



Julimar Operations Environment Plan

Australian Operations

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TABLE OF CONTENTS

1.	INTRODUCTION	18
1.1	Overview.....	18
1.2	Purpose of the Environment Plan	18
1.3	Scope of the Environment Plan	19
1.4	Environment Plan Summary	20
1.5	Structure of the Environment Plan.....	21
1.6	Description of the Titleholder.....	23
1.7	Details of Titleholder and Nominated Liaison	23
1.7.1	Titleholder.....	23
1.7.2	Nominated Liaison	24
1.7.3	Arrangements for Notifying Change	24
1.8	Operational Interface with the Wheatstone Platform	24
1.8.1	Field Operations Manual	25
1.9	Woodside Management System.....	26
1.9.1	Environment and Biodiversity Policy	28
1.9.2	Climate Policy	28
1.10	Description of Relevant Requirements	29
1.10.1	Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGGS Act).....	29
1.10.2	Environment Protection and Biodiversity Conservation Act 1999 (Cth).....	30
1.10.3	Offshore Project Approval	30
1.10.4	Recovery Plans and Threat Abatement Plans.....	31
1.10.5	Australian Marine Parks	31
1.10.6	World Heritage Properties	32
2.	ENVIRONMENT PLAN PROCESS.....	33
2.1	Overview.....	33
2.2	Environmental Impact and Risk Management Methodology	33
2.2.1	Woodside Risk Management Process.....	33
2.2.2	Health, Safety and Environment Management Procedure	34
2.2.3	Impact Assessment Procedure.....	34
2.2.4	Process Safety Management Procedure and Process Safety Risk Assessment Procedure 35	
2.3	Environmental Plan Development Process	35
2.4	Establish the Context.....	36
2.4.1	Define the Activity	36
2.4.2	Define the Existing Environment	37
2.4.3	Relevant Requirements	38
2.5	Impact and Risk Identification.....	38
2.6	Impact and Risk Analysis	39
2.6.1	Decision Support Framework	39
2.6.1.1	Decision Type A.....	40
2.6.1.2	Decision Type B.....	40

2.6.1.3	Decision Type C.....	40
2.6.1.4	Decision Support Framework Tools	41
2.6.1.5	Decision Calibration	42
2.6.2	Control Measures (Hierarchy of Controls)	42
2.6.3	Impact and Risk Classification.....	42
2.6.4	Risk Rating Process	43
2.6.4.1	Select the Consequence Level	44
2.6.4.2	Select the Likelihood Level	44
2.6.4.3	Calculate the Risk Rating.....	44
2.7	Classification and Analysis of Major Environmental Events (MEEs)	45
2.7.1	Major Environment Event Identification	45
2.7.2	Major Environment Event Classification	46
2.7.3	Bowtie Analysis	46
2.7.4	Major Environment Event Register	48
2.7.5	Safety and Environment Critical Elements and Technical Performance Standards	48
2.7.6	Safety-critical Management System Barriers	49
2.8	Impact and Risk Evaluation	49
2.8.1	Demonstration of As Low As Reasonably Practicable.....	49
2.8.2	Demonstration of Acceptability	49
2.9	Recovery Plan and Threat Abatement Plan Assessment.....	50
2.10	Environmental Performance Outcomes, Environmental Performance Standards and Measurement Criteria	50
2.11	Implement, Monitor, Review and Reporting	51
2.12	Consultation.....	51
3.	DESCRIPTION OF THE ACTIVITY	52
3.1	Overview.....	52
3.2	Location	52
3.3	Operational Area	55
3.4	Timing.....	55
3.5	Activity Components.....	55
3.5.1	Field Inventory	55
3.5.2	Julimar Phase 3 Commissioning and Start-up	58
3.5.3	Steady State Production Operations	58
3.5.4	Greenhouse Gas Emissions	58
3.6	Support Vessel Operations.....	59
3.6.1	Subsea Support Vessels	59
3.6.2	Uncrewed Surface Vessel	60
3.6.3	Remotely Operated Vehicles.....	61
3.7	Helicopter Operations.....	61
3.8	Chemical Usage	62
3.9	Subsea Inspection, Monitoring, Maintenance, and Repair Activities	62
3.9.1	Inspections	62

