurbishment Project	2018/8370	Not Controlled Action	Completed
Carnarvon 3D Marine Seismic Survey	2004/1890	Not Controlled Action	Completed
Cazadores 2D seismic survey	2004/1720	Not Controlled Action	Completed
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Construction of a Commodities Berth, Wharf and Associated Infrastructure	2008/4129	Not Controlled Action	Completed
Controlled Source Electromagnetic Survey	2007/3262	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Development of iron ore facilities	2013/7013	Not Controlled Action	Completed
Development of Mutineer and Exeter petroleum fields for oil production, Permit	2003/1033	Not Controlled Action	Completed
Drilling between Kalbarri and Cliff Head	2005/2185	Not Controlled Action	Completed
Drilling of an exploration well Gats-1 in Permit Area WA-261-P	2004/1701	Not Controlled Action	Completed
Drilling of exploration wells, Permit areas WA-301-P to WA-305-P	2002/769	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Eagle-1 Exploration Drilling, North West Shelf, WA	2019/8578	Not Controlled Action	Completed
Echo A Development WA-23-L, WA-24-L	2005/2042	Not Controlled Action	Completed
Expansion of Monkey Mia Resort	2003/1146	Not Controlled Action	Completed
Expansion of the Sino Iron Ore Mine and export facilities, Cape Preston, WA	2017/7862	Not Controlled Action	Completed
Expansion Proposal, Mineralogy Cape Preston Iron Ore Project, Cape Preston, WA	2009/5010	Not Controlled Action	Completed
Exploration drilling well WA-155-P(1)	2003/971	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Exploration Well (Taunton-2)	2002/731	Not Controlled Action	Completed
Exploration Well in Permit Area WA-155-P(1)	2002/759	Not Controlled Action	Completed
Exploratory drilling in permit area WA-225-P	2001/490	Not Controlled Action	Completed
Extension of Simpson Oil Platforms & Wells	2002/685	Not Controlled Action	Completed
Extention to the existing Blind Strait Black Lip Pearl Oyster Farm	2004/1342	Not Controlled Action	Completed
Gulf Fishing Lodge	2010/5499	Not Controlled Action	Completed
Hadda 1, Flying Foam 1, Magnat 1 exploration drill	2004/1697	Not Controlled Action	Completed
HCA05X Macedon Experimental Survey	2004/1926	Not Controlled Action	Completed
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Huascaran-1 exploration well (WA-292-P)	2001/539	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
INDIGO West Submarine Telecommunications Cable, WA	2017/8126	Not Controlled Action	Completed
Infill Production Well (Griffin-9)	2001/417	Not Controlled Action	Completed
Jansz-2 and 3 Appraisal Wells	2002/754	Not Controlled Action	Completed
Klammer 2D Seismic Survey	2002/868	Not Controlled Action	Completed
Koolan Island Mine - Reconstruction of seawall and capital dewatering of mine pit, 130km northwest of	2016/7848	Not Controlled Action	Completed
Maia-Gaea Exploration wells	2000/17	Not Controlled Action	Completed
Manaslu - 1 and Huascarán - 1 Offshore Exploration Wells	2001/235	Not Controlled Action	Completed
Marine Seismic Survey in WA-239-P	2000/24	Not Controlled Action	Completed
Mermaid Marine Australia Desalination Project	2011/5916	Not Controlled Action	Completed
Montesa-1 and Bultaco-1 Exploration Wells	2000/102	Not Controlled Action	Completed
Murujuga archaeological excavation, collection and sampling, Dampier Archipelago, WA	2014/7160	Not Controlled Action	Completed
North Rankin B gas compression facility	2005/2500	Not Controlled Action	Completed
Pipeline System Modifications Project	2000/3	Not Controlled Action	Completed
Port Hedland Channel Risk and Optimisation Project, WA	2017/7915	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Rail and Port Facilities	2001/474	Not Controlled Action	Completed
Searipple gas and condensate field development	2000/89	Not Controlled Action	Completed
Spool Base Facility	2001/263	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline	2005/2033	Not Controlled Action	Completed
sub-sea tieback of Perseus field wells	2004/1326	Not Controlled Action	Completed
Telfer Gold Mine Project - Mine and Borefield Extensions and Upgrade of Storage	2002/787	Not Controlled Action	Completed
Telstra North Rankin Spur Fibre Optic Cable	2016/7836	Not Controlled Action	Completed
Thevenard Island Retirement Project	2015/7423	Not Controlled Action	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373	Not Controlled Action	Completed
WA-295-P Kerr-McGee Exploration Wells	2001/152	Not Controlled Action	Completed
Walkway Lighting Upgrade	2009/4965	Not Controlled Action	Completed
Wanda Offshore Research Project, 80 km north-east of Exmouth, WA	2018/8293	Not Controlled Action	Completed
Western Flank Gas Development	2005/2464	Not Controlled Action	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			
'Kate' 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km	2005/2037	Not Controlled Action (Particular Manner)	Post-Approval
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D seismic surveys	2005/2151	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
2D marine seismic survey	2012/6296	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey	2008/4493	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey	2005/2146	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey in permit areas WA-274P and WA-281P	2004/1521	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey Permit Area WA-352-P	2008/4628	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey within permit WA-291	2007/3265	Not Controlled Action (Particular Manner)	Post-Approval
2 geotechnical surveys - preliminary and final	2006/2886	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey	2008/4281	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey (WA-482-P, WA-363-P), WA	2013/6761	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in WA 457-P & WA 458-P, North West Shelf, offshore WA	2013/6862	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic Survey - Maxima 3D MSS	2006/2945	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
3D marine seismic survey over petroleum title WA-268-P	2007/3458	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, Browse Basin, WA	2009/5048	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, near Scott Reef, Browse Basin	2005/2126	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, WA	2008/4428	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey in the Carnarvon Basin on the North West Shelf	2002/778	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2781	Not Controlled Action (Particular Manner)	Post-Approval
Acacia East Pit Cutback Mining Project,northern Kimberley, WA	2013/6752	Not Controlled Action (Particular Manner)	Post-Approval
Acheron Non-Exclusive 2D Seismic Survey	2009/4968	Not Controlled Action (Particular Manner)	Post-Approval
Acheron Non-Exclusive 2D Seismic Survey	2008/4565	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Agrippina 3D Seismic Marine Survey	2009/5212	Not Controlled Action (Particular Manner)	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Artemis-1 Drilling Program (WA-360-P)	2010/5432	Not Controlled Action (Particular Manner)	Post-Approval
Aurora MC3D Marine Seismic Survey	2010/5510	Not Controlled Action (Particular Manner)	Post-Approval
Australia to Singapore Fibre Optic Submarine Cable System	2011/6127	Not Controlled Action (Particular Manner)	Post-Approval
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Bonaventure 3D seismic survey	2006/2514	Not Controlled Action (Particular Manner)	Post-Approval
Braveheart 2D Infill Marine Seismic Survey 100km offshore	2008/4442	Not Controlled Action (Particular Manner)	Post-Approval
Braveheart 2D Marine Seismic Survey	2005/2322	Not Controlled Action (Particular Manner)	Post-Approval
Cable Seismic Exploration Permit areas WA-323-P and WA-330-P	2008/4227	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Cape Preston East - Iron Ore Export Facilities, Pilbara, WA	2013/6844	Not Controlled Action (Particular Manner)	Post-Approval
Caswell MC3D Marine Seismic Survey	2012/6594	Not Controlled Action (Particular Manner)	Post-Approval
Cerberus exploration drilling campaign, Carnarvon Basin, WA	2016/7645	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
Charon 3D Marine Seismic Survey	2007/3477	Not Controlled Action (Particular Manner)	Post-Approval
Conduct an exploration drilling campaign	2011/5964	Not Controlled Action (Particular Manner)	Post-Approval
Consturction & operation of the Varanus Island kitchen & mess cyclone refuge building, compression p	2013/6952	Not Controlled Action (Particular Manner)	Post-Approval
Coverack Marine Seismic Survey	2001/399	Not Controlled Action (Particular Manner)	Post-Approval
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	Not Controlled Action (Particular Manner)	Post-Approval
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Decommissioning of the Legendre facilities	2010/5681	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval
Demeter 3D Seismic Survey, off Dampier, WA	2002/900	Not Controlled Action (Particular Manner)	Post-Approval
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Dredging of marine sediment to enable construction of eight berths and a turnin	2010/5678	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Earthworks for kitchen/mess, cyclone refuge building & Compression Plant, Varanus Island	2013/6900	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Effect of marine seismic sounds to demersal fish and pearl oysters, north-west WA	2018/8169	Not Controlled Action (Particular Manner)	Post-Approval
Endurance 3D Marine Seismic Data Acquisition Survey	2007/3667	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M3 & Vincent 4D Marine Seismic Surveys	2008/3981	Not Controlled Action (Particular Manner)	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Enfield M3 4D, Vincent 4D & 4D Line Test Marine Seismic Surveys	2008/4122	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M4 4D Marine Seismic Survey	2008/4558	Not Controlled Action (Particular Manner)	Post-Approval
Enfield oilfield 3D Seismic Survey	2006/3132	Not Controlled Action (Particular Manner)	Post-Approval
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular Manner)	Post-Approval
Exploration drilling of Zeus-1 well	2008/4351	Not Controlled Action (Particular Manner)	Post-Approval
Exploration Drilling Program - Permit areas - WA-314-P, WA-315-P, WA-398-P.	2008/4064	Not Controlled Action (Particular Manner)	Post-Approval
Fletcher-Finucane Development, WA26-L and WA191-P	2011/6123	Not Controlled Action (Particular Manner)	Post-Approval
Foxhound 3D Non-Exclusive Marine Seismic Survey	2009/4703	Not Controlled Action (Particular Manner)	Post-Approval
Gazelle 3D Marine Seismic Survey in WA-399-P and WA-42-L	2010/5570	Not Controlled Action (Particular Manner)	Post-Approval
Geco Eagle 3D Marine Seismic Survey	2008/3958	Not Controlled Action (Particular Manner)	Post-Approval
Geoscience Australia - Marine survey in Browse Basin to acquire data to assist assessment of CO2 sto	2013/6747	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Gigas 2D Pilot Ocean Bottom Cable Marine Seismic Survey	2007/3839	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Greater Western Flank Phase 1 gas Development	2011/5980	Not Controlled Action (Particular Manner)	Post-Approval
Grimalkin 3D Seismic Survey	2008/4523	Not Controlled Action (Particular Manner)	Post-Approval
Guacamole 2D Marine Seismic Survey	2008/4381	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Harpy 1 exploration well	2001/183	Not Controlled Action (Particular Manner)	Post-Approval
Honeycombs MC3D Marine Seismic Survey	2012/6368	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas MC3D Marine Seismic Survey (HZ-13) Carnarvon Basin, offshore WA	2013/7003	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas phase 2 marine seismic survey, Exmouth Plateau, Northern Carnarvon Basin, WA	2013/7093	Not Controlled Action (Particular Manner)	Post-Approval
Ichthys 3D Marine Seismic Survey	2010/5550	Not Controlled Action (Particular Manner)	Post-Approval
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
John Ross & Rosella Off Bottom Cable Seismic Exploration Program	2008/3966	Not Controlled Action (Particular Manner)	Post-Approval
Judo Marine 3D Seismic Survey within and adjacent to WA-412-P	2008/4630	Not Controlled Action (Particular Manner)	Post-Approval
Judo Marine 3D Seismic Survey within and adjacent to WA-412-P	2009/4801	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Klimt 2D Marine Seismic Survey	2007/3856	Not Controlled Action (Particular Manner)	Post-Approval
Koolama 2D Seismic Survey Dampier Basin	2010/5420	Not Controlled Action (Particular Manner)	Post-Approval
Kraken, Lusca & Asperus 3D Marine Seismic Survey	2013/6730	Not Controlled Action (Particular Manner)	Post-Approval
Laverda 3D Marine Seismic Survey and Vincent M1 4D Marine Seismic Survey	2010/5415	Not Controlled Action (Particular Manner)	Post-Approval
Laying a submarine optical fibre telecommunications cable, Perth to Singapore and Jakarta	2014/7332	Not Controlled Action (Particular Manner)	Post-Approval
Leopard 2D marine seismic survey	2005/2290	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Lion 2D Marine Seismic Survey	2007/3777	Not Controlled Action (Particular Manner)	Post-Approval
Macedon Gas Field Development	2008/4605	Not Controlled Action (Particular Manner)	Post-Approval
Marine Geotechnical Drilling Program	2008/4012	Not Controlled Action (Particular Manner)	Post-Approval
Marine reconnaissance survey	2008/4466	Not Controlled Action (Particular Manner)	Post-Approval
Mariner Non-Exclusive 2D Seismic Survey	2011/6172	Not Controlled Action (Particular Manner)	Post-Approval
Millstream 20GL Pipeline, Bungaroo, Borefield Integration	2012/6379	Not Controlled Action (Particular Manner)	Post-Approval
Moosehead 2D seismic survey within permit WA-192-P	2005/2167	Not Controlled Action (Particular Manner)	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970	Not Controlled Action (Particular Manner)	Post-Approval
Nelson Point Dredging	2009/4920	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Program, WA-264-P	2007/3844	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Survey	2005/2017	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Canning Multi Client 2D Marine Seismic Survey	2010/5393	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
<u>Not controlled action (particular manner)</u>			
		Manner)	
Offshore Drilling Campaign	2011/5830	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Exploration Drilling Campaign	2011/6222	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Fibre Optic Cable Network Construction & Operation, Port Hedland WA to Darwin NT	2014/7223	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Gas Exploration Drilling Campaign	2012/6384	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Outer Canning exploration drilling program off NW coast of WA	2012/6618	Not Controlled Action (Particular Manner)	Post-Approval
Palta-1 exploration well in Petroleum Permit Area WA-384-P	2011/5871	Not Controlled Action (Particular Manner)	Post-Approval
Phoenix 3D Seismic Survey, Bedout Sub-Basin	2010/5360	Not Controlled Action (Particular Manner)	Post-Approval
Pilot Appraisal Well - Torosa South 1	2008/3991	Not Controlled Action (Particular Manner)	Post-Approval
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Port Headland Outer Harbour Pre-construction Pilling program	2012/6341	Not Controlled Action (Particular Manner)	Post-Approval
Port of Port Hedland channel marker replacement project, WA	2017/8010	Not Controlled Action (Particular Manner)	Post-Approval
Port Walcott upgrade, dredging & spoil disposal, & channel realignment	2006/2806	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees 4D Marine Seismic Monitor Survey, HCA12A	2012/6579	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees-Macedon 3D marine seismic survey	2005/2325	Not Controlled Action (Particular Manner)	Post-Approval
Quiberon 2D Seismic Survey, permit area WA-385P, offshore of Carnarvon	2009/5077	Not Controlled Action (Particular Manner)	Post-Approval
Reindeer gas reservoir development, Devil Creek, Carnarvon Basin - WA	2007/3917	Not Controlled Action (Particular Manner)	Post-Approval
Repsol 3d & 2D Marine Seismic Survey	2012/6658	Not Controlled Action (Particular Manner)	Post-Approval
Rose 3D Seismic Program	2008/4239	Not Controlled Action (Particular Manner)	Post-Approval
Rosebud 3D Marine Seismic Survey in WA-30-R and TR/5	2012/6493	Not Controlled Action (Particular Manner)	Post-Approval
Rydal-1 Petroleum Exploration Well, WA	2012/6522	Not Controlled Action (Particular Manner)	Post-Approval
Salsa 3D Marine Seismic Survey	2010/5629	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Sampling of Stromatolites, additional sites, Mamelin Pool,WA	2013/7071	Not Controlled Action (Particular Manner)	Post-Approval
Sampling of Stromatolites and Sediments	2012/6307	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
Scarborough Development nearshore component, NWS, WA	2018/8362	Not Controlled Action (Particular Manner)	Post-Approval
Schild MC3D Marine Seismic Survey	2012/6373	Not Controlled Action (Particular Manner)	Post-Approval
Schild Phase 11 MC3D Marine Seismic Survey, Browse Basin	2013/6894	Not Controlled Action (Particular Manner)	Post-Approval
Scott Reef Seismic Research	2006/2647	Not Controlled Action (Particular Manner)	Post-Approval
Skorpion Marine Seismic Survey WA	2001/416	Not Controlled Action (Particular Manner)	Post-Approval
Sovereign 3D Marine Seismic Survey	2011/5861	Not Controlled Action (Particular Manner)	Post-Approval
Stag 4D & Reindeer MAZ Marine Seismic Surveys, WA	2013/7080	Not Controlled Action (Particular Manner)	Post-Approval
Stag Off-bottom Cable Seismic Survey	2007/3696	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Stybarrow 4D Marine Seismic Survey	2011/5810	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
Tantabiddi Boat Ramp Sand Bypassing	2015/7411	Not Controlled Action (Particular Manner)	Post-Approval
Tidepole Maz 3D Seismic Survey Campaign	2007/3706	Not Controlled Action (Particular Manner)	Post-Approval
Torosa-5 Apraisal Well, WA-30-R	2008/4430	Not Controlled Action (Particular Manner)	Post-Approval
Tortilla 2D Seismic Survey, WA	2011/6110	Not Controlled Action (Particular Manner)	Post-Approval
Tridacna 3D Ocean Bottom Cable Marine Seismic Survey	2011/5959	Not Controlled Action (Particular Manner)	Post-Approval
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a 3D marine seismic survey	2010/5695	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5679	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5715	Not Controlled Action (Particular Manner)	Post-Approval
upgrade of 3 community recreation sites	2005/2349	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Useless Loop Port Maintenance Works and Infrastructure Upgrade	2009/4791	Not Controlled Action (Particular Manner)	Post-Approval
Vampire 2D Non Exclusive Seismic Survey, WA	2010/5543	Not Controlled Action (Particular Manner)	Post-Approval
Veritas Voyager 2D Marine Seismic Survey	2009/5151	Not Controlled Action (Particular Manner)	Post-Approval
Vincent M1 and Enfield M5 4D Marine Seismic Survey	2010/5720	Not Controlled Action (Particular Manner)	Post-Approval
Warramunga Non-Inclusive 3D Seismic Survey	2008/4553	Not Controlled Action (Particular Manner)	Post-Approval
West Anchor 3D Marine Seismic Survey	2008/4507	Not Controlled Action (Particular Manner)	Post-Approval
West Panaeus 3D seismic survey	2006/3141	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Woodside Southern Browse 3D Seismic Survey, WA	2007/3534	Not Controlled Action (Particular Manner)	Post-Approval
Zeemeermin MC3D seismic survey, Browse Basin, Offshore WA	2009/5023	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Marine Seismic Survey in the offshore northwest Carnarvon Basin	2011/6175	Referral Decision	Completed
3D Seismic Survey	2008/4219	Referral Decision	Completed
Aurora extension MC3D Marine Seismic Survey	2011/5887	Referral Decision	Completed
Bianchi 3D Marine Seismic Survey, Carnarvon Basin, WA	2013/7078	Referral Decision	Completed
BRSN08 3D Marine Seismic Survey	2008/4582	Referral Decision	Completed
CVG 3D Marine Seismic Survey	2012/6270	Referral Decision	Completed
Enfield 4D Marine Seismic Surveys, Production Permit WA-28-L	2005/2370	Referral Decision	Completed
Experimental Study of Behavioural and Physiological Impact on Fish of Seismic Ex	2006/2625	Referral Decision	Completed
Mardie Salt Project, Pilbara region, WA	2018/8183	Referral Decision	Completed
Outer Harbour Development and associated marine and terrestrial infrastructure	2008/4148	Referral Decision	Completed
Pilot Appraisal Well - Torosa South-1	2008/3985	Referral Decision	Completed
Rose 3D Seismic acquisition survey	2008/4220	Referral Decision	Completed
Seismic Data Acquisition, Browse Basin	2010/5475	Referral Decision	Completed
Stybarrow Baseline 4D Marine Seismic Survey (Permit Areas WA-255-P, WA-32-L, WA-	2008/4165	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
Tidal Power Generation Turbine	2009/5235	Referral Decision	Completed
Two Dimensional Transition Zone Seismic Survey - TP/7 (R1)	2010/5507	Referral Decision	Completed
Varanus Island Compression Project	2012/6698	Referral Decision	Completed

Key Ecological Features [\[Resource Information \]](#)

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Ancient coastline at 90-120m depth	South-west
Canyons linking the Argo Abyssal Plain with the Scott Plateau	North-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west
Commonwealth waters adjacent to Ningaloo Reef	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west
Glomar Shoals	North-west
Mermaid Reef and Commonwealth waters surrounding Rowley Shoals	North-west
Serlingapatam Reef and Commonwealth waters in the Scott Reef Complex	North-west
Wallaby Saddle	North-west
Western demersal slope and associated fish communities	South-west
Western rock lobster	South-west

Biologically Important Areas [\[Resource Information \]](#)

Scientific Name	Behaviour	Presence
Dolphins		
Orcaella heinsohni		
Australian Snubfin Dolphin [81322]	Breeding	Known to occur

Scientific Name	Behaviour	Presence
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Calving	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Foraging (high density prey)	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Foraging likely	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Resting	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Calving	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Calving	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging (high density prey)	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Calving	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging likely	Known to occur

Scientific Name	Behaviour	Presence
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Migration likely	Known to occur
Dugong		
Dugong dugon Dugong [28]	Breeding	Known to occur
Dugong dugon Dugong [28]	Calving	Known to occur
Dugong dugon Dugong [28]	Foraging	Known to occur
Dugong dugon Dugong [28]	Foraging	Likely to occur
Dugong dugon Dugong [28]	Foraging (high density seagrass beds)	Known to occur
Dugong dugon Dugong [28]	Migration	Known to occur
Dugong dugon Dugong [28]	Migration likely	Known to occur
Dugong dugon Dugong [28]	Nursing	Known to occur
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Foraging	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Internesting	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Internesting buffer	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur

Scientific Name	Behaviour	Presence
Chelonia mydas Green Turtle [1765]	Aggregation	Known to occur
Chelonia mydas Green Turtle [1765]	Basking	Known to occur
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Foraging	Likely to occur
Chelonia mydas Green Turtle [1765]	Internesting	Likely to occur
Chelonia mydas Green Turtle [1765]	Internesting	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Chelonia mydas Green Turtle [1765]	Mating	Known to occur
Chelonia mydas Green Turtle [1765]	Migration corridor	Known to occur
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Mating	Known to occur

Scientific Name	Behaviour	Presence
Eretmochelys imbricata Hawksbill Turtle [1766]	Migration corridor	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Natator depressus Flatback Turtle [59257]	Aggregation	Known to occur
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Mating	Known to occur
Natator depressus Flatback Turtle [59257]	Migration corridor	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
River shark		
Pristis clavata Dwarf Sawfish [68447]	Foraging	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Juvenile	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Nursing	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Pupping	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Foraging	Known to occur

Scientific Name	Behaviour	Presence
Pristis pristis Freshwater Sawfish [60756]	Nursing	Likely to occur
Pristis pristis Freshwater Sawfish [60756]	Nursing	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Pupping	Likely to occur
Pristis zijsron Green Sawfish [68442]	Foraging	Known to occur
Pristis zijsron Green Sawfish [68442]	Nursing	Known to occur
Pristis zijsron Green Sawfish [68442]	Pupping	Known to occur
Seabirds		
Ardena pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Ardena pacifica Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur
Fregata ariel Lesser Frigatebird [1012]	Breeding	Known to occur
Fregata minor Greater Frigatebird [1013]	Breeding	Known to occur
Hydroprogne caspia Caspian Tern [808]	Foraging (provisioning young)	Known to occur
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur
Onychoprion fuscata Sooty Tern [82847]	Foraging	Known to occur
Pelagodroma marina White-faced Storm petrel [1016]	Foraging (in high)	Known to occur

Scientific Name	Behaviour numbers)	Presence
Phaethon lepturus White-tailed Tropicbird [1014]	Breeding	Known to occur
Puffinus assimilis tunneyi Little Shearwater [59363]	Foraging (in high numbers)	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Resting	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Breeding	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Resting	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur
Sula leucogaster Brown Booby [1022]	Breeding	Known to occur
Sula sula Red-footed Booby [1023]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Rhincodon typus Whale Shark [66680]	Foraging (high density prey)	Known to occur
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur

Scientific Name	Behaviour	Presence
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Calving	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north)	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Nursing	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Resting	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 06-Jun-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



NWMR PMST sub area 2 (North area)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar)	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	8
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	53
Listed Migratory Species:	64

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	3
Commonwealth Heritage Places:	1
Listed Marine Species:	107
Whales and Other Cetaceans:	27
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	7
Habitat Critical to the Survival of Marine Turtles:	3

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	14
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	118
Key Ecological Features (Marine):	7
Biologically Important Areas:	57
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places [\[Resource Information \]](#)

Name	State	Legal Status
Natural		
The West Kimberley	WA	Listed place

Wetlands of International Importance (Ramsar Wetlands) [\[Resource Information \]](#)

Ramsar Site Name	Proximity
Ashmore reef national nature reserve	Within Ramsar site
Ord river floodplain	Within 10km of Ramsar site

Commonwealth Marine Area [\[Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name

Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species [\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name

BIRD

Scientific Name	Threatened Category	Presence Text
Anous tenuirostris melanops	Vulnerable	Breeding known to occur within area
Australian Lesser Noddy [26000]		

Scientific Name	Threatened Category	Presence Text
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area
Erythrura gouldiae Gouldian Finch [413]	Endangered	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Falcunculus frontatus whitei Crested Shrike-tit (northern), Northern Shrike-tit [26013]	Vulnerable	Species or species habitat likely to occur within area
Geophaps smithii blaaui Partridge Pigeon (western) [66501]	Vulnerable	Species or species habitat likely to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Breeding known to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area
FISH		
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Breeding known to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Conilurus penicillatus Brush-tailed Rabbit-rat, Brush-tailed Tree-rat, Pakooma [132]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Isoodon auratus auratus Golden Bandicoot (mainland) [66665]	Vulnerable	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat known to occur within area
Mesembriomys gouldii gouldii Black-footed Tree-rat (Kimberley and mainland Northern Territory), Djintamoonga, Manbul [87618]	Endangered	Species or species habitat may occur within area
Petrogale concinna monastria Nabarlek (Kimberley) [87607]	Endangered	Species or species habitat known to occur within area
Phascogale tapoatafa kimberleyensis Kimberley brush-tailed phascogale, Brush-tailed Phascogale (Kimberley) [88453]	Vulnerable	Species or species habitat likely to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheath-tail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Trichosurus vulpecula arnhemensis Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat likely to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Acanthophis hawkei Plains Death Adder [83821]	Vulnerable	Species or species habitat may occur within area
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Tiliqua scincoides intermedia Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat known to occur within area
Varanus mertensi Mertens' Water Monitor, Mertens's Water Monitor [1568]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
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[Varanus mitchelli](#)

Mitchell's Water Monitor [1569]

Critically Endangered

Species or species habitat likely to occur within area

SHARK

[Carcharodon carcharias](#)

White Shark, Great White Shark [64470]

Vulnerable

Species or species habitat may occur within area

[Glyphis garricki](#)

Northern River Shark, New Guinea River Shark [82454]

Endangered

Species or species habitat known to occur within area

[Pristis clavata](#)

Dwarf Sawfish, Queensland Sawfish [68447]

Vulnerable

Species or species habitat known to occur within area

[Pristis pristis](#)

Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]

Vulnerable

Species or species habitat likely to occur within area

[Pristis zijsron](#)

Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]

Vulnerable

Species or species habitat known to occur within area

[Rhincodon typus](#)