3.9.2	Monitoring	64
3.9.3	Maintenance	64
3.9.4	Repair	65
3.9.5	Chemical Usage During IMMR Activities	65
3.9.5.1	Typical Discharges During IMMR Activities	66
3.9.6	Marine Growth Removal	66
3.9.7	Sediment Relocation and Disturbance	67
4.	DESCRIPTION OF THE EXISTING ENVIRONMENT	68
4.1	Overview	68
4.2	Regional Context	71
4.3	Physical Environment	71
4.3.1	Seabed Features in the Operational Area	72
4.4	Habitats and Biological Communities	75
4.5	Matters of National Environmental Significance	78
4.6	Protected Species	78
4.6.1	Fish, Sharks and Rays	79
4.6.1.1	Whale shark	82
4.6.2	Marine Reptiles	83
4.6.2.1	Flatback turtle	90
4.6.3	Marine Mammals	91
4.6.3.1	Pygmy Blue Whale	94
4.6.4	Seabirds and Migratory Shorebirds	96
4.6.4.1	Wedge-tailed Shearwater	101
4.6.5	Seasonal Sensitivities for Protected Species	101
4.7	Key Ecological Features (KEFs)	102
4.7.1	Ancient Coastline at 125 m Depth Contour	103
4.7.2	Continental Slope Demersal Fish Communities	104
4.8	Protected Places	104
4.8.1	Montebello Marine Park	106
4.9	Socio-Economic and Cultural Environment	107
4.9.1	Cultural Values and Heritage	107
4.9.1.1	Native Title	107
4.9.1.2	Coastally Adjacent First Nations Groups	108
4.9.1.3	Marine Parks	111
4.9.1.4	General Cultural Values of Marine Ecosystems	112
4.9.2	Sea Country Values	112
4.9.2.1	Desktop Assessment of Sea Country Values	113
4.9.2.2	First Nations Archaeological Heritage Assessment	119
4.9.2.3	Feedback Received via Consultation to Inform Existing Environment Description	119

4.9.3	Summary of Cultural Features and Heritage Values	128
4.9.3.1	Historic Sites of Significance.....	133
4.9.3.2	Historic Underwater Heritage.....	133
4.9.3.3	World, National and Commonwealth Heritage Listed Places	133
4.9.4	Commercial Fisheries.....	134
4.9.5	Pearling and Aquaculture	141
4.9.6	Tourism and Recreation	141
4.9.7	Commercial Shipping	142
4.9.8	Oil and Gas.....	142
4.9.9	Defence	145
4.9.10	Other Industries	145
5.	STAKEHOLDER CONSULTATION	147
5.1	Summary	147
5.2	Consultation – General Context	148
5.3	Identification of Relevant Persons for Consultation	152
5.3.1	Regulations 25(1)(a), (b) and (c)	152
5.3.2	Identification of Relevant Persons under Regulations 25(1)(a), (b) and (c).....	152
5.3.3	Regulation 25(1)(d).....	154
5.3.4	Identification of Relevant Persons under Regulation 25(1)(d)	154
5.3.5	Regulation 25(1)(e).....	161
5.3.6	Identification of Relevant Persons under Regulation 25(1)(e)	161
5.3.7	Persons or Organisations Woodside Chooses to Contact.....	161
5.3.8	Assessment of Relevant Persons for the Proposed Activity.....	162
5.4	Consultation Material and Timing	162
5.4.1	Sufficient Information	162
5.4.2	Reasonable Period for Consultation	165
5.4.3	Discharge of Regulation 25	167
5.5	Context of Consultation Approach with Traditional Custodians.....	168
5.5.1	Approach to Methodology – Woodside’s Interpretation of Tipakalippa Appeal	168
5.5.2	Consultation Method.....	169
5.5.3	Identification of Relevant Persons	171
5.5.4	Opportunity to Self-identify and Identifying Other Individuals.....	172
5.5.5	Sufficient Information	173
5.5.6	Reasonable Period for Consultation	173
5.5.7	Discharge of Regulation 25	173
5.6	Providing Feedback and Assessment of Merit of Objections or Claims	173
5.7	Ongoing Consultation	174
6.	ENVIRONMENTAL IMPACT AND RISK ASSESSMENT, PERFORMANCE OUTCOMES, STANDARDS AND MEASUREMENTS CRITERIA.....	176
6.1	Overview.....	176
6.2	Impact and Risk Analysis and Evaluation.....	176