Whale Shark [66680]

Vulnerable

Foraging, feeding or related behaviour known to occur within area

[Sphyrna lewini](#)

Scalloped Hammerhead [85267]

Conservation Dependent

Species or species habitat known to occur within area

Listed Migratory Species

[\[Resource Information \]](#)

Scientific Name

Threatened Category

Presence Text

Migratory Marine Birds

[Anous stolidus](#)

Common Noddy [825]

Breeding known to occur within area

[Apus pacificus](#)

Fork-tailed Swift [678]

Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Breeding known to occur within area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Breeding known to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Breeding known to occur within area
Sula dactylatra Masked Booby [1021]		Breeding known to occur within area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Sula sula Red-footed Booby [1023]		Breeding known to occur within area

Migratory Marine Species

Scientific Name	Threatened Category	Presence Text
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area

Scientific Name	Threatened Category	Presence Text
Dugong dugon Dugong [28]		Breeding known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour known to occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cecropis daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area

Migratory Wetlands Species

Scientific Name	Threatened Category	Presence Text
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat known to occur within area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
Unknown	
Commonwealth Land - [52278]	ACI
Commonwealth Land - [52276]	ACI
Commonwealth Land - [52277]	ACI

Commonwealth Heritage Places [\[Resource Information \]](#)

Name	State	Status
Natural		
Ashmore Reef National Nature Reserve	EXT	Listed place

Listed Marine Species [\[Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text
Bird		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat known to occur within area overfly marine area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Anous minutus Black Noddy [824]		Breeding known to occur within area
Anous stolidus Common Noddy [825]		Breeding known to occur within area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Breeding known to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Breeding known to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Breeding known to occur within area
Sula dactylatra Masked Booby [1021]		Breeding known to occur within area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Sula sula Red-footed Booby [1023]		Breeding known to occur within area
Thalasseus bengalensis as Sterna bengalensis Lesser Crested Tern [66546]		Breeding known to occur within area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area
Fish		
Bhanotia fasciolata Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus spirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Breeding known to occur within area
Reptile		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
Aipysurus fuscus Dusky Sea Snake [1119]		Species or species habitat known to occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis atriceps Black-headed Sea Snake [1101]		Species or species habitat may occur within area
Hydrophis coggeri Cogger's Sea Snake [25925]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
Hydrophis inornatus Plain Sea Snake [1107]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Hydrophis zweiffei as Enhydrina schistosa Australian Beaked Sea Snake [93514]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Whales and Other Cetaceans [Resource Information]		
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks		[Resource Information]
Park Name	Zone & IUCN Categories	
Joseph Bonaparte Gulf	Multiple Use Zone (IUCN VI)	
Kimberley	Multiple Use Zone (IUCN VI)	

Park Name	Zone & IUCN Categories
Oceanic Shoals	Multiple Use Zone (IUCN VI)
Ashmore Reef	Recreational Use Zone (IUCN IV)
Ashmore Reef	Sanctuary Zone (IUCN Ia)
Cartier Island	Sanctuary Zone (IUCN Ia)
Oceanic Shoals	Special Purpose Zone (Trawl) (IUCN VI)

Habitat Critical to the Survival of Marine Turtles [\[Resource Information \]](#)

Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus		
Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Chelonia mydas		
Green Turtle [1765]	Nesting	Known to occur
May - Jul		
Lepidochelys olivacea		
Olive Ridley Turtle [1767]	Nesting	Known to occur

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Protected Area Name	Reserve Type	State
Balangarra	Indigenous Protected Area	WA
Browse Island	Nature Reserve	WA
Dambimangari	Indigenous Protected Area	WA
Lalang-garram / Camden Sound	Marine Park	WA
Lesueur Island	Nature Reserve	WA
Low Rocks	Nature Reserve	WA
Niiwalarra Islands	National Park	WA
North Kimberley	Marine Park	WA
North Lalang-garram	Marine Park	WA

Protected Area Name	Reserve Type	State
Pelican Island	Nature Reserve	WA
Prince Regent	National Park	WA
Unnamed WA41775	5(1)(h) Reserve	WA
Unnamed WA44677	5(1)(h) Reserve	WA
Uunguu	Indigenous Protected Area	WA

Nationally Important Wetlands [\[Resource Information \]](#)

Wetland Name	State
Ashmore Reef	EXT

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status
Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia West	2024/09826		Referral Decision
Project Crux Cable Lay and Operation	2022/09441		Completed
Project Fitzroy Expansion Offshore Cable Lay	2023/09674		Referral Decision

Controlled action

2-D seismic survey Scott Reef	2000/125	Controlled Action	Post-Approval
Audacious Oil Field Standalone Development	2001/407	Controlled Action	Completed
Bonaparte Liquefied Natural Gas Project	2011/6141	Controlled Action	Post-Approval
Conduct an exploration drilling campaign	2010/5718	Controlled Action	Completed
Decommissioning of Challis Oilfield	2003/942	Controlled Action	Post-Approval
Develop Ichthys gas-condensate field permit area W	2006/2767	Controlled Action	Completed
Development of Blacktip Gas Field	2003/1180	Controlled Action	Post-Approval
Development of Browse Basin Gas Fields (Upstream)	2008/4111	Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval
Montara 4, 5, and 6 Oil Production Wells, and Montara 3 Gas Re-Injection Well	2002/755	Controlled Action	Post-Approval
Prelude Floating Liquefied Natural Gas Facility and Gas Field Development	2008/4146	Controlled Action	Post-Approval
PTTEP AA Floating LNG Facility	2011/6025	Controlled Action	Completed
Not controlled action			
2D seismic survey, exploration permit NT/P67	2004/1587	Not Controlled Action	Completed
2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Controlled Action	Completed
3D marine seismic survey in WA 314P and WA 315P	2004/1927	Not Controlled Action	Completed
Adele Trend TQ3D Seismic Survey	2001/252	Not Controlled Action	Completed
AEC International Hydrocarbon Well Puffin 6	2000/36	Not Controlled Action	Completed
Audacious-3 oil drilling well	2003/1042	Not Controlled Action	Completed
Backpacker-1 Offshore Hydrocarbon Exploration Well	2001/300	Not Controlled Action	Completed
Coot-1 hydrocarbon exploration well, Permit Area AC/L2 or AC/L3	2001/296	Not Controlled Action	Completed
Crux-A and Crux-B appraisal wells, Petroleum Permit Area AC/P23	2006/2748	Not Controlled Action	Completed
Crux gas-liquids development in permit AC/P23	2006/3154	Not Controlled Action	Completed
Drilling of 12 Hydrocarbon Exploration Wells, Permit Area WA-371-P	2006/3005	Not Controlled Action	Completed
Drilling of exploration well Audacious-1 in AC/P17	2000/5	Not Controlled Action	Completed
Drilling of exploration wells, Permit areas WA-301-P to WA-305-P	2002/769	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Drilling of Marina-1 Exploration Well	2007/3586	Not Controlled Action	Completed
Echuca Shoals-2 Exploration of Appraisal Well	2006/3020	Not Controlled Action	Completed
Exploration Drilling in AC/P17, AC/P18 and AC/P24	2001/359	Not Controlled Action	Completed
Exploration Well AC/P23	2001/234	Not Controlled Action	Completed
Kaleidoscope exploration well	2001/182	Not Controlled Action	Completed
Marine Seismic Survey in WA-239-P	2000/24	Not Controlled Action	Completed
Marine Survey for the Australia-ASEAN Power Link AAPL	2020/8714	Not Controlled Action	Completed
Montara-3 Offshore Hydrocarbon Exploration Well Permit Area AC/RL3	2001/489	Not Controlled Action	Completed
Nexus Drilling Program NT-P66	2007/3745	Not Controlled Action	Completed
P30 Hydrocarbon Exploration Well	2001/293	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Puffin Oil wells 7, 8 & 9 development	2005/2336	Not Controlled Action	Completed
Saucepan 1 Exploration Well ACP23	2000/2	Not Controlled Action	Completed
Skua and Swift Oilfields	2006/3195	Not Controlled Action	Completed
Strumbo-1 Gas Exploration Well Permit Area WA-288-P	2002/884	Not Controlled Action	Completed
Thresher-1 Well	2000/84	Not Controlled Action	Completed
Not controlled action (particular manner)			
2 (3D) Marine Seismic Surveys	2009/4994	Not Controlled Action (Particular Manner)	Completed
2D and 3D Seismic Survey	2011/6197	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
2D and 3D Seismic Survey WA-405-P	2009/5104	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D Seismic Survey WA-405-P	2008/4133	Not Controlled Action (Particular Manner)	Post-Approval
2D Marine Seismic Survey	2009/4728	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey of Braveheart, Kurrajong, Sunshine and Crocodile	2006/2917	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey within permit area WA-318-P	2007/3879	Not Controlled Action (Particular Manner)	Post-Approval
2D or 3D Marine Seismic Survey in Petroleum Permit Area AC/P35	2009/4864	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Marine Survey	2001/363	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic survey	2009/5076	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey in permit areas WA-274P and WA-281P	2004/1521	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey in WA Permit Area TP/22 and Commonwealth Permit Area WA-280-P	2005/2100	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey	2008/4437	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
3D Marine Seismic Survey, Permit AC/P 23	2005/2364	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, Browse Basin, WA	2009/5048	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, near Scott Reef, Browse Basin	2005/2126	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, petroleum exploration permit AC/P33	2006/2918	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey of AC/P4, AC/P17 and AC/P24	2006/2857	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey WA-406-P Bonaparte Basin	2007/3904	Not Controlled Action (Particular Manner)	Post-Approval
AC/P37 3D Seismic Survey Ashmore Cartier	2007/3774	Not Controlled Action (Particular Manner)	Post-Approval
Auralandia 3D marine seismic survey	2011/5961	Not Controlled Action (Particular Manner)	Post-Approval
Aurora MC3D Marine Seismic Survey	2010/5510	Not Controlled Action (Particular Manner)	Post-Approval
Bassett 3D Marine Seismic Survey	2010/5538	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 2D & 3D marine seismic survey	2011/5962	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Seismic and Bathymetric Survey	2012/6295	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Braveheart 2D Infill Marine Seismic Survey 100km offshore	2008/4442	Not Controlled Action (Particular Manner)	Post-Approval
Braveheart 2D Marine Seismic Survey	2005/2322	Not Controlled Action (Particular Manner)	Post-Approval
Canis 3D Marine Seismic Survey	2008/4492	Not Controlled Action (Particular Manner)	Post-Approval
Cartier East and Cartier West 3D Marine Seismic Surveys	2009/5230	Not Controlled Action (Particular Manner)	Post-Approval
Caswell MC3D Marine Seismic Survey	2012/6594	Not Controlled Action (Particular Manner)	Post-Approval
Conduct an exploration drilling campaign	2011/5964	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval
Drilling of Audacious-5 appraisal well	2008/4327	Not Controlled Action (Particular Manner)	Post-Approval
Drilling of Exploration & Appraisal Wells Braveheart-1 & Cornea-3	2009/5160	Not Controlled Action (Particular Manner)	Post-Approval
Drilling of two appraisal wells	2011/5840	Not Controlled Action (Particular Manner)	Post-Approval
Exploration Drilling Campaign	2011/6047	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Exploration Drilling Campaign, Browse Basin, WA-341-P, AC-P36 and WA-343-P	2013/6898	Not Controlled Action (Particular Manner)	Post-Approval
Exploration Drilling in Permit Areas WA-402-P & WA-403-P	2010/5297	Not Controlled Action (Particular Manner)	Post-Approval
Exploration Drilling Program - Permit areas - WA-314-P, WA-315-P, WA-398-P.	2008/4064	Not Controlled Action (Particular Manner)	Post-Approval
Fishburn2D Marine Seismic Survey	2012/6659	Not Controlled Action (Particular Manner)	Post-Approval
Floyd 3D and Chisel 3D Seismic Surveys	2011/6220	Not Controlled Action (Particular Manner)	Post-Approval
Gicea 3D Marine Seismic Survey	2008/4389	Not Controlled Action (Particular Manner)	Post-Approval
Gold 2D Marine Seismic Survey Permit Areas WA375P and WA376P	2009/4698	Not Controlled Action (Particular Manner)	Post-Approval
Ichthys 3D Marine Seismic Survey	2010/5550	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Kraken, Lusca & Asperus 3D Marine Seismic Survey	2013/6730	Not Controlled Action (Particular Manner)	Post-Approval
Malita West 3D Seismic Survey WA-402-P and WA-403-P	2007/3936	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey 2012	2012/6310	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Nova 3D Seismic Survey	2013/6825	Not Controlled Action (Particular Manner)	Post-Approval
NT/P80 2010 2D Marine Seismic Survey	2010/5487	Not Controlled Action (Particular Manner)	Post-Approval
Octantis 3D Marine Seismic Survey, Permit Area AC/P41 off northern Western Australia	2007/3369	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Exploration Drilling Campaign	2011/6222	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Fibre Optic Cable Network Construction & Operation, Port Hedland WA to Darwin NT	2014/7223	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Gas Exploration Drilling Campaign	2012/6384	Not Controlled Action (Particular Manner)	Post-Approval
Petrel MC2D Marine Seismic Survey	2010/5368	Not Controlled Action (Particular Manner)	Post-Approval
Sandalford 3D Seismic Survey	2012/6261	Not Controlled Action (Particular Manner)	Post-Approval
Santos Petrel-7 Offshore Appraisal Drilling Programme (Bonaparte Basin)	2011/5934	Not Controlled Action (Particular Manner)	Post-Approval
Schild MC3D Marine Seismic Survey	2012/6373	Not Controlled Action (Particular Manner)	Post-Approval
Schild Phase 11 MC3D Marine Seismic Survey, Browse Basin	2013/6894	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Searcher bathymetry & geochemical seismic survey, Browse Basin, Timor Sea, WA	2013/6980	Not Controlled Action (Particular Manner)	Post-Approval
Sonar and Acoustic Trials	2001/345	Not Controlled Action (Particular Manner)	Post-Approval
Songa Venus Drilling and Testing Operations	2009/5122	Not Controlled Action (Particular Manner)	Post-Approval
Thoar 3D Marine Seismic Survey	2010/5668	Not Controlled Action (Particular Manner)	Post-Approval
Tiffany 3D Seismic Survey	2010/5339	Not Controlled Action (Particular Manner)	Post-Approval
Tow West Atlas wreck from present location to boundary of EEZ	2010/5652	Not Controlled Action (Particular Manner)	Post-Approval
Ursa 3D Marine Seismic Survey	2008/4634	Not Controlled Action (Particular Manner)	Post-Approval
Vampire 2D Non Exclusive Seismic Survey, WA	2010/5543	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Zeppelin 3D Seismic Survey	2011/6148	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
2D Marine Seismic Survey	2008/4623	Referral Decision	Completed
BRSN08 3D Marine Seismic Survey	2008/4582	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
Nova 3D Seismic Survey, WA 442-NT/P81, Joseph Bonaparte Gulf	2013/6820	Referral Decision	Completed
Puffin South-West Development of Oil Reserves	2007/3834	Referral Decision	Completed
Seismic Data Acquisition, Browse Basin	2010/5475	Referral Decision	Completed

Key Ecological Features [[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Ashmore Reef and Cartier Island and surrounding Commonwealth waters	North-west
Carbonate bank and terrace system of the Sahul Shelf	North-west
Continental Slope Demersal Fish Communities	North-west
Pinnacles of the Bonaparte Basin	North
Pinnacles of the Bonaparte Basin	North-west
Serlingapatam Reef and Commonwealth waters in the Scott Reef Complex	North-west

Biologically Important Areas [[Resource Information](#)]

Scientific Name	Behaviour	Presence
Dolphins		
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Breeding	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Calving	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Foraging	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Foraging (high density prey)	Known to occur

Scientific Name	Behaviour	Presence
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Resting	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Calving	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Calving	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging (high density prey)	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging (high density prey)	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Significant habitat	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Significant habitat - unknown behaviour	Likely to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Calving	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging	Known to occur
Dugong Dugong dugon Dugong [28]	Breeding	Known to occur

Scientific Name	Behaviour	Presence
Dugong dugon Dugong [28]	Calving	Known to occur
Dugong dugon Dugong [28]	Foraging	Known to occur
Dugong dugon Dugong [28]	Foraging (high density seagrass beds)	Known to occur
Dugong dugon Dugong [28]	Nursing	Known to occur
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Foraging	Likely to occur
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting buffer	Likely to occur
Chelonia mydas Green Turtle [1765]	Mating	Likely to occur
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Chelonia mydas Green Turtle [1765]	Nesting	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Likely to occur

Scientific Name	Behaviour	Presence
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Likely to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Foraging	Known to occur
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Seabirds		
Ardeanna pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Fregata ariel Lesser Frigatebird [1012]	Breeding	Known to occur
Fregata minor Greater Frigatebird [1013]	Breeding	Known to occur
Phaethon lepturus White-tailed Tropicbird [1014]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Breeding	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Resting	Known to occur

Scientific Name	Behaviour	Presence
Sula leucogaster Brown Booby [1022]	Breeding	Known to occur
Sula sula Red-footed Booby [1023]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Whales		
Balaenoptera musculus brevipinna Pygmy Blue Whale [81317]	Distribution	Known to occur
Balaenoptera musculus brevipinna Pygmy Blue Whale [81317]	Foraging	Known to occur
Balaenoptera musculus brevipinna Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Calving	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Nursing	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Resting	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 11-Jul-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



Figure 1: NMR PMST area

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	3
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	82
Listed Migratory Species:	82

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	6
Commonwealth Heritage Places:	None
Listed Marine Species:	145
Whales and Other Cetaceans:	25
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	21
Habitat Critical to the Survival of Marine Turtles:	5

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	25
Regional Forest Agreements:	None
Nationally Important Wetlands:	7
EPBC Act Referrals:	80
Key Ecological Features (Marine):	10
Biologically Important Areas:	26
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Commonwealth Marine Area

[\[Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species

[\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name

Threatened Category

Presence Text

BIRD

[Arenaria interpres](#)

Ruddy Turnstone [872]

Vulnerable

Roosting known to occur within area

[Calidris acuminata](#)

Sharp-tailed Sandpiper [874]

Vulnerable

Roosting known to occur within area

[Calidris canutus](#)

Red Knot, Knot [855]

Vulnerable

Species or species habitat known to occur within area

[Calidris ferruginea](#)

Curlew Sandpiper [856]

Critically Endangered

Species or species habitat known to occur within area

[Calidris tenuirostris](#)

Great Knot [862]

Vulnerable

Roosting known to occur within area

[Charadrius leschenaultii](#)

Greater Sand Plover, Large Sand Plover [877]

Vulnerable

Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area
Erythrura gouldiae Gouldian Finch [413]	Endangered	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Falcunculus frontatus whitei Crested Shrike-tit (northern), Northern Shrike-tit [26013]	Vulnerable	Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area
Geophaps smithii smithii Partridge Pigeon (eastern) [64441]	Vulnerable	Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
Melanodryas cucullata melvillensis Tiwi Islands Hooded Robin, Hooded Robin (Tiwi Islands) [67092]	Critically Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Probosciger aterrimus macgillivrayi Palm Cockatoo (Australian) [67033]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat known to occur within area
Tyto novaehollandiae melvillensis Tiwi Masked Owl, Tiwi Islands Masked Owl [26049]	Endangered	Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area
FISH		
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat may occur within area
MAMMAL		
Antechinus bellus Fawn Antechinus [344]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Conilurus penicillatus Brush-tailed Rabbit-rat, Brush-tailed Tree-rat, Pakooma [132]	Vulnerable	Species or species habitat known to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Hipposideros semoni Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]	Vulnerable	Species or species habitat may occur within area
Isoodon auratus auratus Golden Bandicoot (mainland) [66665]	Vulnerable	Species or species habitat known to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Mesembriomys gouldii gouldii Black-footed Tree-rat (Kimberley and mainland Northern Territory), Djintamoonga, Manbul [87618]	Endangered	Species or species habitat likely to occur within area
Mesembriomys gouldii melvillensis Black-footed Tree-rat (Melville Island) [87619]	Vulnerable	Species or species habitat known to occur within area
Mesembriomys gouldii rattoides Black-footed Tree-rat (north Queensland), Shaggy Rabbit-rat [87620]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Notomys aquilo Northern Hopping-mouse, Woorrentinta [123]	Endangered	Species or species habitat may occur within area
Petrogale concinna canescens Nabarlek (Top End) [87606]	Endangered	Species or species habitat may occur within area
Phascogale pirata Northern Brush-tailed Phascogale [82954]	Vulnerable	Species or species habitat likely to occur within area
Rhinolophus robertsi Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat [87639]	Vulnerable	Species or species habitat may occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheath-tail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Sminthopsis butleri Butler's Dunnart [302]	Vulnerable	Species or species habitat known to occur within area
Trichosurus vulpecula arnhemensis Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat known to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat known to occur within area
PLANT		
Bruguiera x hainesii Haines's Orange Mangrove [91351]	Critically Endangered	Species or species habitat may occur within area
Burmattia championii listed as Burmannia sp. Bathurst Island (R.Fensham 1021) [93461]	Endangered (listed as Burmannia sp. Bathurst Island)	Species or species habitat likely to occur within area
Calophyllum bicolor [11371]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Dendrobium bigibbum Cooktown Orchid [10306]	Vulnerable	Species or species habitat likely to occur within area
Dendrobium carronii listed as Cepobaculum carronii an orchid [10822]	Vulnerable	Species or species habitat likely to occur within area
Dendrobium johannis Chocolate Tea Tree Orchid [13585]	Vulnerable	Species or species habitat likely to occur within area
Elaeocarpus miegei [65147]	Endangered	Species or species habitat may occur within area
Tarennoidea wallichii [65173]	Endangered	Species or species habitat likely to occur within area
Typhonium jonesii a herb [62412]	Endangered	Species or species habitat likely to occur within area
Typhonium mirabile a herb [79227]	Endangered	Species or species habitat likely to occur within area
Vappodes phalaenopsis Cooktown Orchid [78894]	Vulnerable	Species or species habitat likely to occur within area
Xylopia monosperma a shrub [82030]	Endangered	Species or species habitat likely to occur within area
REPTILE		
Acanthophis hawkei Plains Death Adder [83821]	Vulnerable	Species or species habitat likely to occur within area
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Cryptoblepharus gurrumul Arafura Snake-eyed Skink [83106]	Endangered	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Congregation or aggregation known to occur within area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
Elseya lavarackorum Gulf Snapping Turtle [67197]	Endangered	Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Tiliqua scincoides intermedia Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat likely to occur within area
Varanus mertensi Mertens' Water Monitor, Mertens's Water Monitor [1568]	Endangered	Species or species habitat likely to occur within area
Varanus mitchelli Mitchell's Water Monitor [1569]	Critically Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Glyphis garricki Northern River Shark, New Guinea River Shark [82454]	Endangered	Species or species habitat known to occur within area
Glyphis glyphis Speartooth Shark [82453]	Critically Endangered	Species or species habitat known to occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Foraging, feeding or related behaviour known to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Breeding known to occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sterna sumatrana Black-naped Tern [800]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Breeding known to occur within area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat known to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Congregation or aggregation known to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known to occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Cecropis daurica Red-rumped Swallow [80610]		Species or species habitat known to occur within area
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Roosting may occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
Attorney-General - Australian Government Solicitor	
Commonwealth Land - Australian Government Solicitor [70332]	NT
Defence	
Defence - MT GOODWIN RADAR SITE [70063]	NT
Defence - QUAIL ISLAND BOMBING RANGE [70003]	NT

Commonwealth Land Name	State
Defence - RIMBIJA ISLAND RAAF RADIO BEACON [70074]	NT
Unknown	
Commonwealth Land - [71140]	NT
Commonwealth Land - [70995]	NT

Listed Marine Species [\[Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text
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Bird

Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area overfly marine area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Foraging, feeding or related behaviour known to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat known to occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting may occur within area overfly marine area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Breeding known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area
Glareola maldivarum Oriental Pratincole [840]		Roosting may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat likely to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Sterna sumatrana Black-naped Tern [800]		Breeding known to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Breeding known to occur within area
Stiltia isabella Australian Pratincole [818]		Roosting known to occur within area overfly marine area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area
Thalasseus bengalensis as Sterna bengalensis Lesser Crested Tern [66546]		Breeding known to occur within area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area
Fish		
Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Bhanotia fasciolata Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys haematopterus Reef-top Pipefish [66201]		Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203]		Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Cosmocampus maxweberi Maxweber's Pipefish [66209]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus macrorhynchus Whiskered Pipefish, Ornate Pipefish [66222]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area
Hippichthys heptagonus Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area
Hippichthys parvicarinatus Short-keel Pipefish, Short-keeled Pipefish [66230]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippichthys spicifer Belly-barred Pipefish, Banded Freshwater Pipefish [66232]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Hippocampus zebra Zebra Seahorse [66241]		Species or species habitat may occur within area
Micrognathus brevis thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area
Micrognathus micronotus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Microphis brachyurus Short-tail Pipefish, Short-tailed River Pipefish [66257]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area

Mammal

Scientific Name	Threatened Category	Presence Text
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Reptile		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Congregation or aggregation known to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis atriceps Black-headed Sea Snake [1101]		Species or species habitat may occur within area
Hydrophis caeruleus Dwarf Sea Snake [1103]		Species or species habitat may occur within area
Hydrophis coggeri Cogger's Sea Snake [25925]		Species or species habitat may occur within area
Hydrophis czeblukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
Hydrophis inornatus Plain Sea Snake [1107]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis melanosoma Black-banded Robust Sea Snake [1109]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis pacificus Pacific Sea Snake, Large-headed Sea Snake [1112]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Hydrophis vorisi Estuarine Sea Snake [25927]		Species or species habitat may occur within area
Hydrophis zweiffei as Enhydrina schistosa Australian Beaked Sea Snake [93514]		Species or species habitat may occur within area
Laticauda colubrina Yellow-lipped Sea Krait [1092]		Species or species habitat may occur within area
Laticauda laticaudata a sea krait [1093]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known to occur within area
Microcephalophis gracilis as Hydrophis gracilis Graceful Small-headed Sea Snake, Slender Sea Snake [87375]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Parahydrophis mertoni Arafura Smooth Sea Snake, Northern Mangrove Sea Snake [1090]		Species or species habitat may occur within area

Whales and Other Cetaceans [[Resource Information](#)]

Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahulensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks		[Resource Information]
Park Name	Zone & IUCN Categories	
Limmen	Habitat Protection Zone (IUCN IV)	
Oceanic Shoals	Habitat Protection Zone (IUCN IV)	
Wessel	Habitat Protection Zone (IUCN IV)	
West Cape York	Habitat Protection Zone (IUCN IV)	
Arafura	Multiple Use Zone (IUCN VI)	
Joseph Bonaparte Gulf	Multiple Use Zone (IUCN VI)	
Oceanic Shoals	Multiple Use Zone (IUCN VI)	

Park Name	Zone & IUCN Categories
Oceanic Shoals	Multiple Use Zone (IUCN VI)
Gulf of Carpentaria	National Park Zone (IUCN II)
Oceanic Shoals	National Park Zone (IUCN II)
West Cape York	National Park Zone (IUCN II)
West Cape York	National Park Zone (IUCN II)
Arafura	Special Purpose Zone (IUCN VI)
Arnhem	Special Purpose Zone (IUCN VI)
Joseph Bonaparte Gulf	Special Purpose Zone (IUCN VI)
West Cape York	Special Purpose Zone (IUCN VI)
Arafura	Special Purpose Zone (Trawl) (IUCN VI)
Gulf of Carpentaria	Special Purpose Zone (Trawl) (IUCN VI)
Gulf of Carpentaria	Special Purpose Zone (Trawl) (IUCN VI)
Oceanic Shoals	Special Purpose Zone (Trawl) (IUCN VI)
Wessel	Special Purpose Zone (Trawl) (IUCN VI)