6.3	Impacts and Risks Deemed Not Credible or Outside the Scope of this Environment Plan	184
6.3.1	Risk or Impacts Not Credible	184
6.3.2	Potential Environment Risks Not Within the Scope of this Environment Plan	184
6.3.2.1	GHG Emissions associated with Onshore Processing, Third Party Transport of Products, Regassification, Distribution and End Use	184
6.4	Cumulative Impacts	184
6.5	Environmental Performance Outcomes, Standards and Measurement Criteria.....	185
6.6	Presentation	185
6.7	Planned Activities (Routine and Non-routine).....	188
6.7.1	Physical Presence: Interaction with Other Marine Users	188
6.7.2	Physical Presence: Disturbance to Seabed	196
6.7.3	Routine Acoustic Emissions: Generation of Noise during Operations.....	205
6.7.4	Routine and Non-Routine Discharges: Discharge of Chemicals and Hydrocarbons during Subsea Operations and Activities	220
6.7.5	Routine and Non-Routine Discharges: Support Vessel Operations	227
6.7.6	Routine Atmospheric and Greenhouse Gas Emissions: Fuel Combustion	232
6.7.7	Routine Light Emissions: External Lighting from Support Vessels	245
6.8	Unplanned Activities (Accidents, Incidents, Emergency Situations) – Major Environmental Event	252
6.8.1	MEE Overview	252
6.8.2	Quantitative Spill Risk Assessment Methodology	253
6.8.2.1	Hydrocarbon Characteristics.....	254
6.8.2.2	EMBA and Hydrocarbon Contact Thresholds	256
6.8.2.3	Operational and Scientific Monitoring	257
6.8.3	Unplanned Hydrocarbon Release: Loss of Well Containment (MEE-01)	258
6.9	Unplanned Activities (Accidents, Incidents, Emergency Situations).....	288
6.9.1	Unplanned Hydrocarbon Release: Vessel Collision	288
6.9.2	Unplanned Hydrocarbon Release: Loss of Containment from Subsea Infrastructure	299
6.9.3	Unplanned Hydrocarbon or Chemical Release: Hydrocarbon or Chemical during Transfer, Storage or Use	309
6.9.4	Unplanned Discharge: Loss of Hazardous or Non-Hazardous Waste/Equipment	316
6.9.5	Physical Presence: Vessel Collision with Marine Fauna	323
6.9.6	Physical Presence: Interaction with Live Infrastructure	329
6.9.7	Physical Presence: Disturbance to Seabed from Dropped Objects	333
6.9.8	Physical Presence: Accidental Introduction of Invasive Marine Species.....	336
6.10	Recovery Plan and Threat Abatement Assessment.....	345
7.	IMPLEMENTATION STRATEGY	360
7.1	Overview.....	360
7.2	Systems, Practice, and Procedures	360
7.2.1	WMS Operate Processes	360
7.2.1.1	Operate Plant.....	360
7.2.1.2	Maintain Assets.....	361