Habitat Critical to the Survival of Marine Turtles [[Resource Information](#)]

Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Dermochelys coriacea Leatherback Turtle [1768]	Nesting	Known to occur
May - Jul		

Scientific Name	Behaviour	Presence
Lepidochelys olivacea Olive Ridley Turtle [1767]	Nesting	Known to occur
Nov - May		
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Anindilyakwa	Indigenous Protected Area	NT
Anindilyakwa	Indigenous Protected Area	NT
Barranyi (North Island)	National Park	NT
Crocodile Islands Maringa	Indigenous Protected Area	NT
Crocodile Islands Maringa	Indigenous Protected Area	NT
Dhimurru	Indigenous Protected Area	NT
Djelk	Indigenous Protected Area	NT
Djelk - Stage 2	Indigenous Protected Area	NT
Eight Mile Creek	Fish Habitat Area (A)	QLD
Finucane Island	National Park	QLD
Garig Gunak Barlu	Marine Park	NT
Keep River	Proposed National Parks Act park or park addition	NT
Limmen	National Park	NT
Limmen Bight	Marine Park	NT
Marthakal	Indigenous Protected Area	NT
Morning Inlet - Bynoe River	Fish Habitat Area (A)	QLD

Protected Area Name	Reserve Type	State
Nassau River	Fish Habitat Area (A)	QLD
Nijinda Durlga	Indigenous Protected Area	QLD
Pine River Bay	Fish Habitat Area (A)	QLD
Pungalina - Seven Emu	Private Nature Reserve	NT
Rutland Plains	Nature Refuge	QLD
South-East Arnhem Land	Indigenous Protected Area	NT
Thuwathu/Bujimulla	Indigenous Protected Area	QLD
Thuwathu/Bujimulla	Indigenous Protected Area	QLD
Yanyuwa (Barni - Wardimantha Awara)	Indigenous Protected Area	NT

Nationally Important Wetlands [\[Resource Information \]](#)

Wetland Name	State
Cobourg Peninsula System	NT
Finniss Floodplain and Fog Bay Systems	NT
Jardine River Wetlands Aggregation	QLD
Limmen Bight (Port Roper) Tidal Wetlands System	NT
Northeast Karumba Plain Aggregation	QLD
Southeast Karumba Plain Aggregation	QLD
Southern Gulf Aggregation	QLD

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status
Arnhem Space Centre Operations (Down Range Recovery)	2023/09657		Assessment
Aurukun Bauxite Project	2020/8624		Assessment
Darwin Pipeline Duplication (DPD) Project	2022/09372		Post-Approval
Darwin Pipeline Duplication DPD Project	2022/9166		Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia West	2024/09826		Completed
Tiwi H2 Project	2022/09347		Assessment
Controlled action			
Andranangoo Creek & Lethbridge Bay mineral sand mining	2005/2155	Controlled Action	Completed
Bauxite Hill Mining and Barging Project	2015/7538	Controlled Action	Post-Approval
Bauxite Hills Mine and Port Project	2012/6246	Controlled Action	Completed
Blacktip Project - Wharf Construction	2007/3293	Controlled Action	Completed
Bonaparte Liquified Natural Gas Project	2011/6141	Controlled Action	Post-Approval
Darwin to Moomba Gas Pipeline	2001/213	Controlled Action	Completed
Development of Blacktip Gas Field	2003/1180	Controlled Action	Post-Approval
Hardwood Plantation	2001/229	Controlled Action	Post-Approval
Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval
Pisolite Hills bauxite mine and associated infrast	2008/4046	Controlled Action	Completed
PNG-Qld Gas Pipeline - Gove Lateral	2006/2615	Controlled Action	Completed
Roper Bar Iron Ore Mine and Transport Infrastructure	2011/6079	Controlled Action	Completed
Shipping Channel Enhancement	2010/5431	Controlled Action	Completed
Snake Bay Barramundi Sea Cage Farm	2005/2150	Controlled Action	Completed
South of the Embley Bauxite Mine Extension, including Construction of Port and Infrastructure	2008/4435	Controlled Action	Completed
South of the Embley Bauxite Mining Project	2010/5642	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Tassie Shoal Gas Reforming and Methanol Production Plants - NT/P48	2000/108	Controlled Action	Post-Approval
Tassie Shoal LNG Project	2003/1067	Controlled Action	Post-Approval
Trans-territory Gas Pipeline	2003/1186	Controlled Action	Completed
Not controlled action			
2D seismic survey, exploration permit NT/P67	2004/1587	Not Controlled Action	Completed
2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Controlled Action	Completed
Barossa-1 (NT/P69), Caldita-2 (NT/P61) exploration wells	2006/2793	Not Controlled Action	Completed
Caldita-1 Hydrocarbon Exploration Well, NT/P61	2004/1854	Not Controlled Action	Completed
Construction and operation of Radar Infrastructure	2004/1406	Not Controlled Action	Completed
Cox Peninsular Remediation Project, NT	2015/7587	Not Controlled Action	Completed
Dredging of Weipa South Channel	2003/1311	Not Controlled Action	Completed
Eastern Leases 2010 Exploration Drilling Program	2010/5455	Not Controlled Action	Completed
Geo-scientific survey	2005/2004	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Marine Survey for the Australia-ASEAN Power Link AAPL	2020/8714	Not Controlled Action	Completed
Nexus Drilling Program NT-P66	2007/3745	Not Controlled Action	Completed
NT/P68 2007 Two Well Drilling Program	2007/3569	Not Controlled Action	Completed
Not controlled action (particular manner)			
2D and 3D Seismic Survey	2011/6197	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
2D Marine Seismic Survey	2009/4728	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey of Braveheart, Kurrajong, Sunshine and Crocodile	2006/2917	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic survey	2009/5076	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey, Permit Area Q23P	2009/4925	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey in WA Permit Area TP/22 and Commonwealth Permit Area WA-280-P	2005/2100	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey - Petroleum Exploration Area NT/P68, Eastern Bonaparte Basin	2006/2922	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey	2009/4681	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey	2006/2729	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey (NT/P68)	2006/2980	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey (NT/P68)	2008/4121	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 2D & 3D marine seismic survey	2011/5962	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 3D & 2D Seismic Survey, in NT/P82, Timor Sea	2012/6398	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Bonaparte Basin Barossa Appraisal Drilling Campaign, NT	2012/6481	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Basin Seabed Mapping Survey	2009/4951	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Seismic and Bathymetric Survey	2012/6295	Not Controlled Action (Particular Manner)	Post-Approval
Caldita 3D Marine Seismic Survey - NT/P61, NT/P69, and acreage release area NT06-5	2006/3142	Not Controlled Action (Particular Manner)	Post-Approval
Dredging the outer shipping channels of Darwin Harbour	2013/6988	Not Controlled Action (Particular Manner)	Post-Approval
Eni Bathurst 3D Seismic Survey	2011/6118	Not Controlled Action (Particular Manner)	Post-Approval
Exploration Drilling in Permit Areas WA-402-P & WA-403-P	2010/5297	Not Controlled Action (Particular Manner)	Post-Approval
Joseph Bonaparte Gulf Seabed mapping survey	2010/5517	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Malita West 3D Seismic Survey WA-402-P and WA-403-P	2007/3936	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey 2012	2012/6310	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Nova 3D Seismic Survey	2013/6825	Not Controlled Action (Particular Manner)	Post-Approval
NT/P74 & NT/P75 - 2D marine seismic survey	2008/4316	Not Controlled Action (Particular Manner)	Post-Approval
NT/P77 3D Marine Seismic Survey	2009/4683	Not Controlled Action (Particular Manner)	Post-Approval
NT/P80 2010 2D Marine Seismic Survey	2010/5487	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Fibre Optic Cable Network Construction & Operation, Port Hedland WA to Darwin NT	2014/7223	Not Controlled Action (Particular Manner)	Post-Approval
Panda NT/P76 3D Seismic Acquisition Survey Program	2009/4992	Not Controlled Action (Particular Manner)	Post-Approval
Petrel MC2D Marine Seismic Survey	2010/5368	Not Controlled Action (Particular Manner)	Post-Approval
Removal of Potential Unexploded Ordnance within NAXA	2012/6503	Not Controlled Action (Particular Manner)	Post-Approval
Santos Petrel-7 Offshore Appraisal Drilling Programme (Bonaparte Basin)	2011/5934	Not Controlled Action (Particular Manner)	Post-Approval
Sonar and Acoustic Trials	2001/345	Not Controlled Action (Particular Manner)	Post-Approval
Sunshine Infill 2D and Mimosa 2D Marine Seismic Surveys	2009/4699	Not Controlled Action (Particular Manner)	Post-Approval
Two dimensional (2d) seismic survey in Gulf of Carpentaria	2013/6991	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
2D Marine Seismic Survey	2008/4623	Referral Decision	Completed
3D Seismic Survey (NT/P68)	2006/2949	Referral Decision	Completed
Capital Dredging Weipa South Channel	2003/1302	Referral Decision	Completed
Groote Eylandt Offshore Marine Surveys	2010/5643	Referral Decision	Completed
Nova 3D Seismic Survey, WA 442-NT/P81, Joseph Bonaparte Gulf	2013/6820	Referral Decision	Completed

Key Ecological Features [[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Carbonate bank and terrace system of the Sahul Shelf	North-west
Carbonate bank and terrace system of the Van Diemen Rise	North
Gulf of Carpentaria basin	North
Gulf of Carpentaria coastal zone	North
Pinnacles of the Bonaparte Basin	North-west
Pinnacles of the Bonaparte Basin	North
Plateaux and saddle north-west of the Wellesley Islands	North
Shelf break and slope of the Arafura Shelf	North
Submerged coral reefs of the Gulf of Carpentaria	North
Tributary Canyons of the Arafura Depression	North

Biologically Important Areas [[Resource Information](#)]

Scientific Name	Behaviour	Presence
Dolphins		
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging	Likely to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Foraging	Likely to occur
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting	Likely to occur
Dermochelys coriacea Leatherback Turtle [1768]	Internesting	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting	Likely to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Foraging	Likely to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Foraging	Known to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Internesting	Likely to occur
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting	Likely to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur

Seabirds

Scientific Name	Behaviour	Presence
Anous stolidus Common Noddy [825]	Breeding	Known to occur
Fregata ariel Lesser Frigatebird [1012]	Breeding	Known to occur
Fregata ariel Lesser Frigatebird [1012]	Foraging	Likely to occur
Onychoprion anaethetus Bridled Tern [82845]	Breeding	Known to occur
Onychoprion anaethetus Bridled Tern [82845]	Breeding (high numbers)	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding (high numbers)	Known to occur
Sula leucogaster Brown Booby [1022]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Thalasseus bergii Crested Tern [83000]	Breeding	Known to occur
Thalasseus bergii Crested Tern [83000]	Breeding (high numbers)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 10-Jun-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



Figure 1: SWMR PMST sub area 1 (labelled '2')

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	1
National Heritage Places:	3
Wetlands of International Importance (Ramsar)	6
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	3
Listed Threatened Ecological Communities:	9
Listed Threatened Species:	141
Listed Migratory Species:	84

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	240
Commonwealth Heritage Places:	4
Listed Marine Species:	123
Whales and Other Cetaceans:	39
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	29
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	63
Regional Forest Agreements:	1
Nationally Important Wetlands:	5
EPBC Act Referrals:	131
Key Ecological Features (Marine):	11
Biologically Important Areas:	33
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [\[Resource Information \]](#)

Name	State	Legal Status
Australian Convict Sites (Fremantle Prison)	WA	Declared property

National Heritage Places [\[Resource Information \]](#)

Name	State	Legal Status
Historic		
Fremantle Prison (former)	WA	Listed place

Indigenous

Cheetup Rock Shelter	WA	Listed place
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Natural

Fitzgerald River National Park	WA	Listed place
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Wetlands of International Importance (Ramsar Wetlands) [\[Resource Information \]](#)

Ramsar Site Name	Proximity
Becher point wetlands	Within Ramsar site
Forrestdale and thomsons lakes	Within 10km of Ramsar site
Lake gore	Within Ramsar site
Lake warden system	Within 10km of Ramsar site
Peel-yalgorup system	Within Ramsar site
Vasse-wonnerup system	Within Ramsar site

Commonwealth Marine Area [\[Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Listed Threatened Ecological Communities

[[Resource Information](#)]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Aquatic Root Mat Community 3 in Caves of the Leeuwin Naturaliste Ridge	Endangered	Community known to occur within area
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Empodisma peatlands of southwestern Australia	Endangered	Community likely to occur within area
Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion	Critically Endangered	Community likely to occur within area
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	Community likely to occur within area
Sedgeland in Holocene dune swales of the southern Swan Coastal Plain	Endangered	Community known to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area
Thrombolite (microbial) community of coastal freshwater lakes of the Swan Coastal Plain (Lake Richmond)	Endangered	Community known to occur within area
Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[[Resource Information](#)]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Atrichornis clamosus Noisy Scrub-bird, Tjimiluk [654]	Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Breeding known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Dasyornis longirostris Western Bristlebird [515]	Endangered	Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Pezoporus flaviventris Western Ground Parrot, Kyloring [84650]	Critically Endangered	Species or species habitat may occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat known to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Psophodes nigrogularis nigrogularis Western Heath Whipbird [64449]	Endangered	Species or species habitat known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
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[Zanda latirostris listed as Calyptorhynchus latirostris](#)

Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
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CRUSTACEAN

[Engaewa pseudoreducta](#)

Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat may occur within area
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[Engaewa reducta](#)

Dunsborough Burrowing Crayfish [82675]	Critically Endangered	Species or species habitat may occur within area
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FISH

[Galaxias truttaceus \(Western Australian population\)](#)

Western Trout Minnow [89857]	Endangered	Species or species habitat known to occur within area
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[Galaxiella nigrostriata](#)

Blackstriped Dwarf Galaxias, Black-stripe Minnow [88677]	Endangered	Species or species habitat known to occur within area
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[Hoplostethus atlanticus](#)

Orange Roughy, Deep-sea Perch, Red Roughy [68455]	Conservation Dependent	Species or species habitat likely to occur within area
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[Nannatherina balstoni](#)

Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat known to occur within area
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[Thunnus maccoyii](#)

Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat known to occur within area
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INSECT

[Hesperocolletes douglasi](#)

Douglas' Broad-headed Bee, Rottnest Bee [66734]	Critically Endangered	Species or species habitat may occur within area
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[Trioza barrettae](#)

Banksia brownii plant louse [87805]	Endangered	Species or species habitat known to occur within area
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MAMMAL

Scientific Name	Threatened Category	Presence Text
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Foraging, feeding or related behaviour known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat known to occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area
Myrmecobius fasciatus Numbat [294]	Endangered	Species or species habitat may occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Breeding known to occur within area
Parantechinus apicalis Dibbler [313]	Endangered	Species or species habitat known to occur within area
Petrogale lateralis hacketti Recherche Rock-wallaby [66849]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Petrogale lateralis lateralis Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647]	Endangered	Translocated population known to occur within area
Phascogale calura Red-tailed Phascogale, Red-tailed Wambenger, Kenngoor [316]	Vulnerable	Species or species habitat may occur within area
Potorous gilbertii Gilbert's Potoroo, Ngilkat [66642]	Critically Endangered	Species or species habitat known to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Breeding known to occur within area
Pseudomys shortridgei Heath Mouse, Dayang, Heath Rat [77]	Endangered	Species or species habitat likely to occur within area
Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat known to occur within area
OTHER		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
PLANT		
Adenanthos dobagii Fitzgerald Woollybush [21253]	Endangered	Species or species habitat likely to occur within area
Adenanthos ellipticus Oval-leaf Adenanthos [4570]	Vulnerable	Species or species habitat likely to occur within area
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Andersonia pinaster Two Peoples Bay Andersonia [67444]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Anigozanthos bicolor subsp. minor Little Kangaroo Paw, Two-coloured Kangaroo Paw, Small Two-colour Kangaroo Paw [21241]	Endangered	Species or species habitat likely to occur within area
Banksia brownii Brown's Banksia, Feather-leaved Banksia [8277]	Critically Endangered	Species or species habitat known to occur within area
Banksia nivea subsp. uliginosa Swamp Honeypot [82766]	Endangered	Species or species habitat may occur within area
Banksia squarrosa subsp. argillacea Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat likely to occur within area
Banksia verticillata Granite Banksia, Albany Banksia, River Banksia [8333]	Vulnerable	Species or species habitat known to occur within area
Boronia clavata Bremer Boronia [5538]	Endangered	Species or species habitat may occur within area
Brachyscias verecundus Ironstone Brachyscias [81321]	Critically Endangered	Species or species habitat may occur within area
Caladenia busselliana Bussell's Spider-orchid [24369]	Endangered	Species or species habitat likely to occur within area
Caladenia caesarea subsp. maritima Cape Spider-orchid [64856]	Endangered	Species or species habitat known to occur within area
Caladenia excelsa Giant Spider-orchid [56717]	Endangered	Species or species habitat likely to occur within area
Caladenia granitora [65292]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Caladenia harringtoniae Harrington's Spider-orchid, Pink Spider-orchid [56786]	Vulnerable	Species or species habitat may occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat known to occur within area
Caladenia lodgeana Lodge's Spider-orchid [68664]	Critically Endangered	Species or species habitat likely to occur within area
Caladenia procera Carbunup King Spider Orchid [68679]	Critically Endangered	Species or species habitat known to occur within area
Caladenia viridescens Dunsborough Spider-orchid [56776]	Endangered	Species or species habitat known to occur within area
Calectasia cyanea Blue Tinsel Lily [7669]	Critically Endangered	Species or species habitat likely to occur within area
Chamelaucium lullfitzii listed as Chamelaucium sp. Gingin (N.G.Marchant 6) Gingin Wax [92777]	Endangered (listed as Chamelaucium sp. Gingin)	Species or species habitat likely to occur within area
Chamelaucium sp. S coastal plain (R.D.Royce 4872) Royce's Waxflower [87814]	Vulnerable	Species or species habitat likely to occur within area
Chordifex abortivus Manypeaks Rush [64868]	Endangered	Species or species habitat likely to occur within area
Commersonia apella Many-flowered Commersonia [86877]	Critically Endangered	Species or species habitat known to occur within area
Coopernookia georgei Mauve Coopernookia [21218]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Daviesia obovata Paddle-leaf Daviesia [17311]	Endangered	Species or species habitat likely to occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat likely to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leafed Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus argutifolia Yanchep Mallee, Wabbling Hill Mallee [24263]	Vulnerable	Species or species habitat may occur within area
Eucalyptus insularis Twin Peak Island Mallee [3057]	Endangered	Species or species habitat likely to occur within area
Eucalyptus x phylacis Meelup Mallee [87817]	Endangered	Species or species habitat known to occur within area
Gastrolobium papilio Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area
Grevillea elongata Ironstone Grevillea [64578]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Grevillea infundibularis Fan-leaf Grevillea [5772]	Endangered	Species or species habitat likely to occur within area
Isopogon uncinatus Albany Cone Bush, Hook-leaf Isopogon [20871]	Endangered	Species or species habitat likely to occur within area
Kennedia glabrata Northcliffe Kennedia [16452]	Vulnerable	Species or species habitat known to occur within area
Lambertia echinata subsp. echinata Prickly Honeysuckle [56729]	Endangered	Species or species habitat known to occur within area
Lambertia echinata subsp. occidentalis Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat may occur within area
Morelotia australiensis listed as Tetraria australiensis Southern Tetraria [92784]	Vulnerable	Species or species habitat may occur within area
Petrophile latericola Laterite Petrophile [64532]	Endangered	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Reedia spathacea Reedia [2995]	Critically Endangered	Species or species habitat may occur within area
Ricinocarpos trichophorus Barrens Wedding Bush [19931]	Endangered	Species or species habitat may occur within area
Sphenotoma drummondii Mountain Paper-heath [21160]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Stylidium galioides Yellow Mountain Triggerplant [4666]	Vulnerable	Species or species habitat may occur within area
Synaphea sp. Fairbridge Farm (D.Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat may occur within area
Verticordia crebra [55678]	Vulnerable	Species or species habitat likely to occur within area
Verticordia densiflora var. pedunculata Long-stalked Featherflower [55689]	Endangered	Species or species habitat may occur within area
Verticordia plumosa var. ananeotes Tufted Plumed Featherflower [23871]	Endangered	Species or species habitat may occur within area
Verticordia plumosa var. vassensis Vasse Featherflower [55804]	Endangered	Species or species habitat may occur within area
Wurmbea calcicola Naturaliste Nancy [64691]	Endangered	Species or species habitat known to occur within area
REPTILE		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

SHARK

[Carcharias taurus \(west coast population\)](#)

Grey Nurse Shark (west coast population) [68752]	Vulnerable	Congregation or aggregation known to occur within area
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[Carcharodon carcharias](#)

White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
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[Centrophorus uyato](#)

Little Gulper Shark [68446]	Conservation Dependent	Species or species habitat likely to occur within area
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[Galeorhinus galeus](#)

School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area
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[Pristis pristis](#)

Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
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[Rhincodon typus](#)

Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
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[Sphyrna lewini](#)

Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area
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Listed Migratory Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Ardena carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardena grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Ardena pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Ardena tenuirostris Short-tailed Shearwater [82652]		Breeding known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Sterna dougalli Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Foraging, feeding or related behaviour known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat likely to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Foraging, feeding or related behaviour known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Physeter macrocephalus Sperm Whale [59]		Foraging, feeding or related behaviour known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
Defence	
Defence - ARTILLERY BARRACKS - FREMANTLE [50155]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50183]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50184]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50186]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50185]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50181]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50187]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50182]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50117]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50133]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50134]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50132]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50131]	WA
Defence - ROCKINGHAM - NAVY CPSO [50135]	WA
Defence - SWANBOURNE RIFLE RANGE [50188]	WA

Commonwealth Land Name	State
Defence - SWANBOURNE RIFLE RANGE [50191]	WA
Unknown	
Commonwealth Land - [50504]	WA
Commonwealth Land - [50503]	WA
Commonwealth Land - [50507]	WA
Commonwealth Land - [50506]	WA
Commonwealth Land - [50495]	WA
Commonwealth Land - [50505]	WA
Commonwealth Land - [50425]	WA
Commonwealth Land - [50473]	WA
Commonwealth Land - [50424]	WA
Commonwealth Land - [50493]	WA
Commonwealth Land - [50567]	WA
Commonwealth Land - [50633]	WA
Commonwealth Land - [50566]	WA
Commonwealth Land - [50483]	WA
Commonwealth Land - [50467]	WA
Commonwealth Land - [50487]	WA
Commonwealth Land - [50551]	WA
Commonwealth Land - [50558]	WA
Commonwealth Land - [50431]	WA
Commonwealth Land - [50550]	WA
Commonwealth Land - [50518]	WA
Commonwealth Land - [50437]	WA
Commonwealth Land - [50422]	WA
Commonwealth Land - [51437]	WA
Commonwealth Land - [50579]	WA

Commonwealth Land Name	State
Commonwealth Land - [50631]	WA
Commonwealth Land - [51480]	WA
Commonwealth Land - [50470]	WA
Commonwealth Land - [51436]	WA
Commonwealth Land - [50478]	WA
Commonwealth Land - [50510]	WA
Commonwealth Land - [50511]	WA
Commonwealth Land - [50605]	WA
Commonwealth Land - [50516]	WA
Commonwealth Land - [50638]	WA
Commonwealth Land - [50412]	WA
Commonwealth Land - [50517]	WA
Commonwealth Land - [50496]	WA
Commonwealth Land - [50501]	WA
Commonwealth Land - [50498]	WA
Commonwealth Land - [50419]	WA
Commonwealth Land - [50418]	WA
Commonwealth Land - [50629]	WA
Commonwealth Land - [50624]	WA
Commonwealth Land - [50608]	WA
Commonwealth Land - [50573]	WA
Commonwealth Land - [50628]	WA
Commonwealth Land - [50485]	WA
Commonwealth Land - [51889]	WA
Commonwealth Land - [50446]	WA
Commonwealth Land - [50500]	WA
Commonwealth Land - [50486]	WA

Commonwealth Land Name	State
Commonwealth Land - [50475]	WA
Commonwealth Land - [50456]	WA
Commonwealth Land - [50457]	WA
Commonwealth Land - [52281]	WA
Commonwealth Land - [50455]	WA
Commonwealth Land - [50522]	WA
Commonwealth Land - [50529]	WA
Commonwealth Land - [50527]	WA
Commonwealth Land - [50525]	WA
Commonwealth Land - [50571]	WA
Commonwealth Land - [50570]	WA
Commonwealth Land - [50492]	WA
Commonwealth Land - [51890]	WA
Commonwealth Land - [51105]	WA
Commonwealth Land - [50471]	WA
Commonwealth Land - [50622]	WA
Commonwealth Land - [50458]	WA
Commonwealth Land - [50621]	WA
Commonwealth Land - [50620]	WA
Commonwealth Land - [50623]	WA
Commonwealth Land - [50452]	WA
Commonwealth Land - [50450]	WA
Commonwealth Land - [50451]	WA
Commonwealth Land - [50454]	WA
Commonwealth Land - [50589]	WA
Commonwealth Land - [50639]	WA
Commonwealth Land - [50464]	WA

Commonwealth Land Name	State
Commonwealth Land - [50463]	WA
Commonwealth Land - [50635]	WA
Commonwealth Land - [50632]	WA
Commonwealth Land - [50634]	WA
Commonwealth Land - [51487]	WA
Commonwealth Land - [50466]	WA
Commonwealth Land - [50469]	WA
Commonwealth Land - [50557]	WA
Commonwealth Land - [50569]	WA
Commonwealth Land - [50401]	WA
Commonwealth Land - [50539]	WA
Commonwealth Land - [50538]	WA
Commonwealth Land - [50531]	WA
Commonwealth Land - [50530]	WA
Commonwealth Land - [50533]	WA
Commonwealth Land - [50613]	WA
Commonwealth Land - [50415]	WA
Commonwealth Land - [50389]	WA
Commonwealth Land - [50438]	WA
Commonwealth Land - [50388]	WA
Commonwealth Land - [50442]	WA
Commonwealth Land - [50443]	WA
Commonwealth Land - [50441]	WA
Commonwealth Land - [50447]	WA
Commonwealth Land - [52119]	WA
Commonwealth Land - [50524]	WA
Commonwealth Land - [50484]	WA

Commonwealth Land Name	State
Commonwealth Land - [50523]	WA
Commonwealth Land - [50387]	WA
Commonwealth Land - [50434]	WA
Commonwealth Land - [50433]	WA
Commonwealth Land - [50536]	WA
Commonwealth Land - [51987]	WA
Commonwealth Land - [50432]	WA
Commonwealth Land - [50449]	WA
Commonwealth Land - [50617]	WA
Commonwealth Land - [50580]	WA
Commonwealth Land - [50616]	WA
Commonwealth Land - [50465]	WA
Commonwealth Land - [51411]	WA
Commonwealth Land - [51117]	WA
Commonwealth Land - [50581]	WA
Commonwealth Land - [52242]	WA
Commonwealth Land - [51895]	WA
Commonwealth Land - [50526]	WA
Commonwealth Land - [50564]	WA
Commonwealth Land - [50565]	WA
Commonwealth Land - [50618]	WA
Commonwealth Land - [50404]	WA
Commonwealth Land - [50610]	WA
Commonwealth Land - [50619]	WA
Commonwealth Land - [50612]	WA
Commonwealth Land - [50611]	WA
Commonwealth Land - [50615]	WA