7.2.2	Process Safety Management	362
7.2.2.1	Woodside Safety Culture Framework	362
7.2.3	Environmental Considerations during Chemical Selection, Assessment and Approval ..	363
7.2.4	Woodside Invasive Marine Species Risk Assessment Process	365
7.2.4.1	Objective and Scope	365
7.2.4.2	Risk Assessment Process	365
7.2.5	Risk Management.....	367
7.2.6	Management of Risks – Contracting and Procurement.....	368
7.2.7	Management of Risks – Subsea Activities	368
7.2.8	Management of Risks – Major Projects	369
7.2.9	Management of Human Factor Related Risks.....	369
7.2.10	Management of Risks – Well Integrity	369
7.2.11	Management of Risks – Marine Services	370
7.3	Change Management	370
7.3.1	Technical Change Management.....	370
7.3.2	EP Management of Change and Revision	371
7.3.3	Oil Pollution Emergency Plan Management of Change	372
7.3.4	Management of SCE Technical Performance Standards and Management System Performance Standards	372
7.3.4.1	Management System Performance Standards	372
7.3.4.2	SCE Technical Performance Standards	372
7.4	Woodside’s Decommissioning Framework.....	374
7.4.1	Decommissioning in Operations.....	375
7.4.2	Decommissioning Planning	375
7.4.3	Inventory of Property within the Julimar Development	376
7.5	Julimar Decommissioning Strategy	377
7.6	Decommissioning Planning Activities	377
7.6.1	Wells.....	377
7.6.2	Decommissioning Execution Planning	378
7.7	Organisational Structure	378
7.8	Roles and Responsibilities	379
7.9	Communication Strategy	386
7.9.1	Subsea Operating Procedures	386
7.9.2	Information Management.....	386
7.9.3	Onshore.....	386
7.9.4	Offshore.....	386
7.10	Unexpected Finds Procedure	386
7.11	Training and Competency	387
7.11.1	Overview.....	387
7.11.2	Inductions	388
7.11.3	Activities Program Specific Environmental Awareness	388
7.11.4	Operations Personnel.....	388

7.11.5	Environmental Leadership Training	389
7.11.6	Permit to Work System Training	389
7.11.7	Emergency and Hydrocarbon Spill Response Training	389
7.11.8	Subsea Inspection, Monitoring, Maintenance and Repair Activity Environmental Awareness	389
7.11.9	Management of Training Requirements	390
7.12	Monitoring, Auditing, Management of Non-Conformance and Review	390
7.12.1	Monitoring	390
7.12.1.1	Source-based Impacts and Risks	390
7.12.1.2	Management of Knowledge	391
7.12.1.3	Management of Newly Identified Impacts and Risks	391
7.12.2	Auditing	639
7.12.2.1	Operations Assurance	639
7.12.2.2	Subsea Scope Activities	639
7.12.2.3	Marine Assurance	640
7.12.2.4	Risk Assessment	641
7.12.3	Management of Non-conformance	642
7.12.4	Review	642
7.12.4.1	Management Review	642
7.12.4.2	Program of Ongoing Engagement with Traditional Custodians	643
7.12.4.3	Learning and Knowledge Sharing	643
7.12.4.4	Continuous Improvement	643
7.13	Record Keeping	644
7.14	Ongoing Consultation	644
7.15	Reporting	648
7.15.1	Overview	648
7.15.2	Routine Reporting (Internal)	648
7.15.2.2	Regular Health, Safety and Environment Meetings	648
7.15.2.3	Performance Reporting	648
7.15.3	Routine Reporting (External)	649
7.15.3.1	Environmental Performance Review and Reporting	649
7.15.3.2	Start and End Notifications of the Petroleum Activities Program	649
7.15.3.3	End of the Environment Plan	649
7.15.4	Incident Reporting (Internal)	649
7.15.5	Incident Reporting (External) – Reportable and Recordable	650
7.15.5.1	Reportable Incidents	650
7.15.5.2	Recordable Incidents	650
7.15.5.3	Other External Reporting Requirements and Notifications	651
7.16	Emergency Preparedness and Response	654

7.16.1	Overview.....	654
7.16.2	Emergency Response Training.....	655
7.16.3	Emergency Response Preparation.....	655
7.16.3.1	Initial Response to Field Production System Incident.....	656
7.16.3.2	Initial response to Vessel Incident	657
7.16.4	Oil and Other Hazardous Materials Spill	657
7.16.5	Emergency and Spill Response	657
7.16.6	Emergency and Spill Response Drills and Exercises.....	658
7.16.7	Hydrocarbon Spill Response Testing of Arrangements.....	659
7.16.7.1	Testing of Arrangements Schedule.....	659
7.16.8	Cyclone and Dangerous Weather Preparation.....	661
8.	REFERENCES	662
9.	LIST OF TERMS AND ACRONYMS.....	676
APPENDIX A	ENVIRONMENT AND BIODIVERSITY, RISK MANAGEMENT AND CLIMATE POLICIES	681
APPENDIX B	RELEVANT REQUIREMENTS	682
APPENDIX C	WOODSIDE MASTER EXISTING ENVIRONMENT DOCUMENT	683
APPENDIX D	OIL SPILL PREPAREDNESS AND RESPONSE MITIGATION ASSESSMENT	684
APPENDIX E	NOPSEMA REPORTING FORMS	685
APPENDIX F	CONSULTATION	687
APPENDIX G	OIL POLLUTION FIRST STRIKE PLAN.....	688
APPENDIX H	PMST SEARCH	689
APPENDIX I	PROGRAM OF ONGOING ENGAGEMENT WITH TRADITIONAL CUSTODIANS	690
APPENDIX J	ABORIGINAL HERITAGE INQUIRY SYSTEM.....	691

LIST OF TABLES

Table 1-1:	EP summary	21
Table 1-2:	EP process phases, applicable Environment Regulations and relevant section of EP..	21
Table 1-3:	Relevant requirements of the OPGGS Act 2006	29
Table 1-4:	Manner in which the proposed action must be taken as per EPBC 2011/5936 relevant to the Petroleum Activities Program.....	30
Table 1-5:	Conditions of Class Approval relevant to the Petroleum Activities Program	31
Table 1-6:	Relevant Management Principles under Schedule 5—Australian World Heritage management principles of the EPBC Act.....	32
Table 2-1:	Example of the environment values potentially impacted which are assessed within the Environment Plan.....	38
Table 2-2:	Example of layout of identification of risks and impacts in relation to risk sources.....	39
Table 2-3:	Woodside risk matrix (environment and social and cultural) consequence descriptions	43
Table 2-4:	Woodside risk matrix likelihood levels	44