Commonwealth Land Name	State
Commonwealth Land - [50614]	WA
Commonwealth Land - [50568]	WA
Commonwealth Land - [51892]	WA
Commonwealth Land - [51891]	WA
Commonwealth Land - [51894]	WA
Commonwealth Land - [51893]	WA
Commonwealth Land - [52200]	WA
Commonwealth Land - [50535]	WA
Commonwealth Land - [50532]	WA
Commonwealth Land - [50537]	WA
Commonwealth Land - [50534]	WA
Commonwealth Land - [50509]	WA
Commonwealth Land - [50627]	WA
Commonwealth Land - [50497]	WA
Commonwealth Land - [50453]	WA
Commonwealth Land - [50637]	WA
Commonwealth Land - [50416]	WA
Commonwealth Land - [50459]	WA
Commonwealth Land - [52279]	WA
Commonwealth Land - [50572]	WA
Commonwealth Land - [50479]	WA
Commonwealth Land - [50476]	WA
Commonwealth Land - [50474]	WA
Commonwealth Land - [50577]	WA
Commonwealth Land - [50600]	WA
Commonwealth Land - [50604]	WA
Commonwealth Land - [50603]	WA

Commonwealth Land Name	State
Commonwealth Land - [50601]	WA
Commonwealth Land - [50578]	WA
Commonwealth Land - [50472]	WA
Commonwealth Land - [50477]	WA
Commonwealth Land - [50590]	WA
Commonwealth Land - [50599]	WA
Commonwealth Land - [50591]	WA
Commonwealth Land - [50480]	WA
Commonwealth Land - [50488]	WA
Commonwealth Land - [50482]	WA
Commonwealth Land - [50512]	WA
Commonwealth Land - [50597]	WA
Commonwealth Land - [50595]	WA
Commonwealth Land - [50491]	WA
Commonwealth Land - [50481]	WA
Commonwealth Land - [50462]	WA
Commonwealth Land - [50520]	WA
Commonwealth Land - [50423]	WA
Commonwealth Land - [50444]	WA
Commonwealth Land - [50428]	WA
Commonwealth Land - [50390]	WA
Commonwealth Land - [50427]	WA
Commonwealth Land - [52199]	WA
Commonwealth Land - [50521]	WA
Commonwealth Land - [50641]	WA
Commonwealth Land - [50421]	WA
Commonwealth Land - [50640]	WA

Commonwealth Land Name	State
Commonwealth Land - [50420]	WA
Commonwealth Land - [50609]	WA
Commonwealth Land - [50499]	WA
Commonwealth Land - [50514]	WA
Commonwealth Land - [50490]	WA
Commonwealth Land - [50548]	WA
Commonwealth Land - [50549]	WA
Commonwealth Land - [50544]	WA
Commonwealth Land - [51116]	WA
Commonwealth Land - [51115]	WA
Commonwealth Land - [51113]	WA
Commonwealth Land - [50602]	WA
Commonwealth Land - [51974]	WA
Commonwealth Land - [50528]	WA
Commonwealth Land - [50552]	WA
Commonwealth Land - [51119]	WA
Commonwealth Land - [50555]	WA
Commonwealth Land - [50554]	WA
Commonwealth Land - [50541]	WA
Commonwealth Land - [50540]	WA
Commonwealth Land - [50543]	WA
Commonwealth Land - [50542]	WA
Commonwealth Land - [50417]	WA
Commonwealth Land - [50596]	WA
Commonwealth Land - [50556]	WA
Commonwealth Land - [50545]	WA
Commonwealth Land - [50546]	WA

Commonwealth Land Name	State
Commonwealth Land - [50547]	WA
Commonwealth Land - [50636]	WA
Commonwealth Land - [51488]	WA
Commonwealth Land - [50519]	WA
Commonwealth Land - [50445]	WA
Commonwealth Land - [50461]	WA
Commonwealth Land - [50460]	WA
Commonwealth Land - [50513]	WA
Commonwealth Land - [50515]	WA
Commonwealth Land - [50468]	WA

Commonwealth Heritage Places [[Resource Information](#)]

Name	State	Status
Historic		
Artillery Barracks	WA	Listed place
Cliff Point Historic Site	WA	Listed place
J Gun Battery	WA	Listed place
Natural		
Garden Island	WA	Listed place

Listed Marine Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area
Anous tenuirostris melanops		
Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardena carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardena grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Ardena pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Ardena tenuirostris as Puffinus tenuirostris Short-tailed Shearwater [82652]		Breeding known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area overfly marine area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Breeding known to occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area
Eudyptula minor Little Penguin [1085]		Breeding known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area
Larus dominicanus Kelp Gull [809]		Breeding known to occur within area
Larus pacificus Pacific Gull [811]		Breeding known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pelagodroma marina White-faced Storm-Petrel [1016]		Breeding known to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Phalaropus lobatus Red-necked Phalarope [838]		Roosting known to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area
Pterodroma macroptera Great-winged Petrel [1035]		Breeding known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Puffinus assimilis Little Shearwater [59363]		Breeding known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Sternula nereis as Sterna nereis Fairy Tern [82949]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area overfly marine area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Longsnout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammal		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Breeding known to occur within area
Reptile		
Aipysurus pooleorum Shark Bay Sea Snake [66061]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Foraging, feeding or related behaviour known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Berardius arnuxii Arnoux's Beaked Whale [70]		Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Globicephala melas Long-finned Pilot Whale [59282]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Hyperoodon planifrons Southern Bottlenose Whale [71]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat likely to occur within area
Lissodelphis peronii Southern Right Whale Dolphin [44]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Foraging, feeding or related behaviour known to occur within area
Mesoplodon bowdoini Andrew's Beaked Whale [73]		Species or species habitat may occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Mesoplodon ginkgodens Ginkgo-toothed Beaked Whale, Ginkgo-toothed Whale, Ginkgo Beaked Whale [59564]		Species or species habitat may occur within area
Mesoplodon grayi Gray's Beaked Whale, Scamperdown Whale [75]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Mesoplodon hectori Hector's Beaked Whale [76]		Species or species habitat may occur within area
Mesoplodon layardii Strap-toothed Beaked Whale, Strap-toothed Whale, Layard's Beaked Whale [25556]		Species or species habitat may occur within area
Mesoplodon mirus True's Beaked Whale [54]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Foraging, feeding or related behaviour known to occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Tasmacetus shepherdi Shepherd's Beaked Whale, Tasman Beaked Whale [55]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks [[Resource Information](#)]

Park Name	Zone & IUCN Categories
Geographe	Habitat Protection Zone (IUCN IV)
Perth Canyon	Habitat Protection Zone (IUCN IV)
Perth Canyon	Habitat Protection Zone (IUCN IV)
South-west Corner	Habitat Protection Zone (IUCN IV)
Geographe	Multiple Use Zone (IUCN VI)
Perth Canyon	Multiple Use Zone (IUCN VI)
Perth Canyon	Multiple Use Zone (IUCN VI)
South-west Corner	Multiple Use Zone (IUCN VI)
South-west Corner	Multiple Use Zone (IUCN VI)
South-west Corner	Multiple Use Zone (IUCN VI)
South-west Corner	Multiple Use Zone (IUCN VI)
Bremer	National Park Zone (IUCN II)
Geographe	National Park Zone (IUCN II)

Park Name	Zone & IUCN Categories
Perth Canyon	National Park Zone (IUCN II)
Perth Canyon	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	Special Purpose Zone (IUCN VI)
South-west Corner	Special Purpose Zone (IUCN VI)
Bremer	Special Purpose Zone (Mining Exclusion) (IUCN VI)
Bremer	Special Purpose Zone (Mining Exclusion) (IUCN VI)
Geographe	Special Purpose Zone (Mining Exclusion) (IUCN VI)
South-west Corner	Special Purpose Zone (Mining Exclusion) (IUCN VI)
South-west Corner	Special Purpose Zone (Mining Exclusion) (IUCN VI)

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	
Arpenteur	Nature Reserve	WA	
Bald Island	Nature Reserve	WA	
Bold Park	Botanic Gardens	WA	
Broadwater	Nature Reserve	WA	
Cape Le Grand	National Park	WA	

Protected Area Name	Reserve Type	State
Carnac Island	Nature Reserve	WA
Cottesloe Reef	Fish Habitat Protection Area	WA
D'Entrecasteaux	National Park	WA
Doubtful Islands	Nature Reserve	WA
Eclipse Island	Nature Reserve	WA
Fitzgerald River	National Park	WA
Flinders Bay	Nature Reserve	WA
Hamelin Island	Nature Reserve	WA
Investigator Island	Nature Reserve	WA
Jerdacuttup Lakes	Nature Reserve	WA
Leeuwin-Naturaliste	National Park	WA
Locke	Nature Reserve	WA
Marmion	Marine Park	WA
Mount Manypeaks	Nature Reserve	WA
Ngari Capes	Marine Park	WA
NTWA Bushland covenant (0085A)	Conservation Covenant	WA
NTWA Bushland covenant (0085B)	Conservation Covenant	WA
NTWA Bushland covenant (0173)	Conservation Covenant	WA
NTWA Bushland covenant (0178)	Conservation Covenant	WA
Penguin Island	Conservation Park	WA
Port Kennedy Scientific Park	Nature Reserve	WA
Quagering	Nature Reserve	WA
Quarram	Nature Reserve	WA
Recherche Archipelago	Nature Reserve	WA
Rottneest Island	State Reserve	WA
Shoalwater Bay Islands	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Shoalwater Islands	Marine Park	WA
St Alouarn Island	Nature Reserve	WA
Stokes	National Park	WA
Sugar Loaf Rock	Nature Reserve	WA
Swan River	Management Area	WA
Torndirrup	National Park	WA
Two Peoples Bay	Nature Reserve	WA
Unnamed WA25836	Nature Reserve	WA
Unnamed WA26620	Nature Reserve	WA
Unnamed WA26885	Nature Reserve	WA
Unnamed WA27888	Nature Reserve	WA
Unnamed WA32478	5(1)(h) Reserve	WA
Unnamed WA41568	Nature Reserve	WA
Unnamed WA41597	Nature Reserve	WA
Unnamed WA42379	5(1)(h) Reserve	WA
Unnamed WA42469	Nature Reserve	WA
Unnamed WA42879	Nature Reserve	WA
Unnamed WA43903	Nature Reserve	WA
Unnamed WA44004	Nature Reserve	WA
Unnamed WA44676	5(1)(h) Reserve	WA
Unnamed WA44685	5(1)(h) Reserve	WA
Unnamed WA44709	5(1)(h) Reserve	WA
Unnamed WA48837	Nature Reserve	WA
Unnamed WA48955	5(1)(h) Reserve	WA
Unnamed WA48968	5(1)(h) Reserve	WA
Unnamed WA49220	Conservation Park	WA
Unnamed WA49385	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Unnamed WA50017	Nature Reserve	WA
Walpole-Nornalup	National Park	WA
Waychinicup	National Park	WA
West Cape Howe	National Park	WA
Yalgorup	National Park	WA

Regional Forest Agreements [\[Resource Information \]](#)

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State
South West WA RFA	Western Australia

Nationally Important Wetlands [\[Resource Information \]](#)

Wetland Name	State
Becher Point Wetlands	WA
Doggerup Creek System	WA
Rottnest Island Lakes	WA
Swan-Canning Estuary	WA
Vasse-Wonnerup Wetland System	WA

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status
Fremantle District Police Complex Project	2022/09345		Completed
H2Perth hydrogen and ammonia project	2023/09559		Completed
Installation of additional potable water tank	2023/09518		Assessment
Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia West	2024/09826		Referral Decision
WA Offshore Windfarm	2021/8961		Completed

Controlled action	Reference	Controlled Action	Post-Approval
Aerial Application of Lavicide to Vasse-Wonnerup Wetlands	2010/5593	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Airborne sonar trials	2001/540	Controlled Action	Completed
Albany Port Authority dredging project	2006/2540	Controlled Action	Post-Approval
All weather access track road between Windy Harbour and Nelson Location 7965	2011/6121	Controlled Action	Post-Approval
Busselton Foreshore Redevelopment from West Street to Ford Road	2013/6830	Controlled Action	Post-Approval
Cape View Resort at Lot 190 Little Colin Street	2006/3070	Controlled Action	Post-Approval
Construction of a Deepwater, General Container Port	2009/5178	Controlled Action	Proposed Decision
Construction of New Perth Bunbury Highway project	2005/2193	Controlled Action	Post-Approval
Dawson Beach Estate Stage 2	2005/2153	Controlled Action	Post-Approval
Development Guide Plan for 46 ha Residential Subdivision	2008/4102	Controlled Action	Post-Approval
Development of Busselton Health Campus	2011/6011	Controlled Action	Post-Approval
Development of Kwinana Quay port facility	2008/4387	Controlled Action	Completed
Develop Trails and a Wetlands Demonstration Site and Centre	2008/4439	Controlled Action	Post-Approval
Eastern Link Project, Busselton WA	2018/8155	Controlled Action	Post-Approval
Industry Zone	2010/5337	Controlled Action	Post-Approval
Lennox Weir Removal, 12kms west Busselton	2021/8915	Controlled Action	Assessment Approach
Lower Vasse River Sediment Removal	2021/9051	Controlled Action	Post-Approval
Mangles Bay Marina Based Tourist Precinct	2010/5659	Controlled Action	Post-Approval
Neighbourhood Shopping Centre and Mixed Business Centre, Ocean Road, Dawesville	2006/3155	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Old Broadwater Farm Estate Subdivision - Stage 3	2009/5231	Controlled Action	Post-Approval
Peel's Retreat Estate - Residential development	2006/3063	Controlled Action	Post-Approval
Peppermint Park Residential Subdivision - Stage 5	2008/4028	Controlled Action	Post-Approval
Point Grey Marina Project	2010/5515	Controlled Action	Post-Approval
Point Grey Residential Development - Terrestrial Component	2011/5825	Controlled Action	Post-Approval
Ravensthorpe Nickel Project	2001/172	Controlled Action	Post-Approval
Residential Development, Lot 3 & 4 Dorsett Street	2006/2774	Controlled Action	Completed
Residential development Lot 3, 500 Bussell Highway, WA	2013/7098	Controlled Action	Post-Approval
Residential development Lots 8 & 9 King Street	2006/2787	Controlled Action	Completed
retirement units & aged care facility development	2007/3533	Controlled Action	Post-Approval
Shark Hazard Mitigation Drum Line Program, WA	2014/7174	Controlled Action	Completed
Shenton Park Subdivision	2004/1479	Controlled Action	Completed
Smiths Beach Project, Yallingup - Coastal Tourism Village	2021/9141	Controlled Action	Referral Publication
Southern Bluefin Tuna Farm	2005/2165	Controlled Action	Completed
Subdivision Lot 1 Dawesville Rd	2005/2394	Controlled Action	Post-Approval
Three Turning Pockets West of Busselton Townsite	2002/846	Controlled Action	Post-Approval
Tourism Villa Facility Development	2008/4025	Controlled Action	Post-Approval
tourist and residential development	2007/3483	Controlled Action	Post-Approval
Upgrade of Ford Road	2005/2113	Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Urban development, multiple lots Northerly Street, Vasse, WA	2019/8494	Controlled Action	Assessment Approach
Vasse Diversion Drain Upgrade	2017/7932	Controlled Action	Post-Approval
Warders Hotel, Block 1 Warders Cottages, Fremantle, WA	2018/8144	Controlled Action	Post-Approval
Not controlled action			
'Looping 10' gas transmission pipeline from Kwinana to Hopelands	2005/2212	Not Controlled Action	Completed
25 Lot Residential Subdivision	2009/4830	Not Controlled Action	Completed
Aerial application of mosquito larvicides to Vasse Wonnerup Wetlands, WA	2016/7780	Not Controlled Action	Completed
APX-West Fibre-optic telecommunications cable system, WA to Singapore	2013/7102	Not Controlled Action	Completed
Bushfire Mitigation Works - City of Mandurah	2020/8674	Not Controlled Action	Completed
Busselton to Flinders Bay Rails to Trails Project, WA	2013/6835	Not Controlled Action	Completed
Cape Naturaliste Road Shared Pathway, Dunsborough, WA	2018/8282	Not Controlled Action	Completed
Causeway Bridge Duplication, Busselton, WA	2018/8309	Not Controlled Action	Completed
Caves Road widening project between Dunsborough and Yallingup(20.3 -24.6 SLK), WA	2015/7475	Not Controlled Action	Completed
Clear Lot 503, 54 Ocean Road Dawesville, WA	2014/7375	Not Controlled Action	Completed
Construction and operation of an 8 turbine wind farm at Rous Head Harbour, Frema	2003/933	Not Controlled Action	Completed
Construction of Secret Harbour High School	2004/1489	Not Controlled Action	Completed
CTBT - Cape Leeuwin Hydroacoustic Station Proposal	2000/27	Not Controlled Action	Completed
Disposal of residential properties, Fremantle, WA	2019/8593	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Eastport canal estate development stage 5	2007/3737	Not Controlled Action	Completed
Establishment of a National Lifestyle Village	2011/6081	Not Controlled Action	Completed
Expansion of berthing facilities at Kwinana Bulk Terminal	2006/2509	Not Controlled Action	Completed
Expansion of existing Ammonium Nitrate Production Facility	2005/1941	Not Controlled Action	Completed
Expedition 369-Australian Cretaceous Climate and Tectonics, Australian EEZ waters	2017/7891	Not Controlled Action	Completed
Florida Estate Residential Subdivision Development Stage 13	2011/6045	Not Controlled Action	Completed
Florida North residential development, Lot 9008, Ocean Road, Dawesville, WA	2015/7462	Not Controlled Action	Completed
Fremantle Ports Inner Harbour Capital Dredging Proposal	2005/2477	Not Controlled Action	Completed
Gas-fired Power Station	2005/2213	Not Controlled Action	Completed
Geo-science Investigations	2005/2069	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed
Kennedy Bay urban development, Port Kennedy, WA	2014/7122	Not Controlled Action	Completed
Kennedy Park Estate Residential Development	2003/1044	Not Controlled Action	Completed
Kwinana Gas-Fired Power Station	2005/2101	Not Controlled Action	Completed
Limestone quarry expansion	2005/2268	Not Controlled Action	Completed
Limestone Quarry Expansion, Lots 3618 and 1794, Finn Road	2005/2332	Not Controlled Action	Completed
Lot 101 Mandurah Road, Madora Bay, WA	2012/6466	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Oman Australia Cable Installation, WA	2021/8922	Not Controlled Action	Completed
Oman Australia Cable - Marine Route Survey	2020/8731	Not Controlled Action	Completed
Palm Beach Caravan Park Redevelopment, Rockingham, WA	2013/6853	Not Controlled Action	Completed
Redevelopment of Lots 3 & 4, Kent Street	2007/3243	Not Controlled Action	Completed
Residential & Light Industrial Development, Vasse WA	2013/6932	Not Controlled Action	Completed
Residential development, Lot 42, Farmhouse Court, Bovell, WA	2014/7195	Not Controlled Action	Completed
Re-zoning of Land for Future Residential Development Purposes	2009/4908	Not Controlled Action	Completed
Rottnest Lodge Redevelopment	2019/8565	Not Controlled Action	Completed
Seismic Survey, Bremer Basin, Mentelle Basin and Zeewyck Sub-basin	2004/1700	Not Controlled Action	Completed
Sepia Depression Ocean Outlet Landline Duplication	2012/6248	Not Controlled Action	Completed
Vasse Hotel and Supermarket Redevelopment	2001/288	Not Controlled Action	Completed
Warders' Cottages Block 2 'W2'	2022/9148	Not Controlled Action	Completed
Warders' Cottages W2 minor works, Fremantle, WA	2018/8185	Not Controlled Action	Completed
Wind Farm development	2005/2105	Not Controlled Action	Completed
Not controlled action (particular manner)			
2D seismic survey	2007/3273	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey	2008/4493	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey Within WA-382-P	2007/3799	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Aerial Mosquito Spraying Vasse-Wonnerup System	2005/1952	Not Controlled Action (Particular Manner)	Post-Approval
Ambergate North Residential Development	2009/4802	Not Controlled Action (Particular Manner)	Post-Approval
Arcadia Petroleum - BR12 3D Marine Seismic Survey	2012/6476	Not Controlled Action (Particular Manner)	Post-Approval
Australian Underwater Discovery Centre	2021/9019	Not Controlled Action (Particular Manner)	Post-Approval
Australia to Singapore Fibre Optic Submarine Cable System	2011/6127	Not Controlled Action (Particular Manner)	Post-Approval
Bremer Basin 2D Marine Seismic Survey, WA	2009/5013	Not Controlled Action (Particular Manner)	Post-Approval
CETO 6 Garden Island Project, offshore WA	2016/7635	Not Controlled Action (Particular Manner)	Post-Approval
CETO 6 Geophysical and Geotechnical Surveys	2014/7408	Not Controlled Action (Particular Manner)	Post-Approval
City of Cockburn Sporting Facilities	2005/2139	Not Controlled Action (Particular Manner)	Post-Approval
Construction of urea production plant and supporting infrastructure	2009/5067	Not Controlled Action (Particular Manner)	Post-Approval
Coodanup residential development	2006/3073	Not Controlled Action (Particular Manner)	Post-Approval
Extension of existing mains water supply pipeline	2009/4686	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Grand Southern Margin 2D Marine Seismic Survey	2008/4599	Not Controlled Action (Particular Manner)	Post-Approval
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval
Lake Richmond Boardwalk installation, Rockingham, WA	2013/6977	Not Controlled Action (Particular Manner)	Post-Approval
Laying a submarine optical fibre telecommunications cable, Perth to Singapore and Jakarta	2014/7332	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey	2012/6275	Not Controlled Action (Particular Manner)	Post-Approval
Monaghan's Roundabout Project - Intersection of Bussell Highway and Caves Road, Shire of Busselton	2007/3515	Not Controlled Action (Particular Manner)	Post-Approval
Multipurpose development stage 1 within 340ha	2004/1913	Not Controlled Action (Particular Manner)	Post-Approval
Novacare Lifestyle Village	2001/311	Not Controlled Action (Particular Manner)	Post-Approval
Road upgrades and walk trail development	2009/4958	Not Controlled Action (Particular Manner)	Post-Approval
South Busselton Primary School	2001/290	Not Controlled Action (Particular Manner)	Post-Approval
South West Metropolitan Railway Project	2003/1175	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Subdivision and development of residential dwelling on part Lot 1, Bussell Highw	2006/3023	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Marine Seismic survey	2007/3725	Referral Decision	Completed
3D Seismic Survey	2012/6245	Referral Decision	Completed
Ambergate North Residential Community (4896 lots)	2008/4617	Referral Decision	Completed
CO2 3D Seismic Survey Vlaming Sub-Basin	2012/6343	Referral Decision	Completed
Grand Southern Margin 2D Marine Seismic Survey	2008/4573	Referral Decision	Completed
Kennedy Bay Urban Development, Port Kennedy, Rockingham	2013/7022	Referral Decision	Completed
Lots 1-5 Bluerise Cove & Lots 801 & 124 Pleasant Grove Rezoning and Subdivision	2008/4295	Referral Decision	Completed
Narelle 3D Marine Seismic Survey	2008/4575	Referral Decision	Completed
Residential Subdivision Lot 801 Pleasant Grove Circle, Falcon, WA	2012/6507	Referral Decision	Referral Publication
Riverbank and Country Road Estates Lot 43 Bussell Highway	2005/2367	Referral Decision	Completed
Sonar Trials and Acoustic Trials	2001/538	Referral Decision	Completed
Water quality improvement trial, Lower Vasse River, Busselton, WA	2013/6975	Referral Decision	Completed

Key Ecological Features

[[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Albany Canyons group and adjacent shelf break	South-west
Ancient coastline at 90-120m depth	South-west
Cape Mentelle upwelling	South-west

Name	Region
Commonwealth marine environment surrounding the Recherche Archipelago	South-west
Commonwealth marine environment within and adjacent to Geographe Bay	South-west
Commonwealth marine environment within and adjacent to the west coast inshore lagoons	South-west
Diamantina Fracture Zone	South-west
Naturaliste Plateau	South-west
Perth Canyon and adjacent shelf break, and other west coast canyons	South-west
Western demersal slope and associated fish communities	South-west
Western rock lobster	South-west

Biologically Important Areas		[Resource Information]
Scientific Name	Behaviour	Presence
Seabirds		
Ardena carneipes Flesh-footed Shearwater [82404]	Aggregation	Known to occur
Ardena carneipes Flesh-footed Shearwater [82404]	Foraging (in high numbers)	Known to occur
Ardena pacifica Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur
Ardena tenuirostris Short-tailed Shearwater [82652]	Foraging (in high numbers)	Known to occur
Eudyptula minor Little Penguin [1085]	Foraging (provisioning young)	Known to occur
Hydroprogne caspia Caspian Tern [808]	Foraging (provisioning young)	Known to occur
Larus pacificus Pacific Gull [811]	Foraging (in high numbers)	Former Range

Scientific Name	Behaviour	Presence
Larus pacificus Pacific Gull [811]	Foraging (in high numbers)	Known to occur
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur
Onychoprion fuscata Sooty Tern [82847]	Foraging	Known to occur
Pelagodroma marina White-faced Storm petrel [1016]	Foraging (in high numbers)	Known to occur
Phalacrocorax fuscescens Black-faced Cormorant [59660]	Foraging	Known to occur
Pterodroma macroptera macroptera Great-winged Petrel (macroptera race) [1035]	Foraging (provisioning young)	Known to occur
Pterodroma mollis Soft-plumaged Petrel [1036]	Foraging (in high numbers)	Known to occur
Puffinus assimilis tunneyi Little Shearwater [59363]	Foraging (in high numbers)	Known to occur
Sterna dougallii Roseate Tern [817]	Foraging	Known to occur
Sternula nereis Fairy Tern [82949]	Foraging (in high numbers)	Known to occur
Thalassarche chlororhynchos bassi Indian Yellow-nosed Albatross [85249]	Foraging (in high numbers)	Known to occur
Seals		
Neophoca cinerea Australian Sea Lion [22]	Foraging (male)	Likely to occur

Scientific Name	Behaviour	Presence
Neophoca cinerea Australian Sea Lion [22]	Foraging (male and female)	Known to occur
Neophoca cinerea Australian Sea Lion [22]	Foraging (male and female)	Likely to occur
Sharks		
Carcharodon carcharias White Shark [64470]	Foraging	Known to occur
Whales		
Balaenoptera musculus Blue and Pygmy Blue Whale [36]	Foraging (abundant food source)	Known to occur
Balaenoptera musculus Blue and Pygmy Blue Whale [36]	Foraging (high density)	Known to occur
Balaenoptera musculus Blue and Pygmy Blue Whale [36]	Foraging (on migration)	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging Area (annual high use area)	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Known Foraging Area	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north)	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Scientific Name	Behaviour	Presence
Megaptera novaeangliae Humpback Whale [38]	Migration (south)	Known to occur
Physeter macrocephalus Sperm Whale [59]	Foraging (abundant food source)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 10-Jun-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



Figure 1: SWMR sub area 2 (labelled '3' and '4')

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	1
National Heritage Places:	3
Wetlands of International Importance (Ramsar)	6
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	3
Listed Threatened Ecological Communities:	9
Listed Threatened Species:	141
Listed Migratory Species:	84

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	240
Commonwealth Heritage Places:	4
Listed Marine Species:	123
Whales and Other Cetaceans:	39
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	29
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	63
Regional Forest Agreements:	1
Nationally Important Wetlands:	5
EPBC Act Referrals:	131
Key Ecological Features (Marine):	11
Biologically Important Areas:	33
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [\[Resource Information \]](#)

Name	State	Legal Status
Australian Convict Sites (Fremantle Prison)	WA	Declared property

National Heritage Places [\[Resource Information \]](#)

Name	State	Legal Status
Historic		
Fremantle Prison (former)	WA	Listed place

Indigenous

Cheetup Rock Shelter	WA	Listed place
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Natural

Fitzgerald River National Park	WA	Listed place
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Wetlands of International Importance (Ramsar Wetlands) [\[Resource Information \]](#)

Ramsar Site Name	Proximity
Becher point wetlands	Within Ramsar site
Forrestdale and thomsons lakes	Within 10km of Ramsar site
Lake gore	Within Ramsar site
Lake warden system	Within 10km of Ramsar site
Peel-yalgorup system	Within Ramsar site
Vasse-wonnerup system	Within Ramsar site

Commonwealth Marine Area [\[Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Commonwealth Marine Areas (EPBC Act)

Listed Threatened Ecological Communities

[[Resource Information](#)]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Aquatic Root Mat Community 3 in Caves of the Leeuwin Naturaliste Ridge	Endangered	Community known to occur within area
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Empodisma peatlands of southwestern Australia	Endangered	Community likely to occur within area
Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion	Critically Endangered	Community likely to occur within area
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	Community likely to occur within area
Sedgeland in Holocene dune swales of the southern Swan Coastal Plain	Endangered	Community known to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area
Thrombolite (microbial) community of coastal freshwater lakes of the Swan Coastal Plain (Lake Richmond)	Endangered	Community known to occur within area
Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[[Resource Information](#)]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Atrichornis clamosus Noisy Scrub-bird, Tjimiluk [654]	Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Breeding known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Dasyornis longirostris Western Bristlebird [515]	Endangered	Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Pezoporus flaviventris Western Ground Parrot, Kyloring [84650]	Critically Endangered	Species or species habitat may occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat known to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Psophodes nigrogularis nigrogularis Western Heath Whipbird [64449]	Endangered	Species or species habitat known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
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[Zanda latirostris listed as Calyptorhynchus latirostris](#)

Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
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CRUSTACEAN

[Engaewa pseudoreducta](#)

Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat may occur within area
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[Engaewa reducta](#)

Dunsborough Burrowing Crayfish [82675]	Critically Endangered	Species or species habitat may occur within area
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FISH

[Galaxias truttaceus \(Western Australian population\)](#)

Western Trout Minnow [89857]	Endangered	Species or species habitat known to occur within area
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[Galaxiella nigrostriata](#)

Blackstriped Dwarf Galaxias, Black-stripe Minnow [88677]	Endangered	Species or species habitat known to occur within area
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[Hoplostethus atlanticus](#)

Orange Roughy, Deep-sea Perch, Red Roughy [68455]	Conservation Dependent	Species or species habitat likely to occur within area
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[Nannatherina balstoni](#)

Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat known to occur within area
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[Thunnus maccoyii](#)

Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat known to occur within area
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INSECT

[Hesperocolletes douglasi](#)

Douglas' Broad-headed Bee, Rottnest Bee [66734]	Critically Endangered	Species or species habitat may occur within area
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[Trioza barrettae](#)

Banksia brownii plant louse [87805]	Endangered	Species or species habitat known to occur within area
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MAMMAL

Scientific Name	Threatened Category	Presence Text
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Foraging, feeding or related behaviour known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat known to occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area
Myrmecobius fasciatus Numbat [294]	Endangered	Species or species habitat may occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Breeding known to occur within area
Parantechinus apicalis Dibbler [313]	Endangered	Species or species habitat known to occur within area
Petrogale lateralis hacketti Recherche Rock-wallaby [66849]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Petrogale lateralis lateralis Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647]	Endangered	Translocated population known to occur within area
Phascogale calura Red-tailed Phascogale, Red-tailed Wambenger, Kenngoor [316]	Vulnerable	Species or species habitat may occur within area
Potorous gilbertii Gilbert's Potoroo, Ngilkat [66642]	Critically Endangered	Species or species habitat known to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Breeding known to occur within area
Pseudomys shortridgei Heath Mouse, Dayang, Heath Rat [77]	Endangered	Species or species habitat likely to occur within area
Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat known to occur within area
OTHER		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
PLANT		
Adenanthos dobagii Fitzgerald Woollybush [21253]	Endangered	Species or species habitat likely to occur within area
Adenanthos ellipticus Oval-leaf Adenanthos [4570]	Vulnerable	Species or species habitat likely to occur within area
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Andersonia pinaster Two Peoples Bay Andersonia [67444]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Anigozanthos bicolor subsp. minor Little Kangaroo Paw, Two-coloured Kangaroo Paw, Small Two-colour Kangaroo Paw [21241]	Endangered	Species or species habitat likely to occur within area
Banksia brownii Brown's Banksia, Feather-leaved Banksia [8277]	Critically Endangered	Species or species habitat known to occur within area
Banksia nivea subsp. uliginosa Swamp Honeypot [82766]	Endangered	Species or species habitat may occur within area
Banksia squarrosa subsp. argillacea Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat likely to occur within area
Banksia verticillata Granite Banksia, Albany Banksia, River Banksia [8333]	Vulnerable	Species or species habitat known to occur within area
Boronia clavata Bremer Boronia [5538]	Endangered	Species or species habitat may occur within area
Brachyscias verecundus Ironstone Brachyscias [81321]	Critically Endangered	Species or species habitat may occur within area
Caladenia busselliana Bussell's Spider-orchid [24369]	Endangered	Species or species habitat likely to occur within area
Caladenia caesarea subsp. maritima Cape Spider-orchid [64856]	Endangered	Species or species habitat known to occur within area
Caladenia excelsa Giant Spider-orchid [56717]	Endangered	Species or species habitat likely to occur within area
Caladenia granitora [65292]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Caladenia harringtoniae Harrington's Spider-orchid, Pink Spider-orchid [56786]	Vulnerable	Species or species habitat may occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat known to occur within area
Caladenia lodgeana Lodge's Spider-orchid [68664]	Critically Endangered	Species or species habitat likely to occur within area
Caladenia procera Carbunup King Spider Orchid [68679]	Critically Endangered	Species or species habitat known to occur within area
Caladenia viridescens Dunsborough Spider-orchid [56776]	Endangered	Species or species habitat known to occur within area
Calectasia cyanea Blue Tinsel Lily [7669]	Critically Endangered	Species or species habitat likely to occur within area
Chamelaucium lullfitzii listed as Chamelaucium sp. Gingin (N.G.Marchant 6) Gingin Wax [92777]	Endangered (listed as Chamelaucium sp. Gingin)	Species or species habitat likely to occur within area
Chamelaucium sp. S coastal plain (R.D.Royce 4872) Royce's Waxflower [87814]	Vulnerable	Species or species habitat likely to occur within area
Chordifex abortivus Manypeaks Rush [64868]	Endangered	Species or species habitat likely to occur within area
Commersonia apella Many-flowered Commersonia [86877]	Critically Endangered	Species or species habitat known to occur within area
Coopernookia georgei Mauve Coopernookia [21218]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Daviesia obovata Paddle-leaf Daviesia [17311]	Endangered	Species or species habitat likely to occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat likely to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leafed Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus argutifolia Yanchep Mallee, Wabbling Hill Mallee [24263]	Vulnerable	Species or species habitat may occur within area
Eucalyptus insularis Twin Peak Island Mallee [3057]	Endangered	Species or species habitat likely to occur within area
Eucalyptus x phylacis Meelup Mallee [87817]	Endangered	Species or species habitat known to occur within area
Gastrolobium papilio Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area
Grevillea elongata Ironstone Grevillea [64578]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Grevillea infundibularis Fan-leaf Grevillea [5772]	Endangered	Species or species habitat likely to occur within area
Isopogon uncinatus Albany Cone Bush, Hook-leaf Isopogon [20871]	Endangered	Species or species habitat likely to occur within area
Kennedia glabrata Northcliffe Kennedia [16452]	Vulnerable	Species or species habitat known to occur within area
Lambertia echinata subsp. echinata Prickly Honeysuckle [56729]	Endangered	Species or species habitat known to occur within area
Lambertia echinata subsp. occidentalis Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat may occur within area
Morelotia australiensis listed as Tetraria australiensis Southern Tetraria [92784]	Vulnerable	Species or species habitat may occur within area
Petrophile latericola Laterite Petrophile [64532]	Endangered	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Reedia spathacea Reedia [2995]	Critically Endangered	Species or species habitat may occur within area
Ricinocarpos trichophorus Barrens Wedding Bush [19931]	Endangered	Species or species habitat may occur within area
Sphenotoma drummondii Mountain Paper-heath [21160]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Stylidium galioides Yellow Mountain Triggerplant [4666]	Vulnerable	Species or species habitat may occur within area
Synaphea sp. Fairbridge Farm (D.Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat may occur within area
Verticordia crebra [55678]	Vulnerable	Species or species habitat likely to occur within area
Verticordia densiflora var. pedunculata Long-stalked Featherflower [55689]	Endangered	Species or species habitat may occur within area
Verticordia plumosa var. ananeotes Tufted Plumed Featherflower [23871]	Endangered	Species or species habitat may occur within area
Verticordia plumosa var. vassensis Vasse Featherflower [55804]	Endangered	Species or species habitat may occur within area
Wurmbea calcicola Naturaliste Nancy [64691]	Endangered	Species or species habitat known to occur within area
REPTILE		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

SHARK

[Carcharias taurus \(west coast population\)](#)

Grey Nurse Shark (west coast population) [68752]	Vulnerable	Congregation or aggregation known to occur within area
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[Carcharodon carcharias](#)

White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
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[Centrophorus uyato](#)

Little Gulper Shark [68446]	Conservation Dependent	Species or species habitat likely to occur within area
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[Galeorhinus galeus](#)

School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area
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[Pristis pristis](#)

Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
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[Rhincodon typus](#)

Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
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[Sphyrna lewini](#)

Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area
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Listed Migratory Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Ardena carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardena grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Ardena pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Ardena tenuirostris Short-tailed Shearwater [82652]		Breeding known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Sterna dougalli Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Foraging, feeding or related behaviour known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat likely to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Foraging, feeding or related behaviour known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Physeter macrocephalus Sperm Whale [59]		Foraging, feeding or related behaviour known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
Defence	
Defence - ARTILLERY BARRACKS - FREMANTLE [50155]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50183]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50185]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50184]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50186]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50181]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50187]	WA
Defence - CAMPBELL BARRACKS - SWANBOURNE [50182]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50117]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50134]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50133]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50131]	WA
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50132]	WA
Defence - ROCKINGHAM - NAVY CPSO [50135]	WA
Defence - SWANBOURNE RIFLE RANGE [50188]	WA

Commonwealth Land Name	State
Defence - SWANBOURNE RIFLE RANGE [50191]	WA
Unknown	
Commonwealth Land - [50495]	WA
Commonwealth Land - [50505]	WA
Commonwealth Land - [50424]	WA
Commonwealth Land - [50493]	WA
Commonwealth Land - [50507]	WA
Commonwealth Land - [50506]	WA
Commonwealth Land - [50487]	WA
Commonwealth Land - [50483]	WA
Commonwealth Land - [50425]	WA
Commonwealth Land - [50473]	WA
Commonwealth Land - [50564]	WA
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Commonwealth Land - [50550]	WA
Commonwealth Land - [50633]	WA
Commonwealth Land - [50437]	WA
Commonwealth Land - [50422]	WA
Commonwealth Land - [50518]	WA
Commonwealth Land - [51105]	WA
Commonwealth Land - [50605]	WA
Commonwealth Land - [51437]	WA

Commonwealth Land Name	State
Commonwealth Land - [50579]	WA
Commonwealth Land - [50631]	WA
Commonwealth Land - [50638]	WA
Commonwealth Land - [50517]	WA
Commonwealth Land - [50470]	WA
Commonwealth Land - [50478]	WA
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Commonwealth Land - [50573]	WA
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Commonwealth Land - [50485]	WA
Commonwealth Land - [50608]	WA
Commonwealth Land - [50600]	WA
Commonwealth Land - [51889]	WA
Commonwealth Land - [50500]	WA
Commonwealth Land - [50486]	WA

Commonwealth Land Name	State
Commonwealth Land - [50475]	WA
Commonwealth Land - [50456]	WA
Commonwealth Land - [50457]	WA
Commonwealth Land - [52281]	WA
Commonwealth Land - [50455]	WA
Commonwealth Land - [50529]	WA
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Commonwealth Land - [50622]	WA
Commonwealth Land - [50450]	WA
Commonwealth Land - [50451]	WA
Commonwealth Land - [50454]	WA
Commonwealth Land - [50458]	WA
Commonwealth Land - [50639]	WA
Commonwealth Land - [50632]	WA
Commonwealth Land - [50463]	WA

Commonwealth Land Name	State
Commonwealth Land - [50589]	WA
Commonwealth Land - [51480]	WA
Commonwealth Land - [50634]	WA
Commonwealth Land - [50635]	WA
Commonwealth Land - [50466]	WA
Commonwealth Land - [50464]	WA
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Commonwealth Land - [50415]	WA
Commonwealth Land - [52119]	WA
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Commonwealth Land - [50613]	WA
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Commonwealth Land - [50441]	WA
Commonwealth Land - [50447]	WA
Commonwealth Land - [52200]	WA
Commonwealth Land - [50484]	WA
Commonwealth Land - [50523]	WA

Commonwealth Land Name	State
Commonwealth Land - [50387]	WA
Commonwealth Land - [51987]	WA
Commonwealth Land - [50388]	WA
Commonwealth Land - [50434]	WA
Commonwealth Land - [50449]	WA
Commonwealth Land - [50536]	WA
Commonwealth Land - [50433]	WA
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Commonwealth Land - [50580]	WA
Commonwealth Land - [50581]	WA
Commonwealth Land - [50617]	WA
Commonwealth Land - [50526]	WA
Commonwealth Land - [50465]	WA
Commonwealth Land - [51411]	WA
Commonwealth Land - [51117]	WA
Commonwealth Land - [50524]	WA
Commonwealth Land - [52242]	WA
Commonwealth Land - [51895]	WA
Commonwealth Land - [50565]	WA
Commonwealth Land - [50404]	WA
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Commonwealth Land - [50610]	WA
Commonwealth Land - [50614]	WA
Commonwealth Land - [50612]	WA
Commonwealth Land - [50616]	WA

Commonwealth Land Name	State
Commonwealth Land - [50615]	WA
Commonwealth Land - [50453]	WA
Commonwealth Land - [50568]	WA
Commonwealth Land - [51891]	WA
Commonwealth Land - [51894]	WA
Commonwealth Land - [51892]	WA
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Commonwealth Land - [50534]	WA
Commonwealth Land - [50509]	WA
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Commonwealth Land - [50637]	WA
Commonwealth Land - [50459]	WA
Commonwealth Land - [50476]	WA
Commonwealth Land - [50474]	WA
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Commonwealth Land - [50572]	WA
Commonwealth Land - [50479]	WA
Commonwealth Land - [50591]	WA
Commonwealth Land - [50590]	WA
Commonwealth Land - [50604]	WA

Commonwealth Land Name	State
Commonwealth Land - [50599]	WA
Commonwealth Land - [50603]	WA
Commonwealth Land - [50601]	WA
Commonwealth Land - [50472]	WA
Commonwealth Land - [50491]	WA
Commonwealth Land - [50597]	WA
Commonwealth Land - [50595]	WA
Commonwealth Land - [50512]	WA
Commonwealth Land - [50462]	WA
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Commonwealth Land - [50520]	WA
Commonwealth Land - [50481]	WA
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Commonwealth Land - [50482]	WA
Commonwealth Land - [50423]	WA
Commonwealth Land - [50390]	WA
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Commonwealth Land - [50444]	WA
Commonwealth Land - [50428]	WA
Commonwealth Land - [50641]	WA
Commonwealth Land - [50640]	WA
Commonwealth Land - [52199]	WA
Commonwealth Land - [50421]	WA
Commonwealth Land - [50609]	WA
Commonwealth Land - [50420]	WA

Commonwealth Land Name	State
Commonwealth Land - [50499]	WA
Commonwealth Land - [50514]	WA
Commonwealth Land - [50490]	WA
Commonwealth Land - [50548]	WA
Commonwealth Land - [50549]	WA
Commonwealth Land - [50544]	WA
Commonwealth Land - [50545]	WA
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Commonwealth Land - [50543]	WA
Commonwealth Land - [50542]	WA
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Commonwealth Land - [50556]	WA
Commonwealth Land - [50554]	WA
Commonwealth Land - [50547]	WA
Commonwealth Land - [50540]	WA

Commonwealth Land Name	State
Commonwealth Land - [50541]	WA
Commonwealth Land - [50469]	WA
Commonwealth Land - [51488]	WA
Commonwealth Land - [50636]	WA
Commonwealth Land - [50445]	WA
Commonwealth Land - [50460]	WA
Commonwealth Land - [50513]	WA
Commonwealth Land - [50515]	WA
Commonwealth Land - [50519]	WA
Commonwealth Land - [50461]	WA

Commonwealth Heritage Places [[Resource Information](#)]

Name	State	Status
Historic		
Artillery Barracks	WA	Listed place
Cliff Point Historic Site	WA	Listed place
J Gun Battery	WA	Listed place
Natural		
Garden Island	WA	Listed place

Listed Marine Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area
Anous tenuirostris melanops		
Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardena carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardena grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Ardena pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Ardena tenuirostris as Puffinus tenuirostris Short-tailed Shearwater [82652]		Breeding known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area overfly marine area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Breeding known to occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area
Eudyptula minor Little Penguin [1085]		Breeding known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area
Larus dominicanus Kelp Gull [809]		Breeding known to occur within area
Larus pacificus Pacific Gull [811]		Breeding known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pelagodroma marina White-faced Storm-Petrel [1016]		Breeding known to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Phalaropus lobatus Red-necked Phalarope [838]		Roosting known to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area
Pterodroma macroptera Great-winged Petrel [1035]		Breeding known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Puffinus assimilis Little Shearwater [59363]		Breeding known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Sternula nereis as Sterna nereis Fairy Tern [82949]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area overfly marine area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Longsnout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammal		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Breeding known to occur within area

Reptile

Aipysurus pooleorum Shark Bay Sea Snake [66061]		Species or species habitat may occur within area
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Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
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Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
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Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
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Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
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Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
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Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
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Whales and Other Cetaceans [[Resource Information](#)]

Current Scientific Name	Status	Type of Presence
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Mammal

Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
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Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
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Current Scientific Name	Status	Type of Presence
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Foraging, feeding or related behaviour known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Berardius arnuxii Arnoux's Beaked Whale [70]		Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Globicephala melas Long-finned Pilot Whale [59282]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Hyperoodon planifrons Southern Bottlenose Whale [71]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat likely to occur within area
Lissodelphis peronii Southern Right Whale Dolphin [44]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Foraging, feeding or related behaviour known to occur within area
Mesoplodon bowdoini Andrew's Beaked Whale [73]		Species or species habitat may occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Mesoplodon ginkgodens Ginkgo-toothed Beaked Whale, Ginkgo-toothed Whale, Ginkgo Beaked Whale [59564]		Species or species habitat may occur within area
Mesoplodon grayi Gray's Beaked Whale, Scamperdown Whale [75]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Mesoplodon hectori Hector's Beaked Whale [76]		Species or species habitat may occur within area
Mesoplodon layardii Strap-toothed Beaked Whale, Strap-toothed Whale, Layard's Beaked Whale [25556]		Species or species habitat may occur within area
Mesoplodon mirus True's Beaked Whale [54]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Foraging, feeding or related behaviour known to occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Tasmacetus shepherdi Shepherd's Beaked Whale, Tasman Beaked Whale [55]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks	[Resource Information]
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Park Name	Zone & IUCN Categories
Geographe	Habitat Protection Zone (IUCN IV)
Perth Canyon	Habitat Protection Zone (IUCN IV)
Perth Canyon	Habitat Protection Zone (IUCN IV)
South-west Corner	Habitat Protection Zone (IUCN IV)
Geographe	Multiple Use Zone (IUCN VI)
Perth Canyon	Multiple Use Zone (IUCN VI)
Perth Canyon	Multiple Use Zone (IUCN VI)
South-west Corner	Multiple Use Zone (IUCN VI)
South-west Corner	Multiple Use Zone (IUCN VI)
South-west Corner	Multiple Use Zone (IUCN VI)
South-west Corner	Multiple Use Zone (IUCN VI)
Bremer	National Park Zone (IUCN II)
Geographe	National Park Zone (IUCN II)

Park Name	Zone & IUCN Categories
Perth Canyon	National Park Zone (IUCN II)
Perth Canyon	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	National Park Zone (IUCN II)
South-west Corner	Special Purpose Zone (IUCN VI)
South-west Corner	Special Purpose Zone (IUCN VI)
Bremer	Special Purpose Zone (Mining Exclusion) (IUCN VI)
Bremer	Special Purpose Zone (Mining Exclusion) (IUCN VI)
Geographe	Special Purpose Zone (Mining Exclusion) (IUCN VI)
South-west Corner	Special Purpose Zone (Mining Exclusion) (IUCN VI)
South-west Corner	Special Purpose Zone (Mining Exclusion) (IUCN VI)

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Arpenteur	Nature Reserve	WA
Bald Island	Nature Reserve	WA
Bold Park	Botanic Gardens	WA
Broadwater	Nature Reserve	WA
Cape Le Grand	National Park	WA

Protected Area Name	Reserve Type	State
Carnac Island	Nature Reserve	WA
Cottesloe Reef	Fish Habitat Protection Area	WA
D'Entrecasteaux	National Park	WA
Doubtful Islands	Nature Reserve	WA
Eclipse Island	Nature Reserve	WA
Fitzgerald River	National Park	WA
Flinders Bay	Nature Reserve	WA
Hamelin Island	Nature Reserve	WA
Investigator Island	Nature Reserve	WA
Jerdacuttup Lakes	Nature Reserve	WA
Leeuwin-Naturaliste	National Park	WA
Locke	Nature Reserve	WA
Marmion	Marine Park	WA
Mount Manypeaks	Nature Reserve	WA
Ngari Capes	Marine Park	WA
NTWA Bushland covenant (0085A)	Conservation Covenant	WA
NTWA Bushland covenant (0085B)	Conservation Covenant	WA
NTWA Bushland covenant (0173)	Conservation Covenant	WA
NTWA Bushland covenant (0178)	Conservation Covenant	WA
Penguin Island	Conservation Park	WA
Port Kennedy Scientific Park	Nature Reserve	WA
Quagering	Nature Reserve	WA
Quarram	Nature Reserve	WA
Recherche Archipelago	Nature Reserve	WA
Rottnest Island	State Reserve	WA
Shoalwater Bay Islands	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Shoalwater Islands	Marine Park	WA
St Alouarn Island	Nature Reserve	WA
Stokes	National Park	WA
Sugar Loaf Rock	Nature Reserve	WA
Swan River	Management Area	WA
Torndirrup	National Park	WA
Two Peoples Bay	Nature Reserve	WA
Unnamed WA25836	Nature Reserve	WA
Unnamed WA26620	Nature Reserve	WA
Unnamed WA26885	Nature Reserve	WA
Unnamed WA27888	Nature Reserve	WA
Unnamed WA32478	5(1)(h) Reserve	WA
Unnamed WA41568	Nature Reserve	WA
Unnamed WA41597	Nature Reserve	WA
Unnamed WA42379	5(1)(h) Reserve	WA
Unnamed WA42469	Nature Reserve	WA
Unnamed WA42879	Nature Reserve	WA
Unnamed WA43903	Nature Reserve	WA
Unnamed WA44004	Nature Reserve	WA
Unnamed WA44676	5(1)(h) Reserve	WA
Unnamed WA44685	5(1)(h) Reserve	WA
Unnamed WA44709	5(1)(h) Reserve	WA
Unnamed WA48837	Nature Reserve	WA
Unnamed WA48955	5(1)(h) Reserve	WA
Unnamed WA48968	5(1)(h) Reserve	WA
Unnamed WA49220	Conservation Park	WA
Unnamed WA49385	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Unnamed WA50017	Nature Reserve	WA
Walpole-Nornalup	National Park	WA
Waychinicup	National Park	WA
West Cape Howe	National Park	WA
Yalgorup	National Park	WA

Regional Forest Agreements [\[Resource Information \]](#)

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State
South West WA RFA	Western Australia

Nationally Important Wetlands [\[Resource Information \]](#)

Wetland Name	State
Becher Point Wetlands	WA
Doggerup Creek System	WA
Rottnest Island Lakes	WA
Swan-Canning Estuary	WA
Vasse-Wonnerup Wetland System	WA