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Table 2-5: Summary of Woodside's criteria for demonstrating 'as low as reasonably practicable'.	49
Table 2-6: Summary of Woodside's criteria for acceptability	50
Table 3-1: Petroleum Activities Program Overview	52
Table 3-2: Julimar Development and Associated Infrastructure Locations and Petroleum Permits	53
Table 3-3: Inventory of installed wells and subsea infrastructure, including status	56
Table 3-7: Direct and indirect greenhouse gas emissions sources associated with Julimar Operations and supply chain	58
Table 3-4: Indicative Subsea Support Vessel Specifications (<i>Fugro Etive</i>)	60
Table 3-5: Indicative USV parameters	61
Table 3-6: Typical Subsea Infrastructure Inspections/Surveys and frequencies	63
Table 3-7: Typical maintenance activities and frequencies	64
Table 3-8: Typical Discharge Volumes During Different IMMR and Subsea Activities	66
Table 3-9: Marine Growth Removal Methods	66
Table 4-1: Hydrocarbon spill thresholds used to define EMBA for surface and in-water hydrocarbons	68
Table 4-2: Summary of physical characteristics within the Operational Area and EMBA	71
Table 4-3: Habitats and Communities within the EMBA	75
Table 4-4: Summary of MNES identified by the EPBC Act PMST as potentially occurring within the Operational Area and EMBA.....	78
Table 4-5: Threatened and Migratory Fish, Shark and Ray Species predicted to occur within the Operational Area and EMBA.....	79
Table 4-6: Fish, Shark and Ray BIAs within the Operational Area and EMBA	80
Table 4-7: Threatened and Migratory Marine Reptile Species predicted to occur within the Operational Area and EMBA.....	83
Table 4-8: Marine Turtle BIAs within the Operational Area and EMBA.....	83
Table 4-9: Internesting Habitat Critical to the Survival of Marine Turtle Species predicted to occur within the Operational Area and EMBA	87
Table 4-10: Threatened and Migratory Marine Mammal Species predicted to occur within the Operational Area and EMBA.....	91
Table 4-11: Marine Mammal BIAs within the Operational Area and EMBA	92
Table 4-12: Threatened and Migratory Seabird and Migratory Shorebird Species predicted to occur within the Operational Area and EMBA	96
Table 4-13: Seabird and Shorebird BIAs within the Operational Area and EMBA.....	99
Table 4-14: Key seasonal sensitivities for protected migratory species identified as occurring within the Operational Area.	102
Table 4-15: KEFs within the Operational Area and EMBA	103
Table 4-16: Established protected places and other sensitive areas location relative to the Operational Area overlapping the EMBA	105
Table 4-17: Summary of Native Title Claims, Determinations and ILUAs which overlap or are coastally adjacent to the EMBA	108
Table 4-18: Summary of Commonwealth, State Marine Park and National Park Management Plans intersecting the EMBA	111
Table 4-19 Cultural features and heritage values identified in publicly available literature.....	113
Table 4-20 Summary of Sea Country values received via consultation.....	121
Table 4-21 Summary of Cultural Features and Values	129
Table 4-22: Known Shipwrecks Near to the Operational Area	133
Table 4-23: World, National and Commonwealth Heritage Listed Places within the EMBA	133
Table 4-24: Commonwealth and State Commercial Fisheries management areas overlapping the Operational Area and EMBA and potential for interaction during the Petroleum Activities Program	135
Table 4-25: Other Oil and Gas Facilities located within the proximity of the Operational Area.....	143
Table 4-26: Live Infrastructure within the Operational Area not covered by this EP.....	143
Table 5-1: Categories of relevant persons.....	155

Table 5-2: Methodology for identifying relevant persons within the EMBA undertaken under Regulation 25(1)(d) – by category	156
Table 6-1: Environmental impact analysis summary of planned and unplanned activities	177
Table 6-2: Environmental impact and risk analysis summary table – unplanned events (including major environmental events).....	180
Table 6-3: Indicative source characteristics of continuous underwater noise associated with the Petroleum Activities Program as reported in (Jiménez-Arranz 2017), McCauley (2005), McCauley (2002), (JASCO Applied Sciences (Australia) Pty Ltd 2024) and Wood (2025).	207
Table 6-4: Thresholds for permanent threshold shift, temporary threshold shift and behavioural response onset for low frequency, high-frequency and very high frequency cetaceans for continuous and impulsive noise	209
Table 6-5: Thresholds for permanent threshold shift, temporary threshold shift and behavioural response onset in marine turtles for continuous and impulsive noise.....	211
Table 6-6: Impact thresholds to fish, sharks and rays for continuous noise.....	212
Table 6-7: Indirect GHG emissions associated with Julimar offshore production	233
Table 6-8: MEE Events for the Julimar Operations.....	252
Table 6-9: Barrier Hierarchy and Type of Effect	253
Table 6-10: Summary of Thresholds Applied to the Quantitative Hydrocarbon Spill Risk Modelling Results	257
Table 6-11: Summary of Worst-case Loss of Well Containment Hydrocarbon Release Scenario	259
Table 6-12: EMBA - Key Receptor Locations and Sensitivities Potentially Contacted Above Impact Thresholds by the Loss of Well Containment Scenario with Summary Hydrocarbon Spill Contact	262
Table 6-13: Characteristics of the marine diesel.....	289
Table 6-14: EMBA - Key Receptor Locations and Sensitivities Potentially Contacted Above Impact Thresholds by the Vessel Collision Scenario with Summary Hydrocarbon Spill Contact	292
Table 6-15: Environmental impact analysis summary of planned and unplanned activities	300
Table 6-16: Key Receptor Locations and Sensitivities Potentially Contacted Above Impact Thresholds by the Loss of Containment from Subsea Infrastructure with Summary Hydrocarbon Spill Contact.....	302
Table 6-17: Assessment of the impacts and risks of invasive marine species introduction associated with the Petroleum Activity.....	338
Table 6-18: Identification of applicability of recovery plan and threat abatement plan objectives and action areas	346
Table 6-19: Assessment against relevant actions of the Marine Turtle Recovery Plan	355
Table 6-20: Assessment against relevant actions of the Blue Whale Conservation Management Plan.....	356
Table 6-21: Assessment against relevant actions of the Sawfish and River Sharks Recovery plan	357
Table 6-22: Assessment against relevant actions of the Albatrosses and petrels National Recovery Plan.....	358
Table 6-23: Assessment against relevant actions of the Marine Debris Abatement Plan.....	358
Table 7-1: Key factors considered as a part of the risk assessment process for vessels	365
Table 7-2: Key factors considered as a part of the risk assessment process for immersible equipment	366
Table 7-3: Summary of Safety and Environment Critical Element Management Procedures.....	373
Table 7-4: Inventory of Woodside infrastructure within the Julimar Development	376
Table 7-5: Roles and responsibilities	380
Table 7-6: Summary of Emissions and Discharges Monitoring for the Petroleum Activities Program	392
Table 7-7: Ongoing consultation engagements	645
Table 7-8: Routine external reporting requirements	649
Table 7-9: External incident reporting requirements	652
Table 7-10: Oil pollution preparedness and response overview	654