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status
Fremantle District Police Complex Project	2022/09345		Completed
H2Perth hydrogen and ammonia project	2023/09559		Completed
Installation of additional potable water tank	2023/09518		Assessment
Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia West	2024/09826		Referral Decision
WA Offshore Windfarm	2021/8961		Completed
Controlled action			
Aerial Application of Lavicide to Vasse-Wonnerup Wetlands	2010/5593	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Airborne sonar trials	2001/540	Controlled Action	Completed
Albany Port Authority dredging project	2006/2540	Controlled Action	Post-Approval
All weather access track road between Windy Harbour and Nelson Location 7965	2011/6121	Controlled Action	Post-Approval
Busselton Foreshore Redevelopment from West Street to Ford Road	2013/6830	Controlled Action	Post-Approval
Cape View Resort at Lot 190 Little Colin Street	2006/3070	Controlled Action	Post-Approval
Construction of a Deepwater, General Container Port	2009/5178	Controlled Action	Proposed Decision
Construction of New Perth Bunbury Highway project	2005/2193	Controlled Action	Post-Approval
Dawson Beach Estate Stage 2	2005/2153	Controlled Action	Post-Approval
Development Guide Plan for 46 ha Residential Subdivision	2008/4102	Controlled Action	Post-Approval
Development of Busselton Health Campus	2011/6011	Controlled Action	Post-Approval
Development of Kwinana Quay port facility	2008/4387	Controlled Action	Completed
Develop Trails and a Wetlands Demonstration Site and Centre	2008/4439	Controlled Action	Post-Approval
Eastern Link Project, Busselton WA	2018/8155	Controlled Action	Post-Approval
Industry Zone	2010/5337	Controlled Action	Post-Approval
Lennox Weir Removal, 12kms west Busselton	2021/8915	Controlled Action	Assessment Approach
Lower Vasse River Sediment Removal	2021/9051	Controlled Action	Post-Approval
Mangles Bay Marina Based Tourist Precinct	2010/5659	Controlled Action	Post-Approval
Neighbourhood Shopping Centre and Mixed Business Centre, Ocean Road, Dawesville	2006/3155	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Old Broadwater Farm Estate Subdivision - Stage 3	2009/5231	Controlled Action	Post-Approval
Peel's Retreat Estate - Residential development	2006/3063	Controlled Action	Post-Approval
Peppermint Park Residential Subdivision - Stage 5	2008/4028	Controlled Action	Post-Approval
Point Grey Marina Project	2010/5515	Controlled Action	Post-Approval
Point Grey Residential Development - Terrestrial Component	2011/5825	Controlled Action	Post-Approval
Ravensthorpe Nickel Project	2001/172	Controlled Action	Post-Approval
Residential Development, Lot 3 & 4 Dorsett Street	2006/2774	Controlled Action	Completed
Residential development Lot 3, 500 Bussell Highway, WA	2013/7098	Controlled Action	Post-Approval
Residential development Lots 8 & 9 King Street	2006/2787	Controlled Action	Completed
retirement units & aged care facility development	2007/3533	Controlled Action	Post-Approval
Shark Hazard Mitigation Drum Line Program, WA	2014/7174	Controlled Action	Completed
Shenton Park Subdivision	2004/1479	Controlled Action	Completed
Smiths Beach Project, Yallingup - Coastal Tourism Village	2021/9141	Controlled Action	Referral Publication
Southern Bluefin Tuna Farm	2005/2165	Controlled Action	Completed
Subdivision Lot 1 Dawesville Rd	2005/2394	Controlled Action	Post-Approval
Three Turning Pockets West of Busselton Townsite	2002/846	Controlled Action	Post-Approval
Tourism Villa Facility Development	2008/4025	Controlled Action	Post-Approval
tourist and residential development	2007/3483	Controlled Action	Post-Approval
Upgrade of Ford Road	2005/2113	Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Urban development, multiple lots Northerly Street, Vasse, WA	2019/8494	Controlled Action	Assessment Approach
Vasse Diversion Drain Upgrade	2017/7932	Controlled Action	Post-Approval
Warders Hotel, Block 1 Warders Cottages, Fremantle, WA	2018/8144	Controlled Action	Post-Approval
Not controlled action			
'Looping 10' gas transmission pipeline from Kwinana to Hopelands	2005/2212	Not Controlled Action	Completed
25 Lot Residential Subdivision	2009/4830	Not Controlled Action	Completed
Aerial application of mosquito larvicides to Vasse Wonnerup Wetlands, WA	2016/7780	Not Controlled Action	Completed
APX-West Fibre-optic telecommunications cable system, WA to Singapore	2013/7102	Not Controlled Action	Completed
Bushfire Mitigation Works - City of Mandurah	2020/8674	Not Controlled Action	Completed
Busselton to Flinders Bay Rails to Trails Project, WA	2013/6835	Not Controlled Action	Completed
Cape Naturaliste Road Shared Pathway, Dunsborough, WA	2018/8282	Not Controlled Action	Completed
Causeway Bridge Duplication, Busselton, WA	2018/8309	Not Controlled Action	Completed
Caves Road widening project between Dunsborough and Yallingup(20.3 -24.6 SLK), WA	2015/7475	Not Controlled Action	Completed
Clear Lot 503, 54 Ocean Road Dawesville, WA	2014/7375	Not Controlled Action	Completed
Construction and operation of an 8 turbine wind farm at Rous Head Harbour, Frema	2003/933	Not Controlled Action	Completed
Construction of Secret Harbour High School	2004/1489	Not Controlled Action	Completed
CTBT - Cape Leeuwin Hydroacoustic Station Proposal	2000/27	Not Controlled Action	Completed
Disposal of residential properties, Fremantle, WA	2019/8593	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Eastport canal estate development stage 5	2007/3737	Not Controlled Action	Completed
Establishment of a National Lifestyle Village	2011/6081	Not Controlled Action	Completed
Expansion of berthing facilities at Kwinana Bulk Terminal	2006/2509	Not Controlled Action	Completed
Expansion of existing Ammonium Nitrate Production Facility	2005/1941	Not Controlled Action	Completed
Expedition 369-Australian Cretaceous Climate and Tectonics, Australian EEZ waters	2017/7891	Not Controlled Action	Completed
Florida Estate Residential Subdivision Development Stage 13	2011/6045	Not Controlled Action	Completed
Florida North residential development, Lot 9008, Ocean Road, Dawesville, WA	2015/7462	Not Controlled Action	Completed
Fremantle Ports Inner Harbour Capital Dredging Proposal	2005/2477	Not Controlled Action	Completed
Gas-fired Power Station	2005/2213	Not Controlled Action	Completed
Geo-science Investigations	2005/2069	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed
Kennedy Bay urban development, Port Kennedy, WA	2014/7122	Not Controlled Action	Completed
Kennedy Park Estate Residential Development	2003/1044	Not Controlled Action	Completed
Kwinana Gas-Fired Power Station	2005/2101	Not Controlled Action	Completed
Limestone quarry expansion	2005/2268	Not Controlled Action	Completed
Limestone Quarry Expansion, Lots 3618 and 1794, Finn Road	2005/2332	Not Controlled Action	Completed
Lot 101 Mandurah Road, Madora Bay, WA	2012/6466	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Oman Australia Cable Installation, WA	2021/8922	Not Controlled Action	Completed
Oman Australia Cable - Marine Route Survey	2020/8731	Not Controlled Action	Completed
Palm Beach Caravan Park Redevelopment, Rockingham, WA	2013/6853	Not Controlled Action	Completed
Redevelopment of Lots 3 & 4, Kent Street	2007/3243	Not Controlled Action	Completed
Residential & Light Industrial Development, Vasse WA	2013/6932	Not Controlled Action	Completed
Residential development, Lot 42, Farmhouse Court, Bovell, WA	2014/7195	Not Controlled Action	Completed
Re-zoning of Land for Future Residential Development Purposes	2009/4908	Not Controlled Action	Completed
Rottnest Lodge Redevelopment	2019/8565	Not Controlled Action	Completed
Seismic Survey, Bremer Basin, Mentelle Basin and Zeewyck Sub-basin	2004/1700	Not Controlled Action	Completed
Sepia Depression Ocean Outlet Landline Duplication	2012/6248	Not Controlled Action	Completed
Vasse Hotel and Supermarket Redevelopment	2001/288	Not Controlled Action	Completed
Warders' Cottages Block 2 'W2'	2022/9148	Not Controlled Action	Completed
Warders' Cottages W2 minor works, Fremantle, WA	2018/8185	Not Controlled Action	Completed
Wind Farm development	2005/2105	Not Controlled Action	Completed
Not controlled action (particular manner)			
2D seismic survey	2007/3273	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey	2008/4493	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey Within WA-382-P	2007/3799	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Aerial Mosquito Spraying Vasse-Wonnerup System	2005/1952	Not Controlled Action (Particular Manner)	Post-Approval
Ambergate North Residential Development	2009/4802	Not Controlled Action (Particular Manner)	Post-Approval
Arcadia Petroleum - BR12 3D Marine Seismic Survey	2012/6476	Not Controlled Action (Particular Manner)	Post-Approval
Australian Underwater Discovery Centre	2021/9019	Not Controlled Action (Particular Manner)	Post-Approval
Australia to Singapore Fibre Optic Submarine Cable System	2011/6127	Not Controlled Action (Particular Manner)	Post-Approval
Bremer Basin 2D Marine Seismic Survey, WA	2009/5013	Not Controlled Action (Particular Manner)	Post-Approval
CETO 6 Garden Island Project, offshore WA	2016/7635	Not Controlled Action (Particular Manner)	Post-Approval
CETO 6 Geophysical and Geotechnical Surveys	2014/7408	Not Controlled Action (Particular Manner)	Post-Approval
City of Cockburn Sporting Facilities	2005/2139	Not Controlled Action (Particular Manner)	Post-Approval
Construction of urea production plant and supporting infrastructure	2009/5067	Not Controlled Action (Particular Manner)	Post-Approval
Coodanup residential development	2006/3073	Not Controlled Action (Particular Manner)	Post-Approval
Extension of existing mains water supply pipeline	2009/4686	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Grand Southern Margin 2D Marine Seismic Survey	2008/4599	Not Controlled Action (Particular Manner)	Post-Approval
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval
Lake Richmond Boardwalk installation, Rockingham, WA	2013/6977	Not Controlled Action (Particular Manner)	Post-Approval
Laying a submarine optical fibre telecommunications cable, Perth to Singapore and Jakarta	2014/7332	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey	2012/6275	Not Controlled Action (Particular Manner)	Post-Approval
Monaghan's Roundabout Project - Intersection of Bussell Highway and Caves Road, Shire of Busselton	2007/3515	Not Controlled Action (Particular Manner)	Post-Approval
Multipurpose development stage 1 within 340ha	2004/1913	Not Controlled Action (Particular Manner)	Post-Approval
Novacare Lifestyle Village	2001/311	Not Controlled Action (Particular Manner)	Post-Approval
Road upgrades and walk trail development	2009/4958	Not Controlled Action (Particular Manner)	Post-Approval
South Busselton Primary School	2001/290	Not Controlled Action (Particular Manner)	Post-Approval
South West Metropolitan Railway Project	2003/1175	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Subdivision and development of residential dwelling on part Lot 1, Bussell Highw	2006/3023	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Marine Seismic survey	2007/3725	Referral Decision	Completed
3D Seismic Survey	2012/6245	Referral Decision	Completed
Ambergate North Residential Community (4896 lots)	2008/4617	Referral Decision	Completed
CO2 3D Seismic Survey Vlaming Sub-Basin	2012/6343	Referral Decision	Completed
Grand Southern Margin 2D Marine Seismic Survey	2008/4573	Referral Decision	Completed
Kennedy Bay Urban Development, Port Kennedy, Rockingham	2013/7022	Referral Decision	Completed
Lots 1-5 Bluerise Cove & Lots 801 & 124 Pleasant Grove Rezoning and Subdivision	2008/4295	Referral Decision	Completed
Narelle 3D Marine Seismic Survey	2008/4575	Referral Decision	Completed
Residential Subdivision Lot 801 Pleasant Grove Circle, Falcon, WA	2012/6507	Referral Decision	Referral Publication
Riverbank and Country Road Estates Lot 43 Bussell Highway	2005/2367	Referral Decision	Completed
Sonar Trials and Acoustic Trials	2001/538	Referral Decision	Completed
Water quality improvement trial, Lower Vasse River, Busselton, WA	2013/6975	Referral Decision	Completed

Key Ecological Features

[[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Albany Canyons group and adjacent shelf break	South-west
Ancient coastline at 90-120m depth	South-west
Cape Mentelle upwelling	South-west

Name	Region
Commonwealth marine environment surrounding the Recherche Archipelago	South-west
Commonwealth marine environment within and adjacent to Geographe Bay	South-west
Commonwealth marine environment within and adjacent to the west coast inshore lagoons	South-west
Diamantina Fracture Zone	South-west
Naturaliste Plateau	South-west
Perth Canyon and adjacent shelf break, and other west coast canyons	South-west
Western demersal slope and associated fish communities	South-west
Western rock lobster	South-west

Biologically Important Areas	[Resource Information]	
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Scientific Name	Behaviour	Presence
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Seabirds		
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Ardenna carneipes Flesh-footed Shearwater [82404]	Aggregation	Known to occur
Ardenna carneipes Flesh-footed Shearwater [82404]	Foraging (in high numbers)	Known to occur
Ardenna pacifica Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur
Ardenna tenuirostris Short-tailed Shearwater [82652]	Foraging (in high numbers)	Known to occur
Eudyptula minor Little Penguin [1085]	Foraging (provisioning young)	Known to occur
Hydroprogne caspia Caspian Tern [808]	Foraging (provisioning young)	Known to occur
Larus pacificus Pacific Gull [811]	Foraging (in high numbers)	Former Range

Scientific Name	Behaviour	Presence
Larus pacificus Pacific Gull [811]	Foraging (in high numbers)	Known to occur
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur
Onychoprion fuscata Sooty Tern [82847]	Foraging	Known to occur
Pelagodroma marina White-faced Storm petrel [1016]	Foraging (in high numbers)	Known to occur
Phalacrocorax fuscescens Black-faced Cormorant [59660]	Foraging	Known to occur
Pterodroma macroptera macroptera Great-winged Petrel (macroptera race) [1035]	Foraging (provisioning young)	Known to occur
Pterodroma mollis Soft-plumaged Petrel [1036]	Foraging (in high numbers)	Known to occur
Puffinus assimilis tunneyi Little Shearwater [59363]	Foraging (in high numbers)	Known to occur
Sterna dougallii Roseate Tern [817]	Foraging	Known to occur
Sternula nereis Fairy Tern [82949]	Foraging (in high numbers)	Known to occur
Thalassarche chlororhynchos bassi Indian Yellow-nosed Albatross [85249]	Foraging (in high numbers)	Known to occur
Seals		
Neophoca cinerea Australian Sea Lion [22]	Foraging (male)	Likely to occur

Scientific Name	Behaviour	Presence
Neophoca cinerea Australian Sea Lion [22]	Foraging (male and female)	Known to occur
Neophoca cinerea Australian Sea Lion [22]	Foraging (male and female)	Likely to occur
Sharks		
Carcharodon carcharias White Shark [64470]	Foraging	Known to occur
Whales		
Balaenoptera musculus Blue and Pygmy Blue Whale [36]	Foraging (abundant food source)	Known to occur
Balaenoptera musculus Blue and Pygmy Blue Whale [36]	Foraging (high density)	Known to occur
Balaenoptera musculus Blue and Pygmy Blue Whale [36]	Foraging (on migration)	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging Area (annual high use area)	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Known Foraging Area	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north)	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Scientific Name	Behaviour	Presence
Megaptera novaeangliae Humpback Whale [38]	Migration (south)	Known to occur
Physeter macrocephalus Sperm Whale [59]	Foraging (abundant food source)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111

APPENDIX B. SUPPORTING FIGURES FOR SECTION 2.3 METEOROLOGY AND OCEANOGRAPHY

Browse

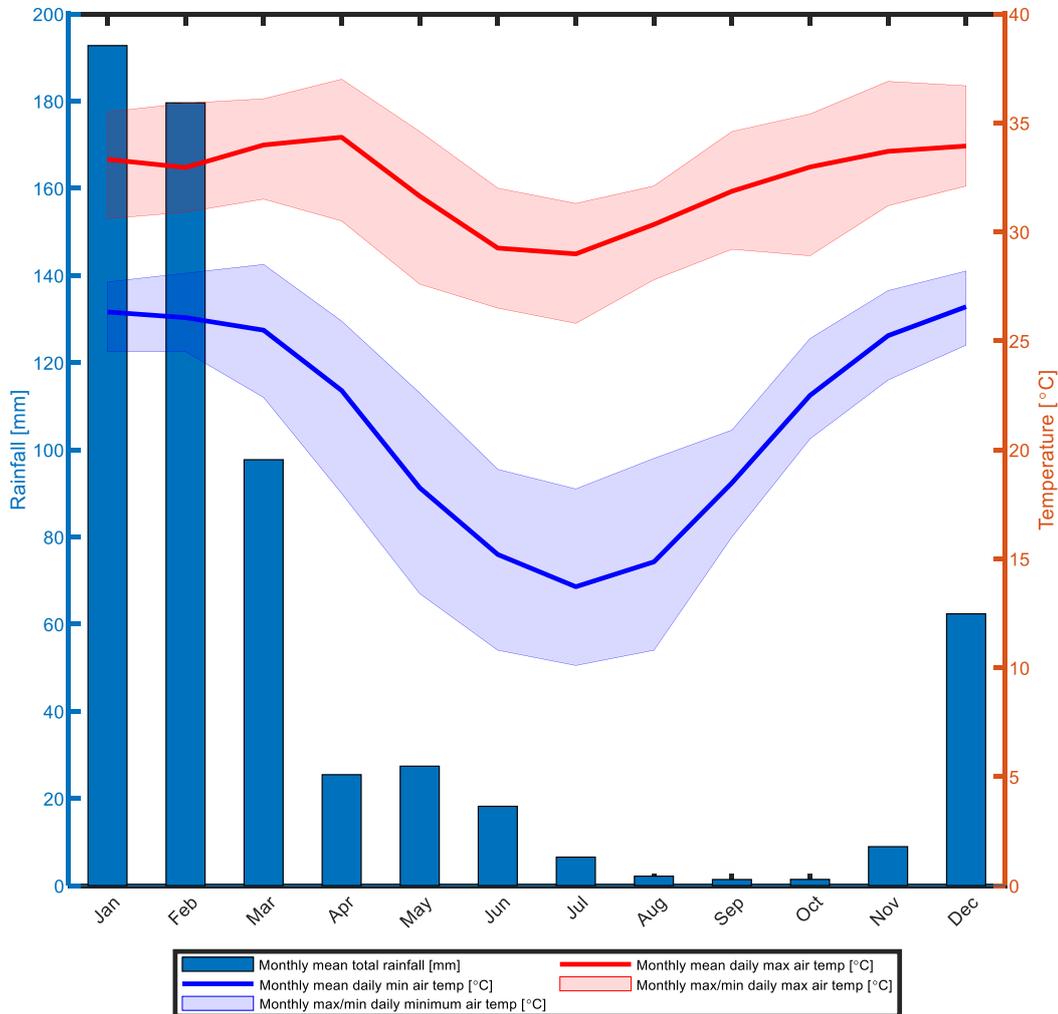
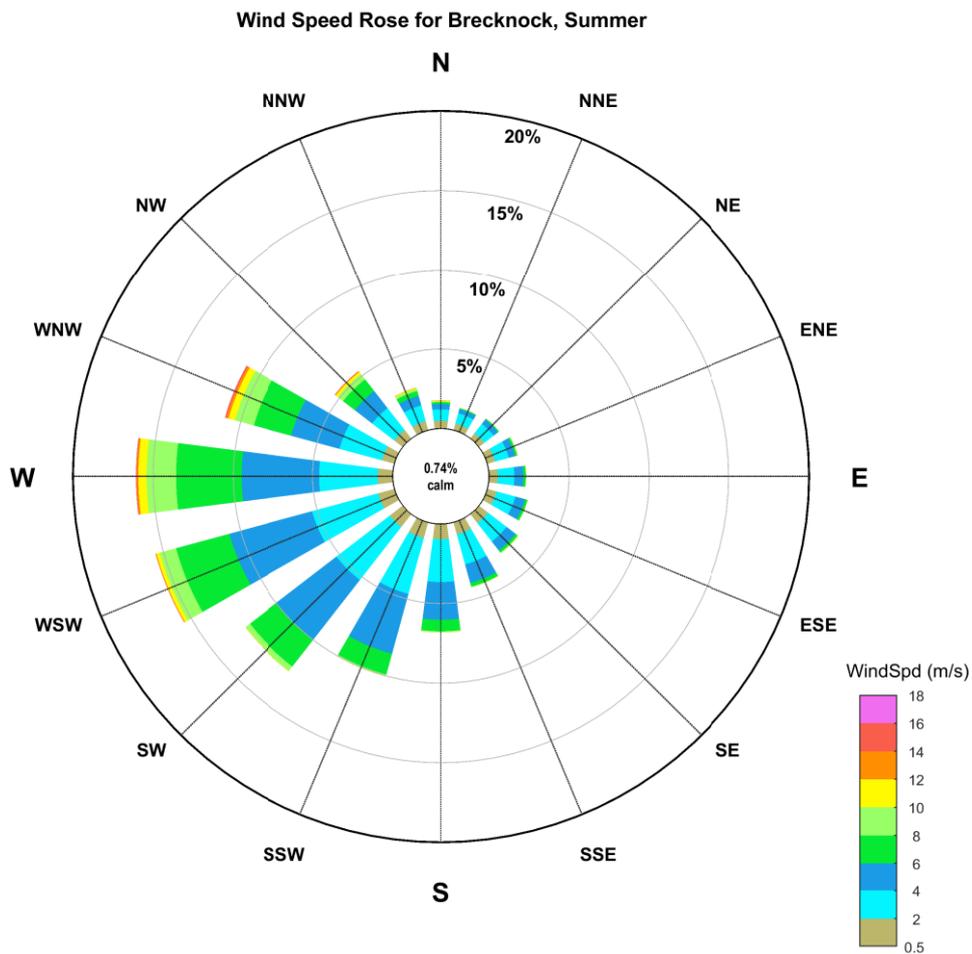


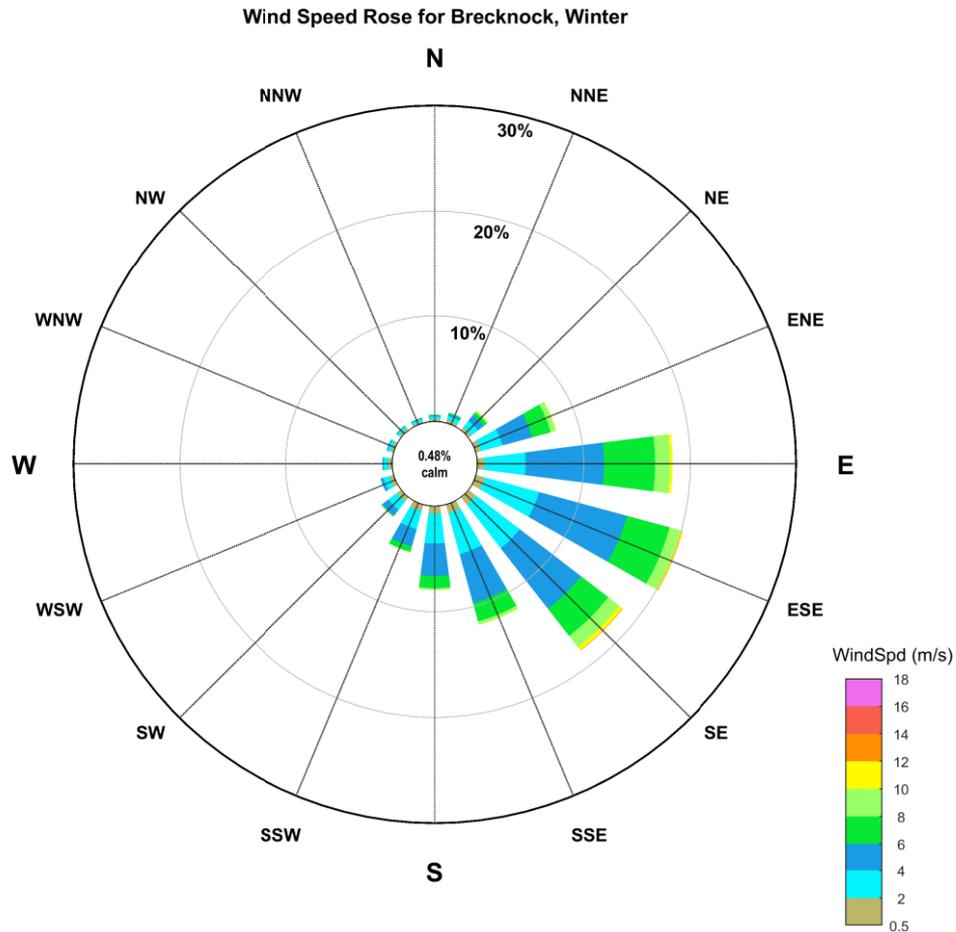
Figure 1. Monthly average total rainfall [mm] and air temperature [°C], calculated based on observations at the Broome Airport weather station from 1939-2020 (Bureau of Meteorology 2020). Bars show the monthly average total rainfall values, and thick blue and red lines denote monthly average daily minimum and maximum air temperatures, respectively. Shaded blue and red areas denote monthly recorded extremes of daily minimum and maximum air temperature, respectively.



<p>Data Information: Project: Browse Location: Brecknock [121.6500°E, 14.5300°S] Data Period: Summer (01-Jan-1979 to 01-Jan-2019) Data Source: Modelled Hindcast Record Elevation: 10 m AMSL Local Water Depth (m): 560 Data Summary: Summer Number of Records: 164812 Missing Data (%): 5.80 Calm (% < 0.50m/s): 0.74 Measurement Format: 10-minute avg.</p>	<p>Key Statistics for Data Shown: Max Wind Speed: 20.60 m/s Mean Wind Speed: 4.55 m/s StdDev. Wind Speed: 2.31 m/s</p>
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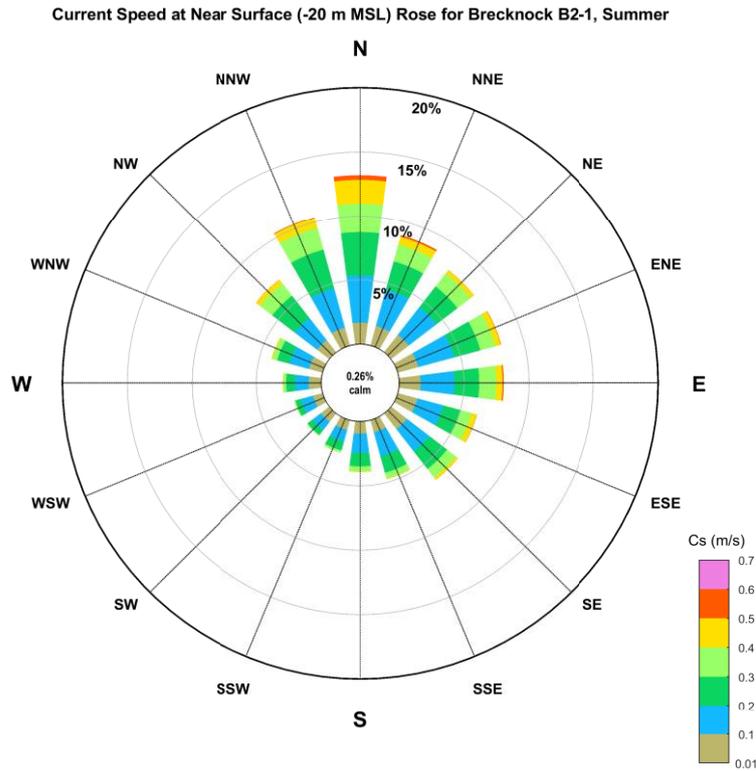


Figure 2. Summer distributions of 10-minute average wind speeds by 22.5° directional sectors at the Brecknock site (Metocean Solutions Ltd, 2019). Note tropical cyclone events were not included in this distribution. Winds at Brecknock in summer are predominantly from the WNW to SW due to the North West Monsoon (WEL, 2019).



<p>Data Information: Project: Browse Location: Brecknock [121.6500°E, 14.5300°S] Data Period: Winter (01-Apr-1979 to 30-Sep-2018) Data Source: Modelled Hindcast Record Elevation: 10 m AMSL Local Water Depth (m): 560 Data Summary: Winter Number of Records: 173751 Missing Data (%): 1.10 Calm (% < 0.50m/s): 0.48 Measurement Format: 10-minute avg.</p>	<p>Key Statistics for Data Shown: Max Wind Speed: 14.34 m/s Mean Wind Speed: 4.71 m/s StdDev. Wind Speed: 2.01 m/s</p>	
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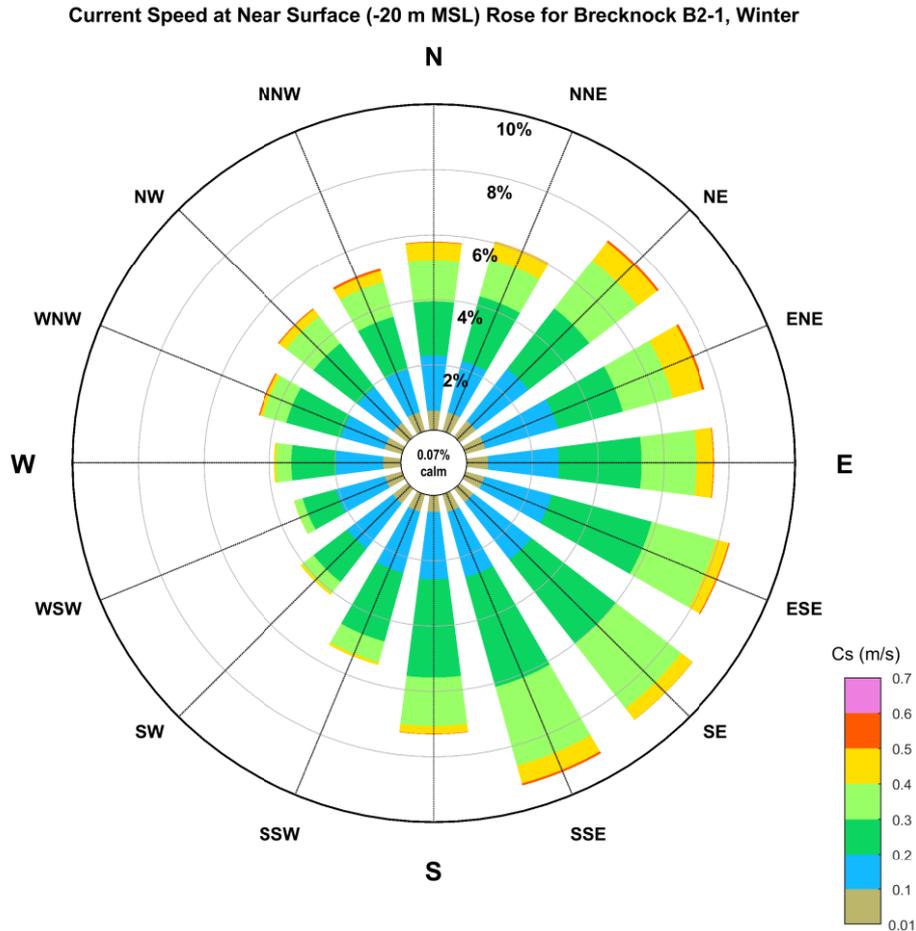
Figure 3. Winter distributions of 10-minute average wind speeds by 22.5° directional sectors at the Brecknock site (Metocean Solutions Ltd, 2019). Note tropical cyclone events were not included in this distribution. Winds at Brecknock in winter are predominantly from the E to SE due to the South East Trade Winds coming from the Australian mainland (WEL, 2019).