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Table 7-11: Emergency response training requirements	655
Table 7-12: Testing of Response Capability to Incidents	658

LIST OF FIGURES

Figure 1-1: Designation of Responsibility for Subsea Infrastructure between the Field Operator (Woodside Energy Julimar) and Wheatstone Platform Operator (Chevron), as described in the Julimar-Brunello Field Operating Services Agreement	20
Figure 1-2: Agreements and Supporting Documentation for Operation of the Wheatstone Platform and Julimar Field Production System	26
Figure 1-3: The four major elements of the WMS Seed	27
Figure 1-4: The WMS business process hierarchy	28
Figure 2-1: Woodside's risk management process	34
Figure 2-2: Woodside's impact assessment process	34
Figure 2-3: Environment Plan development process	36
Figure 2-4: Risk-related decision-making framework (Oil and Gas UK 2014)	41
Figure 2-5: Environmental risk and impact analysis	43
Figure 2-6: Woodside risk matrix – risk level	45
Figure 2-7: Example of bowtie diagram structure	47
Figure 3-1: Location of the Petroleum Activities Program	54
Figure 3-2: Julimar Development Overview	57
Figure 3-3: Typical Support Vessel (<i>Fugro Etive</i>)	60
Figure 4-1: Environment that may be affected by the Petroleum Activities Program	70
Figure 4-2: Location of the Operational Area and relevant marine bioregions	71
Figure 4-3: Bathymetry of the Operational Area	74
Figure 4-4: Survey Locations of Cemented Sediment Outcrops (RPS 2010, 2011, RPS 2015) in the Operational Area	77
Figure 4-5: Whale shark BIAs overlapping the Operational Area and satellite tracks of whale sharks tagged between 2002 and 2010	81
Figure 4-6: Marine turtles BIAs location relative to the Operational Area	88
Figure 4-7: Marine turtles' habitat critical to the survival of the species location relative to the Operational Area	89
Figure 4-8: Pygmy blue whale BIAs overlapping the Operational Area and EMBA and satellite tracks of tagged whales (Thums, Ferreira, et al. 2022)	93
Figure 4-9: Seabird and Shorebird BIAs overlapping the Operational Area	100
Figure 4-10: KEFs overlapping the Operational Area	103
Figure 4-11: Protected Areas overlapping the Operational Area or EMBA	106
Figure 4-12: Native Title Claims, Determinations and ILUAs which overlap or are coastally adjacent to the EMBA	110
Figure 4-13: Vessel density map for the Operational Area and EMBA, derived from AMSA satellite tracking system data	142
Figure 4-14: Oil and gas Infrastructure in proximity to the Operational Area	144
Figure 4-15: Defence areas within the Operational Area and EMBA	145
Figure 4-16: Submarine communication cables within the Operational Area	146
Figure 5-1: Overview of Woodside's methodology to identify relevant persons	148
Figure 5-2: Overview of Woodside's consultation approach	151
Figure 6-1: Proportional Mass Balance Plot Representing the Weathering of Brunello Condensate Spilled onto the Water Surface as a One-off Instantaneous Release and Subject to a Constant 5 kn (2.6 m/s) Wind at 27 °C Water Temperature and 25 °C Air Temperature.	255
Figure 6-2: Proportional Mass Balance Plot Representing the Weathering of Brunello Condensate Spilled onto the Water Surface as a One-off Instantaneous Release and Subject to Variable Wind at 27 °C Water Temperature and 25 °C Air Temperature.	256