<p>Data Information: Project: Browse Location: Brecknock B2-1 [121.5700°E, 14.5100°S] Data Period: Summer (01-Oct-2006 to 31-Mar-2007) Data Source: CM04 Measured Record Elevation: Near Surface (-20 m MSL) Local Water Depth (m): 560 Data Summary: Summer Number of Records: 243472 Missing Data (%): 7.10 Calm (% < 0.01m/s): 0.26</p>	<p>Key Statistics for Data Shown: Max Curr Spd: 0.63 m/s Mean Curr Spd: 0.20 m/s StdDev. Curr Spd: 0.11 m/s</p>
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Figure 4. Summer (Nov-Apr) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at Brecknock B2-1 location (cyclones removed) (RPS Metocean Ltd. 2008).



<p>Data Information: Project: Browse Location: Brecknock B2-1 [121.5700°E, 14.5100°S] Data Period: Winter (17-Sep-2006 to 08-Sep-2007) Data Source: CM04 Measured Record Elevation: Near Surface (-20 m MSL) Local Water Depth (m): 560 Data Summary: Winter Number of Records: 246184 Missing Data (%): 1.46 Calm (% < 0.01m/s): 0.07</p>	<p>Key Statistics for Data Shown: Max Curr Spd: 0.62 m/s Mean Curr Spd: 0.24 m/s StdDev. Curr Spd: 0.10 m/s</p> <div style="text-align: right;">  </div>
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Figure 5. Winter (May-Sep) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at Brecknock B2-1 location (cyclones removed) (RPS Metocean Ltd. 2008).

North-west Shelf/Scarborough

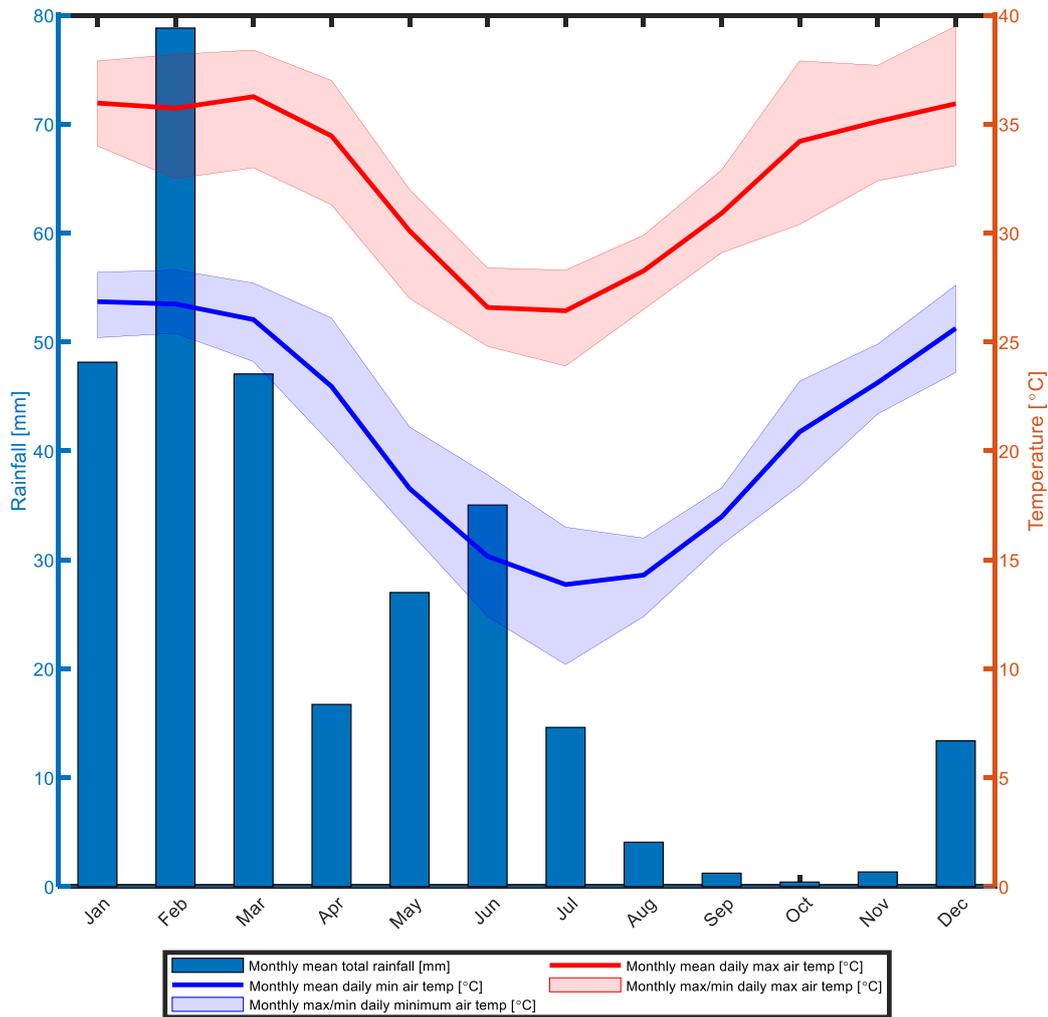
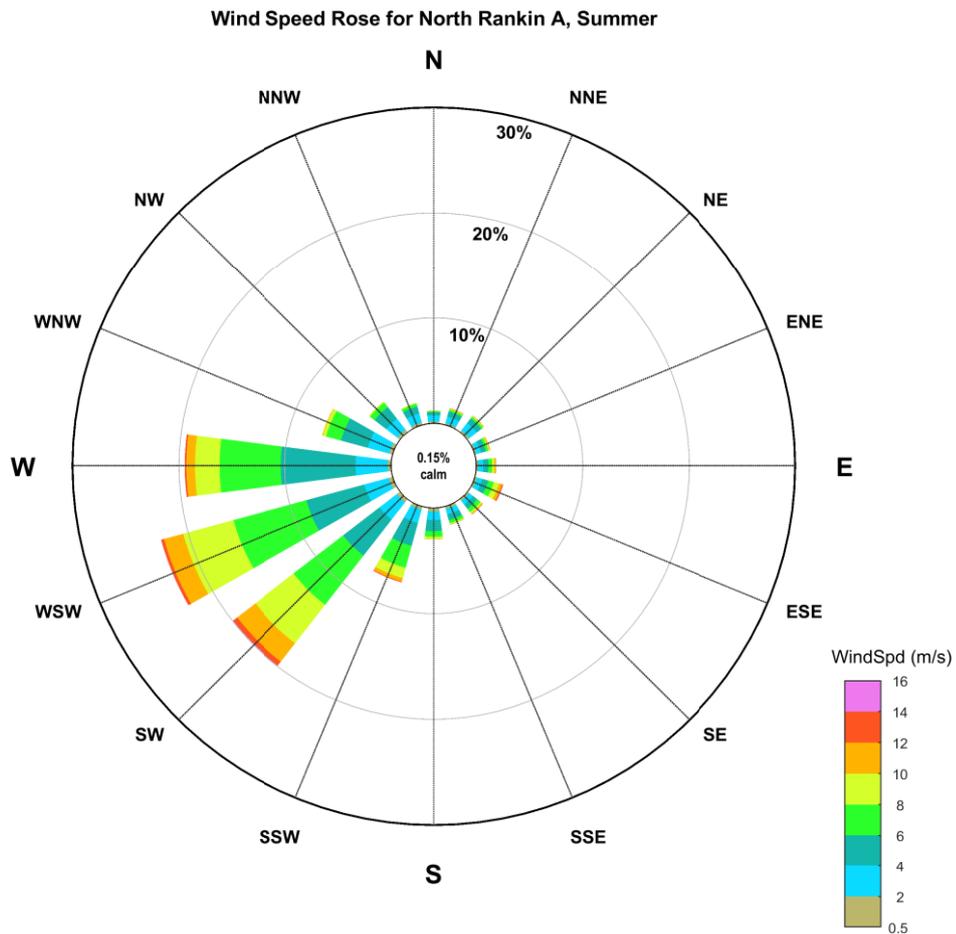
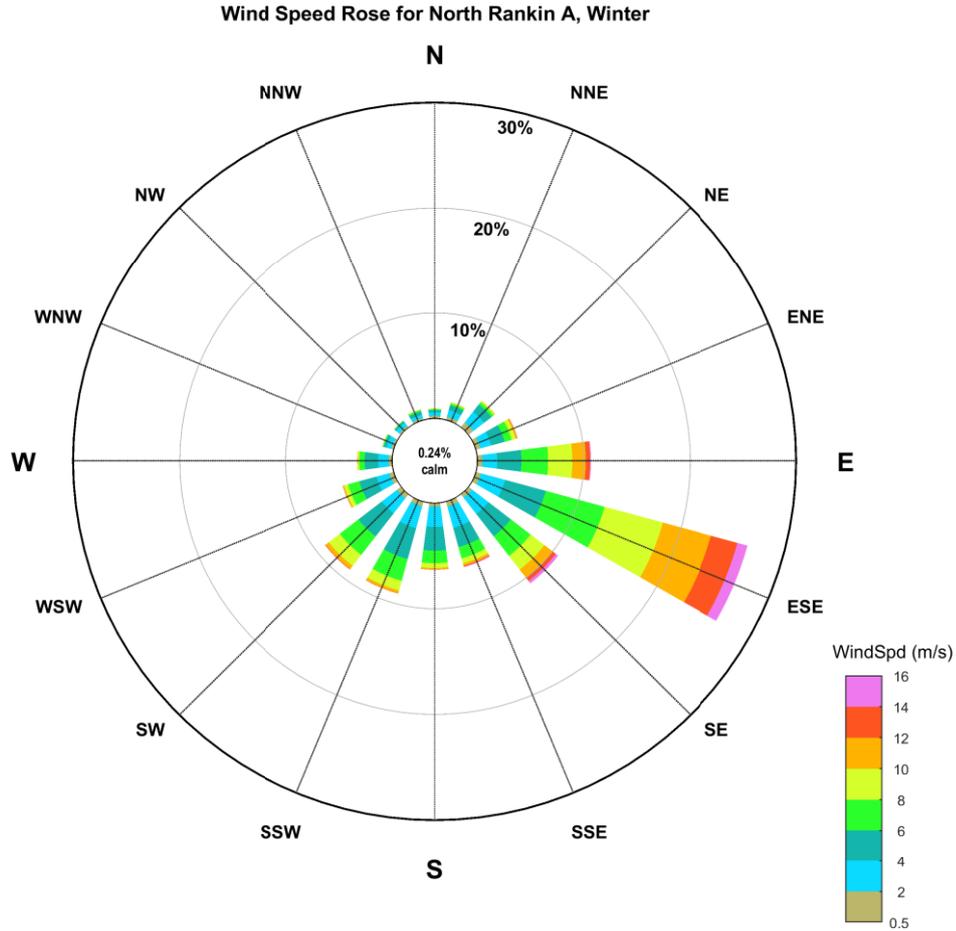


Figure 1. Monthly average total rainfall [mm] and air temperature [°C], calculated based on observations at the Karratha Aero weather station from 1972-2020 and 1993-2020 respectively (Bureau of Meteorology 2020). Bars show the monthly average total rainfall values, and thick blue and red lines denote monthly average daily minimum and maximum air temperatures, respectively. Shaded blue and red areas denote monthly recorded extremes of daily minimum and maximum air temperature, respectively.



<p>Data Information: Project: North West Shelf Location: North Rankin A [116.1200°E, 19.6100°S] Data Period: Summer (01-Oct-1995 to 30-Nov-2015) Data Source: Measured Winds Record Elevation: 10 m AMSL Local Water Depth (m): 125 Data Summary: Summer Number of Records: 674659 Missing Data (%): 7.24 Calm (% < 0.50m/s): 0.15 Measurement Format: 10-minute avg.</p>	<p>Key Statistics for Data Shown: Max Wind Speed: 18.50 m/s Mean Wind Speed: 6.04 m/s StdDev. Wind Speed: 2.55 m/s</p> 
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Figure 2. Summer distributions of 10-minute average wind speeds by 22.5° directional sectors at the North Rankin A site (WEL, 2015). Note tropical cyclone events were not included in this distribution. Winds at North Rankin A in summer are characterised by W to SW driven by the North West Monsoon (RPS, 2016).

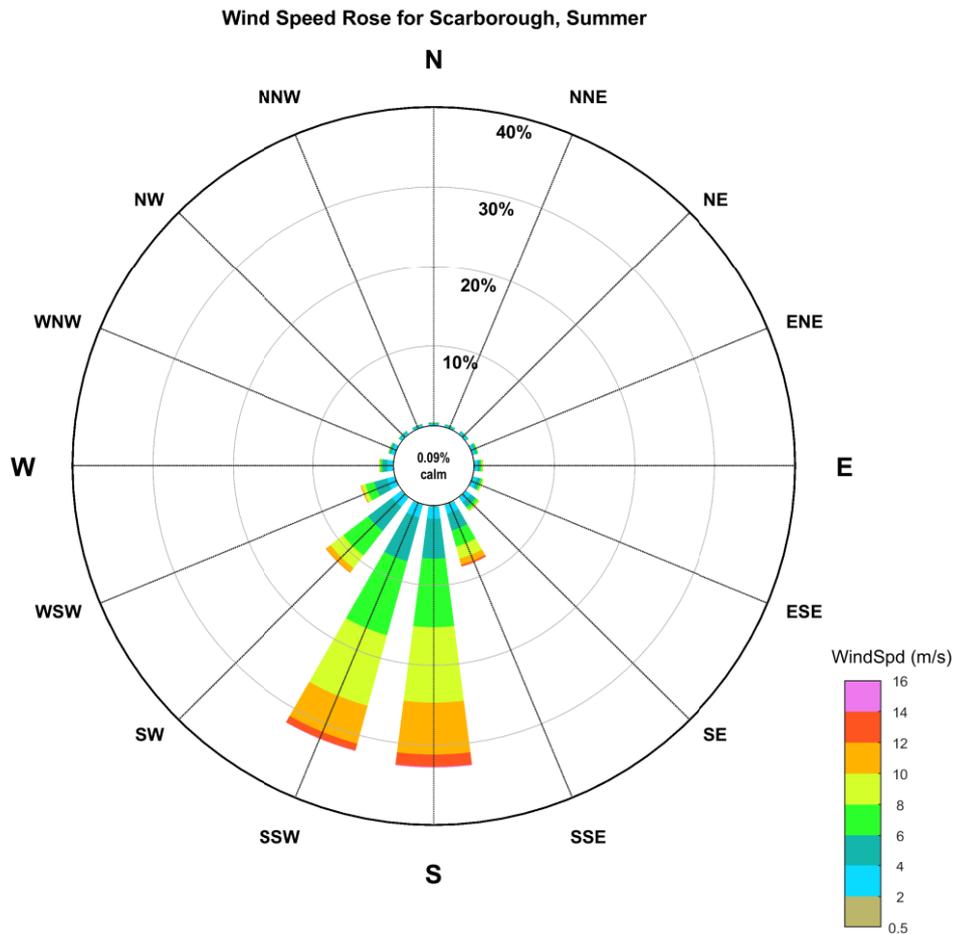


<p>Data Information: Project: North West Shelf Location: North Rankin A [116.1200°E, 19.6100°S] Data Period: Winter (22-Jun-1995 to 30-Sep-2015) Data Source: Measured Winds Record Elevation: 10 m AMSL Local Water Depth (m): 125 Data Summary: Winter Number of Records: 673213 Missing Data (%): 4.43 Calm (% < 0.50m/s): 0.24 Measurement Format: 10-minute avg.</p>	<p>Key Statistics for Data Shown: Max Wind Speed: 24.23 m/s Mean Wind Speed: 6.25 m/s StdDev. Wind Speed: 3.16 m/s</p>
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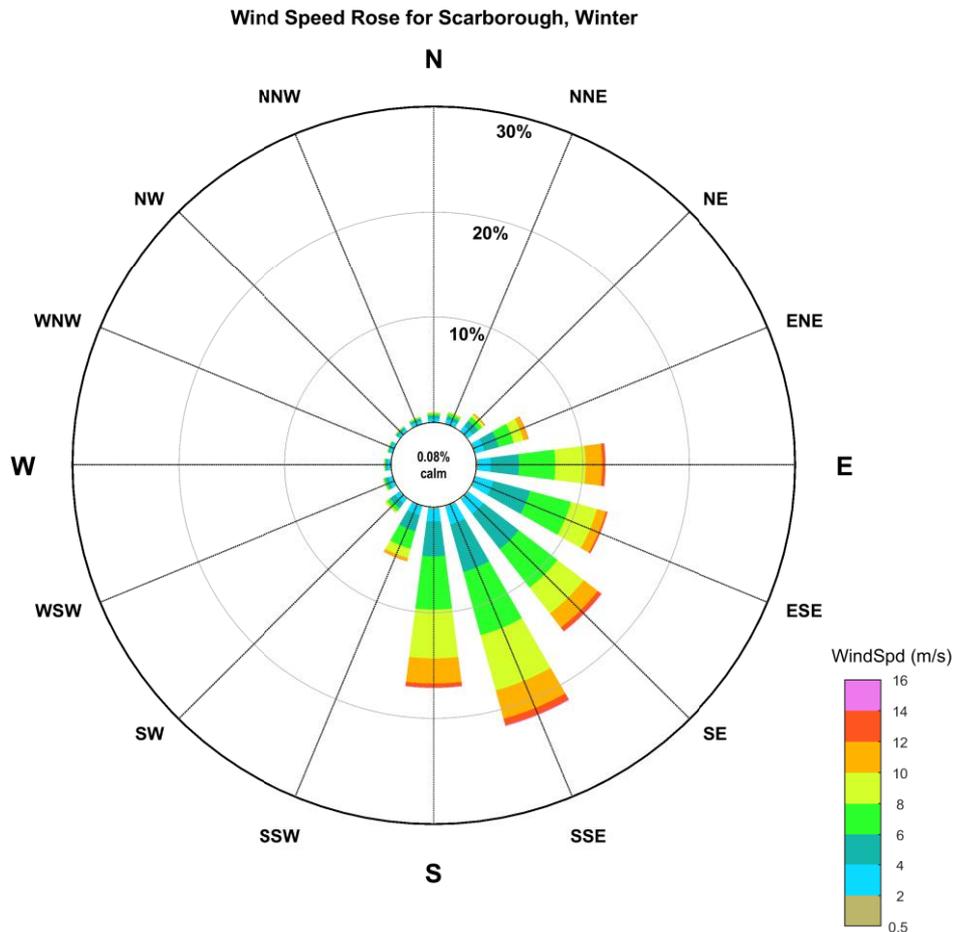
Figure 3. Winter distributions of 10-minute average wind speeds by 22.5° directional sectors at the North Rankin A site (WEL, 2015). Note tropical cyclone events were not included in this distribution. Winds at North Rankin in winter are predominantly influenced by the South East Trade Winds over Australia (RPS, 2016).

Scarborough



<p>Data Information: Project: North West Shelf Location: Scarborough [113.2000°E, 19.8800°S] Data Period: Summer (01-Jan-1979 to 01-Jan-2011) Data Source: CSFR Record Elevation: 10 m AMSL Local Water Depth (m): 950 Data Summary: Summer Number of Records: 129521 Missing Data (%): 7.46 Calm (% < 0.50m/s): 0.09 Measurement Format: 10-minute avg.</p>	<p>Key Statistics for Data Shown: Max Wind Speed: 16.75 m/s Mean Wind Speed: 7.23 m/s StdDev. Wind Speed: 2.64 m/s</p>	
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Figure 4. Summer distributions of wind speeds (10-minute at 10m ASL) by 22.5° directional sectors at the Scarborough site (WEL, 2018). Note tropical cyclone events were not included in this distribution. Winds at Scarborough in summer are predominantly from the S to SSW due to a Pilbara Heat Low forming over the northwest coast of Western Australia [R8] SW winds are also experienced at this site due to the monsoon trough.



<p>Data Information: Project: North West Shelf Location: Scarborough [113.2000°E, 19.8800°S] Data Period: Winter (01-Apr-1979 to 30-Sep-2010) Data Source: CSFR Record Elevation: 10 m AMSL Local Water Depth (m): 950 Data Summary: Winter Number of Records: 138863 Missing Data (%): 1.20 Calm (% < 0.50m/s): 0.08 Measurement Format: 10-minute avg.</p>	<p>Key Statistics for Data Shown: Max Wind Speed: 19.15 m/s Mean Wind Speed: 6.90 m/s StdDev. Wind Speed: 2.57 m/s</p>
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Figure 5. Winter distributions of wind speeds (10-minute at 10 m ASL) by 22.5° directional sectors at the Scarborough site (WEL, 2018). Note tropical cyclone events were not included in this distribution. Winds at Scarborough in winter are predominantly from the S to E driven by the South East Trade Winds over Australia (RPS, 2016).

North-west Shelf

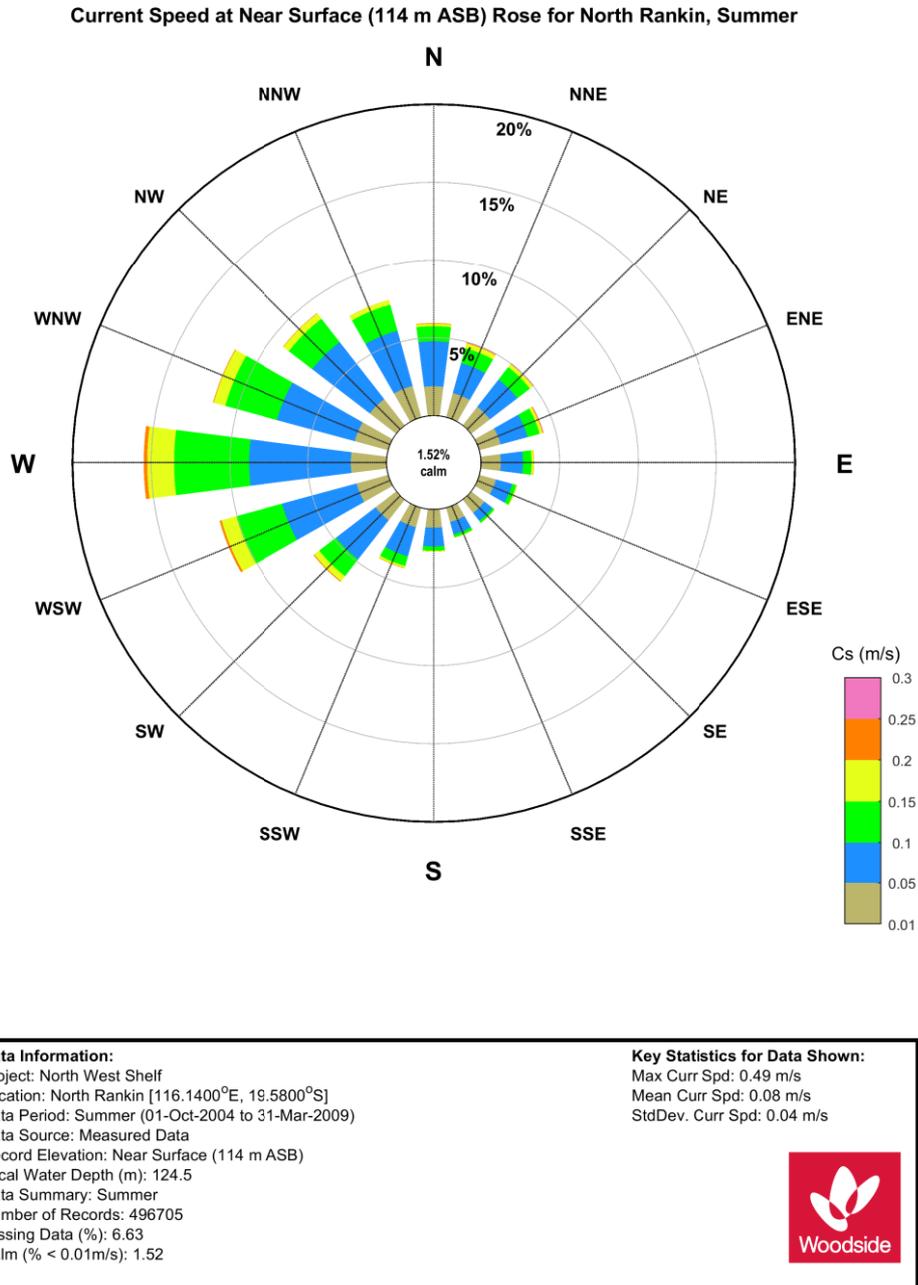
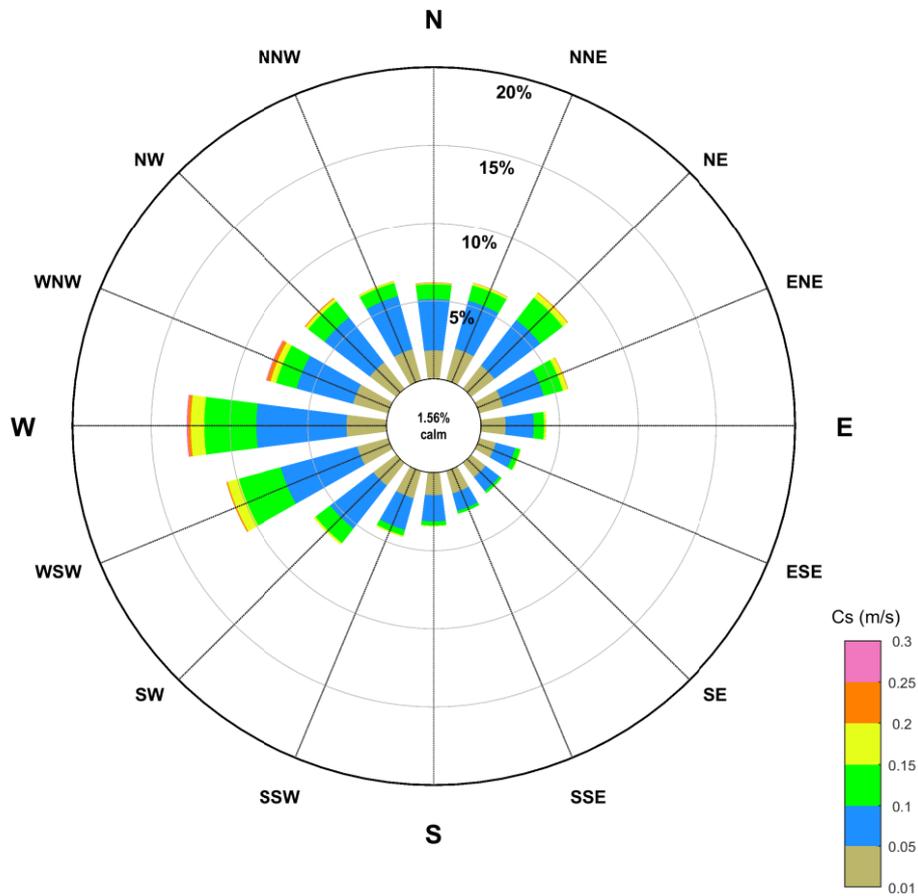


Figure 6. Summer (Nov-Apr) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the North Rankin location (cyclones removed) (WEL, 2011).

Current Speed at Near Surface (114 m ASB) Rose for North Rankin, Winter

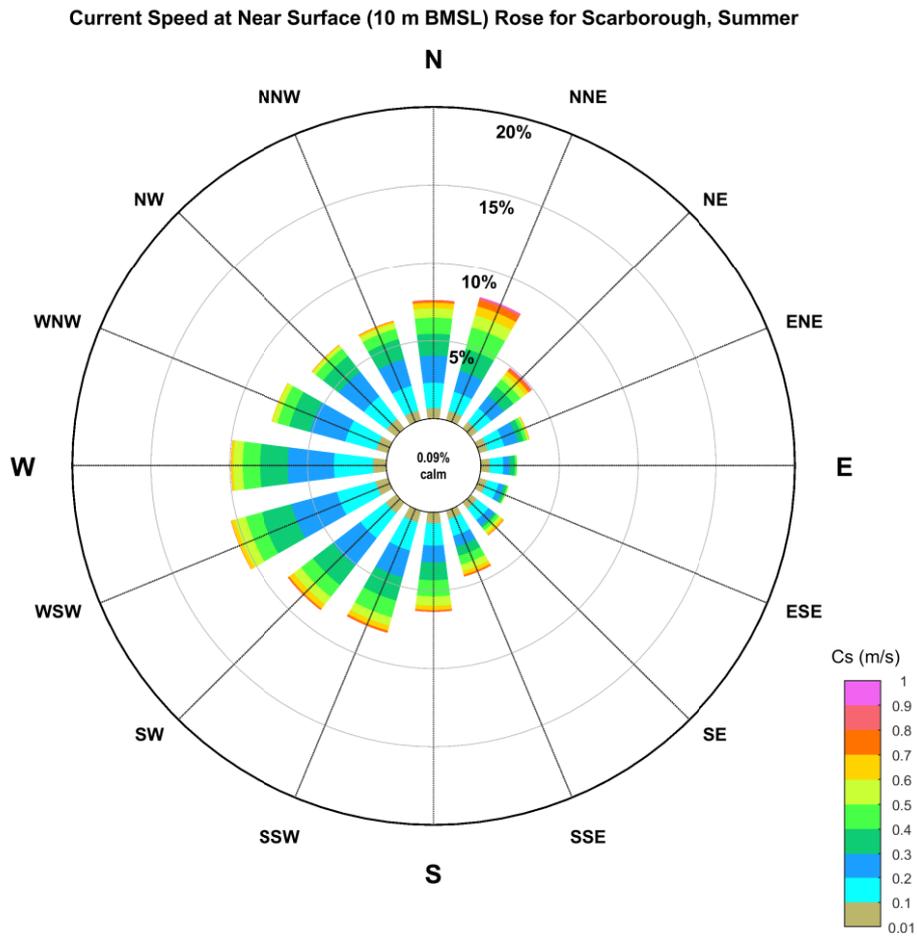


<p>Data Information: Project: North West Shelf Location: North Rankin [116.1400°E, 19.5800°S] Data Period: Winter (21-Sep-2004 to 08-May-2009) Data Source: Measured Data Record Elevation: Near Surface (114 m ASB) Local Water Depth (m): 124.5 Data Summary: Winter Number of Records: 337723 Missing Data (%): 0.88 Calm (% < 0.01m/s): 1.56</p>	<p>Key Statistics for Data Shown: Max Curr Spd: 0.32 m/s Mean Curr Spd: 0.07 m/s StdDev. Curr Spd: 0.04 m/s</p>
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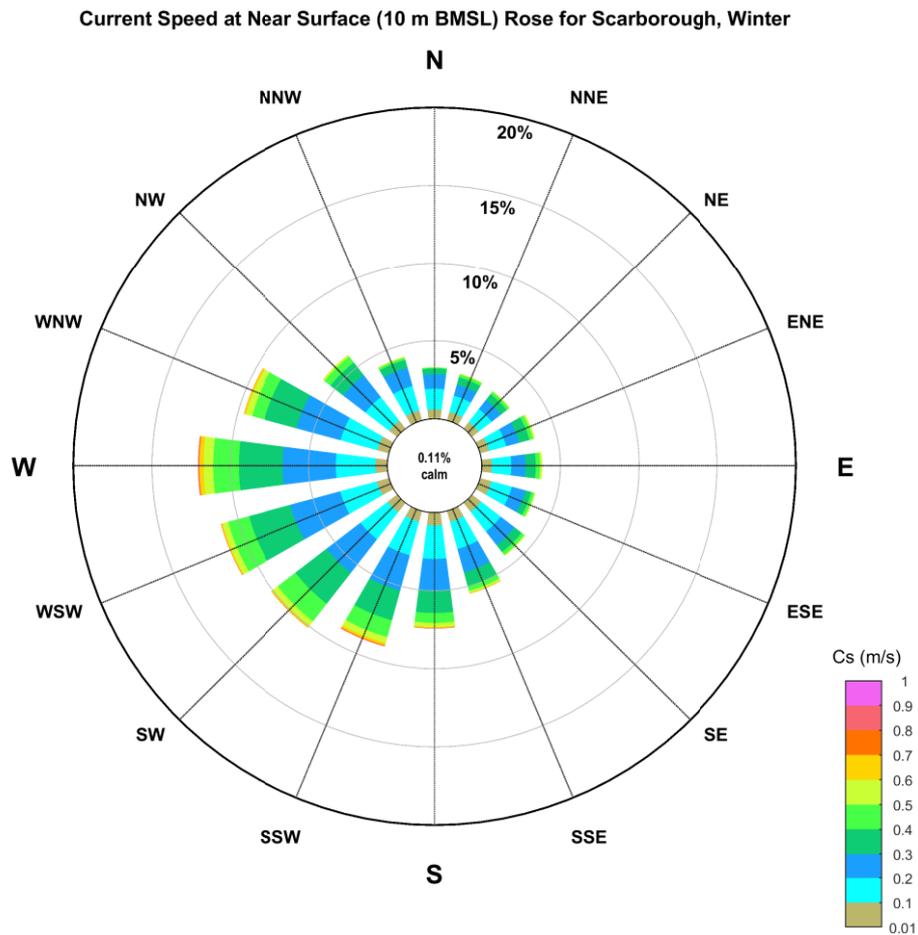
Figure 7. Winter (May-Sep) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the North Rankin location (cyclones removed) (WEL, 2011).

Scarborough



<p>Data Information: Project: North West Shelf Location: Scarborough [113.2000°E, 19.8800°S] Data Period: Summer (15-Jan-2010 to 29-Feb-2012) Data Source: Measured Data Record Elevation: Near Surface (10 m BMSL) Local Water Depth (m): 950 Data Summary: Summer Number of Records: 43600 Missing Data (%): 7.11 Calm (% < 0.01m/s): 0.09</p>	<p>Key Statistics for Data Shown: Max Curr Spd: 1.03 m/s Mean Curr Spd: 0.29 m/s StdDev. Curr Spd: 0.17 m/s</p> <div style="text-align: right;">  </div>
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Figure 8. Summer (Nov - April) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the Scarborough location (cyclones removed) (WEL, 2018).



<p>Data Information: Project: North West Shelf Location: Scarborough [113.2000°E, 19.8800°S] Data Period: Winter (01-Apr-2010 to 30-Sep-2011) Data Source: Measured Data Record Elevation: Near Surface (10 m BMSL) Local Water Depth (m): 950 Data Summary: Winter Number of Records: 49345 Missing Data (%): 3.01 Calm (% < 0.01m/s): 0.11</p>	<p>Key Statistics for Data Shown: Max Curr Spd: 1.03 m/s Mean Curr Spd: 0.25 m/s StdDev. Curr Spd: 0.13 m/s</p> <div style="text-align: right;">  </div>
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Figure 9. Winter (May-Sep) near surface combined frequency of 1-min mean current speed and direction (towards) measured at the Scarborough location (cyclones removed) (WEL, 2018).

North-west Cape

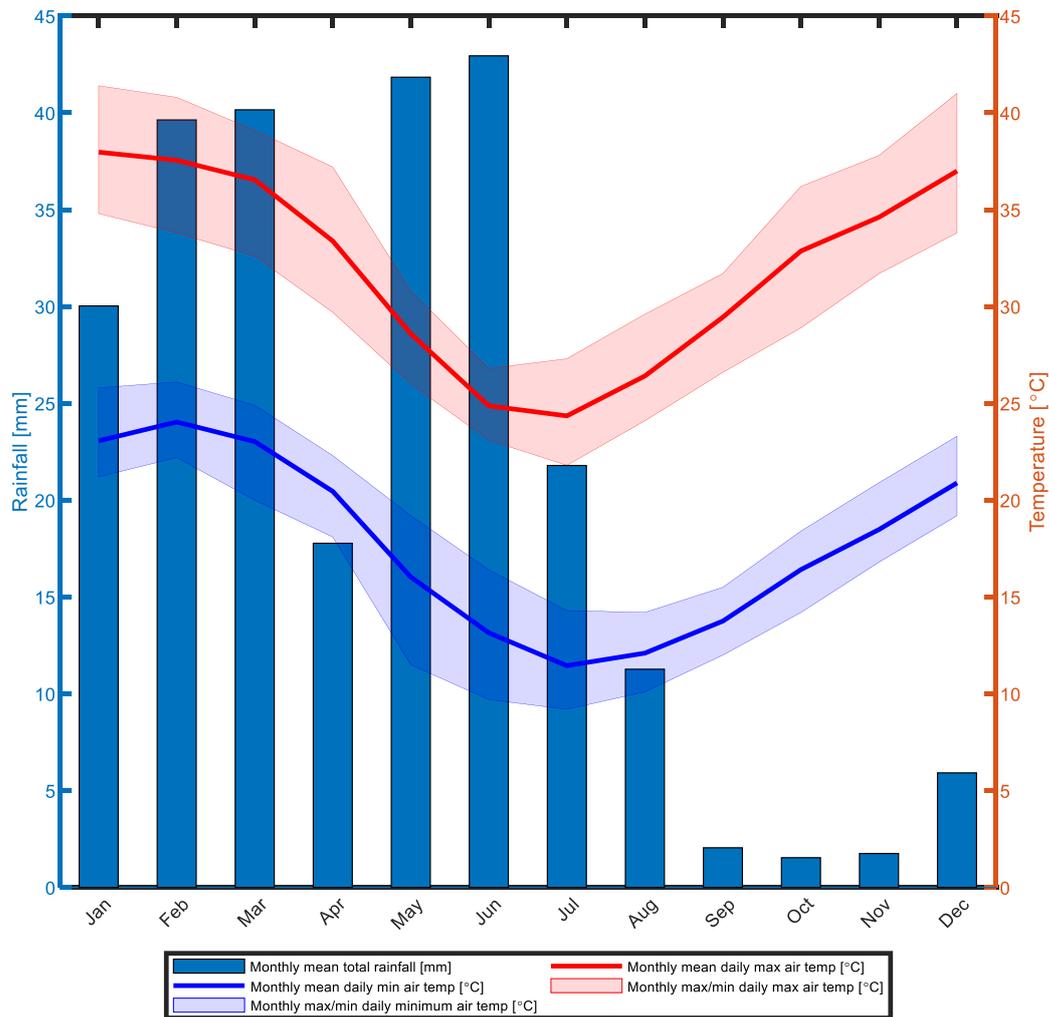
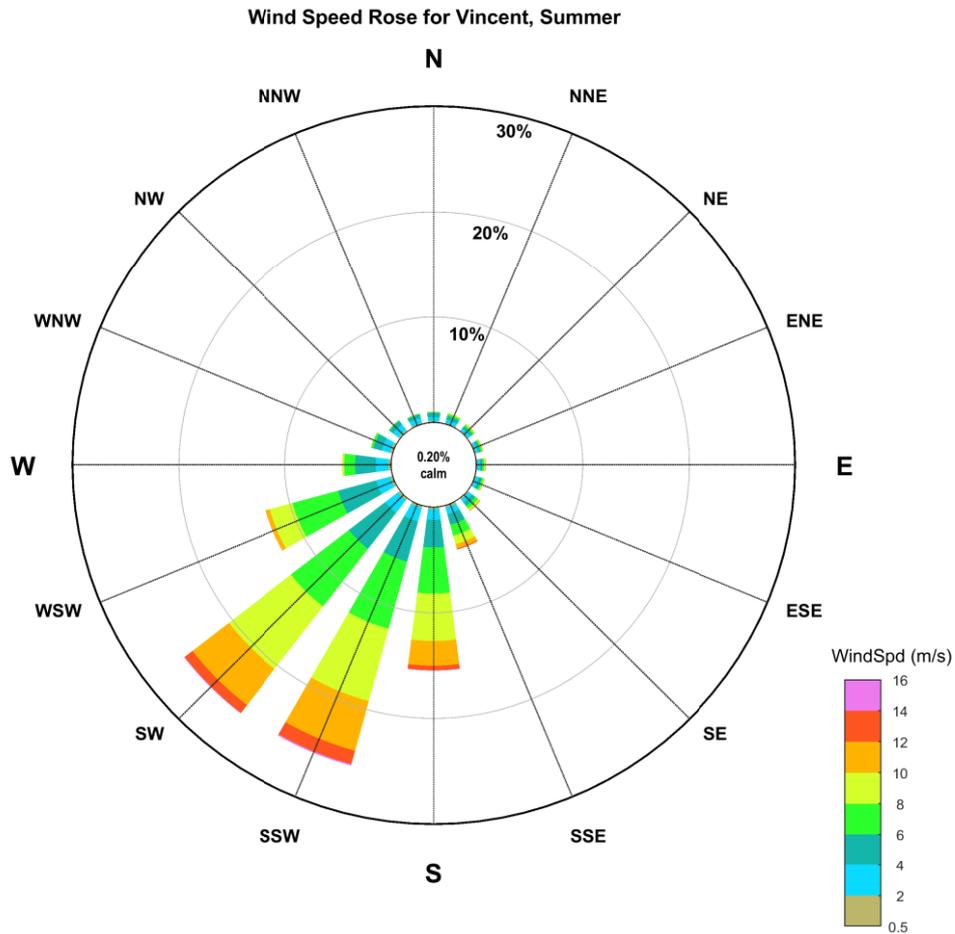


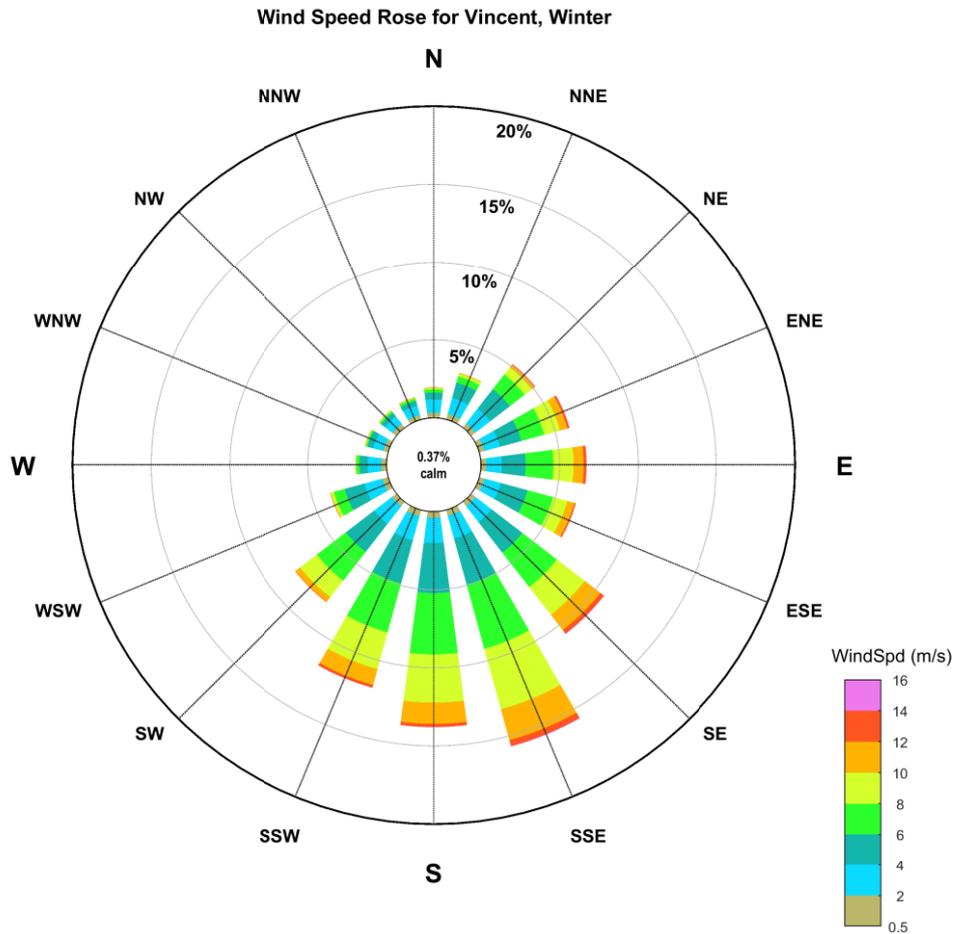
Figure 1. Monthly average total rainfall [mm] and air temperature [°C], calculated based on observations at the Learmonth Airport weather station from 1945-2020 and 1975-2020 respectively (Bureau of Meteorology 2020). Bars show the monthly average total rainfall values, and thick blue and red lines denote monthly average daily minimum and maximum air temperatures, respectively. Shaded blue and red areas denote monthly recorded extremes of daily minimum and maximum air temperature, respectively.



<p>Data Information: Project: North West Cape Location: Vincent [114.0600°E, 21.4400°S] Data Period: Summer (01-Jan-1979 to 01-Jan-2019) Data Source: Modelled Hindcast Record Elevation: 10 m AMSL Local Water Depth (m): 350 Data Summary: Summer Number of Records: 159379 Missing Data (%): 8.91 Calm (% < 0.50m/s): 0.20 Measurement Format: 10-minute avg.</p>	<p>Key Statistics for Data Shown: Max Wind Speed: 18.86 m/s Mean Wind Speed: 7.10 m/s StdDev. Wind Speed: 2.75 m/s</p>
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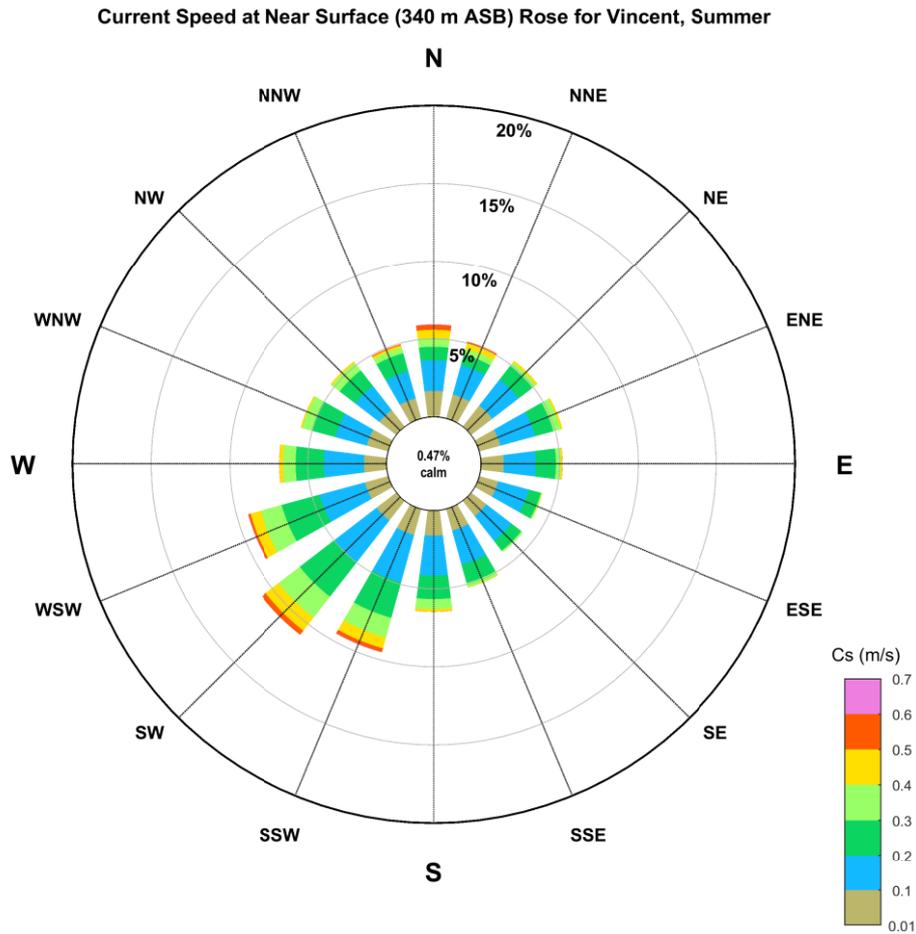


Figure 2. Summer distributions of wind speeds (10-minute at 10 m ASL) by 22.5° directional sectors at the Vincent site (Vincent MetOcean). Note tropical cyclone events were not included in this distribution. Winds at Vincent in summer are predominantly from the SW to SSW in summer due to the presence of the Pilbara Heat Low (MetOcean Engineers, 2005).



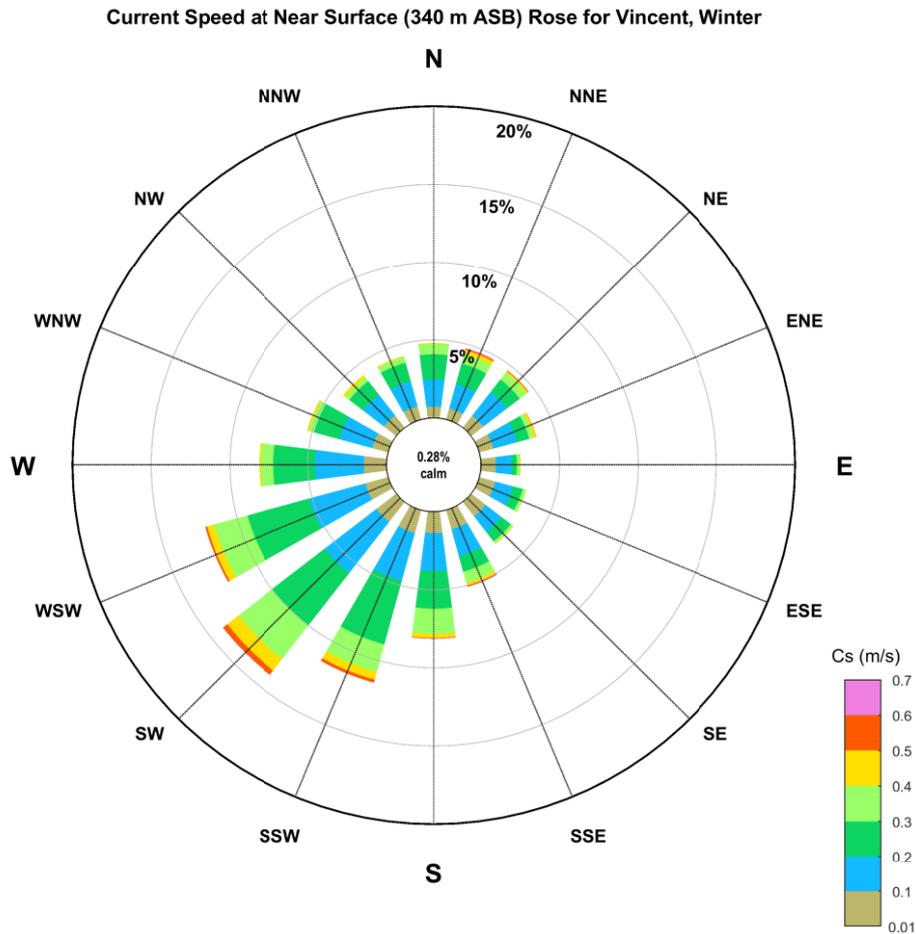
<p>Data Information: Project: North West Cape Location: Vincent [114.0600°E, 21.4400°S] Data Period: Winter (01-Apr-1979 to 30-Sep-2018) Data Source: Modelled Hindcast Record Elevation: 10 m AMSL Local Water Depth (m): 350 Data Summary: Winter Number of Records: 173626 Missing Data (%): 1.17 Calm (% < 0.50m/s): 0.37 Measurement Format: 10-minute avg.</p>	<p>Key Statistics for Data Shown: Max Wind Speed: 19.39 m/s Mean Wind Speed: 6.23 m/s StdDev. Wind Speed: 2.78 m/s</p> 
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Figure 3. Winter distributions of wind speeds (10-minute at 10 m ASL) 22.5° directional sectors at the Vincent site (Vincent Metocean). Note tropical cyclone events were not included in this distribution. In winter, winds at are predominantly from the S to SE, associated with the South East Trades. Easterly gales are experienced at the Vincent location due to high pressure systems generating from the Great Australian Bight area to the site (MetOcean Engineers, 2005).



<p>Data Information: Project: North West Cape Location: Vincent [114.0600°E, 21.4400°S] Data Period: Summer (21-Nov-2000 to 13-Dec-2001) Data Source: Measured Data Record Elevation: Near Surface (340 m ASB) Local Water Depth (m): 350 Data Summary: Summer Number of Records: 144668 Missing Data (%): 1.59 Calm (% < 0.01m/s): 0.47</p>	<p>Key Statistics for Data Shown: Max Curr Spd: 0.75 m/s Mean Curr Spd: 0.19 m/s StdDev. Curr Spd: 0.11 m/s</p>

Figure 4. Summer (May – Sep) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the Vincent location (cyclones removed) (WEL, 2016).



<p>Data Information: Project: North West Cape Location: Vincent [114.0600°E, 21.4400°S] Data Period: Winter (01-Apr-2001 to 30-Sep-2001) Data Source: Measured Data Record Elevation: Near Surface (340 m ASB) Local Water Depth (m): 350 Data Summary: Winter Number of Records: 126313 Missing Data (%): 4.13 Calm (% < 0.01m/s): 0.28</p>	<p>Key Statistics for Data Shown: Max Curr Spd: 0.64 m/s Mean Curr Spd: 0.20 m/s StdDev. Curr Spd: 0.11 m/s</p> <div style="text-align: right; margin-top: 10px;">  </div>
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Figure 5. Winter (Nov – Apr) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the Vincent location (cyclones removed) (WEL, 2016).

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