Figure 6-3: MEE-01 Wells Loss of Well Containment (Causes 1-5)	277
Figure 6-4: MEE-01 Wells Loss of Well Containment (Causes 6-9)	278
Figure 6-5: MEE-1 Well LOWC (Outcomes)	278
Figure 6-6: Proportional mass balance plot representing the weathering of marine diesel spilled onto the water surface as a one-off release (50 m ³) and subject to variable wind at 27 °C water temperature and 25 °C air temperature (RPS 2022).	290
Figure 7-1: Process Safety Management Focus Areas	362
Figure 7-2: Woodside 'Our Safety Culture' Framework	363
Figure 7-3: Offshore Chemical Notification Scheme Ranking.....	364
Figure 7-4: Change Management Hierarchy.....	370
Figure 7-5: Woodside's process for decommissioning planning.....	376
Figure 7-7: Julimar & Wheatstone Operations Organisation Structure	379
Figure 7-8: Indicative Three Yearly Testing of Arrangements Schedule.....	660

1. INTRODUCTION

1.1 Overview

Woodside Energy Julimar Pty Ltd (Woodside), as Titleholder under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Commonwealth) (referred to as the Environment Regulations), on behalf of the Joint Venture detailed in Section 1.6, is operator of the Julimar Field Production System.

Operation of the Julimar Field Production System (including routine testing of the wells and subsea infrastructure is performed from the Wheatstone Platform, (see Section 1.8) Woodside proposes to undertake the following petroleum activities within Production Licence WA-49-L and Pipeline Licences WA-26-PL, WA-29-PL, WA-34-PL, WA-35-PL and WA-36-PL:

- routine production and associated activities
- routine and non-routine inspection, maintenance, monitoring and repair (IMMR) of subsea infrastructure
- initial commissioning and start-up activities for Julimar Development Phase 3 (JDP3) wells and subsea infrastructure

These activities will hereafter be referred to as the Petroleum Activities Program and form the scope of this Environment Plan (EP). A detailed description of the activities is provided in Section 3. This EP has been prepared as part of the requirements under the Environment Regulations, as administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

In accordance with the requirements of Regulation 39(1) of the Environment Regulations, Woodside has revised the Julimar Operations EP to incorporate the commissioning and operation of JDP3 as a new stage of the activity under the EP. Key components of the Petroleum Activities Program activity which can be attributed to a new stage of the Julimar Operations EP activity include:

- commissioning, start-up and operation activities associated with JDP3 infrastructure

1.2 Purpose of the Environment Plan

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

- The potential environmental impacts and risks (planned (routine and non-routine) and unplanned) that may result from the Petroleum Activities Program are identified.
- Appropriate management controls are implemented to reduce impacts and risks to a level that is 'as low as reasonably practicable' (ALARP) and acceptable.
- The Petroleum Activities Program is carried out in a manner consistent with the principles of ecologically sustainable development (ESD) (as defined in Section 3A of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)).

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, standards and measurement criteria (MC). These form the basis for monitoring, auditing, and managing the Petroleum Activities Program to be undertaken by Woodside and its contractors. The implementation strategy specified in this EP provides Woodside and NOPSEMA with the required

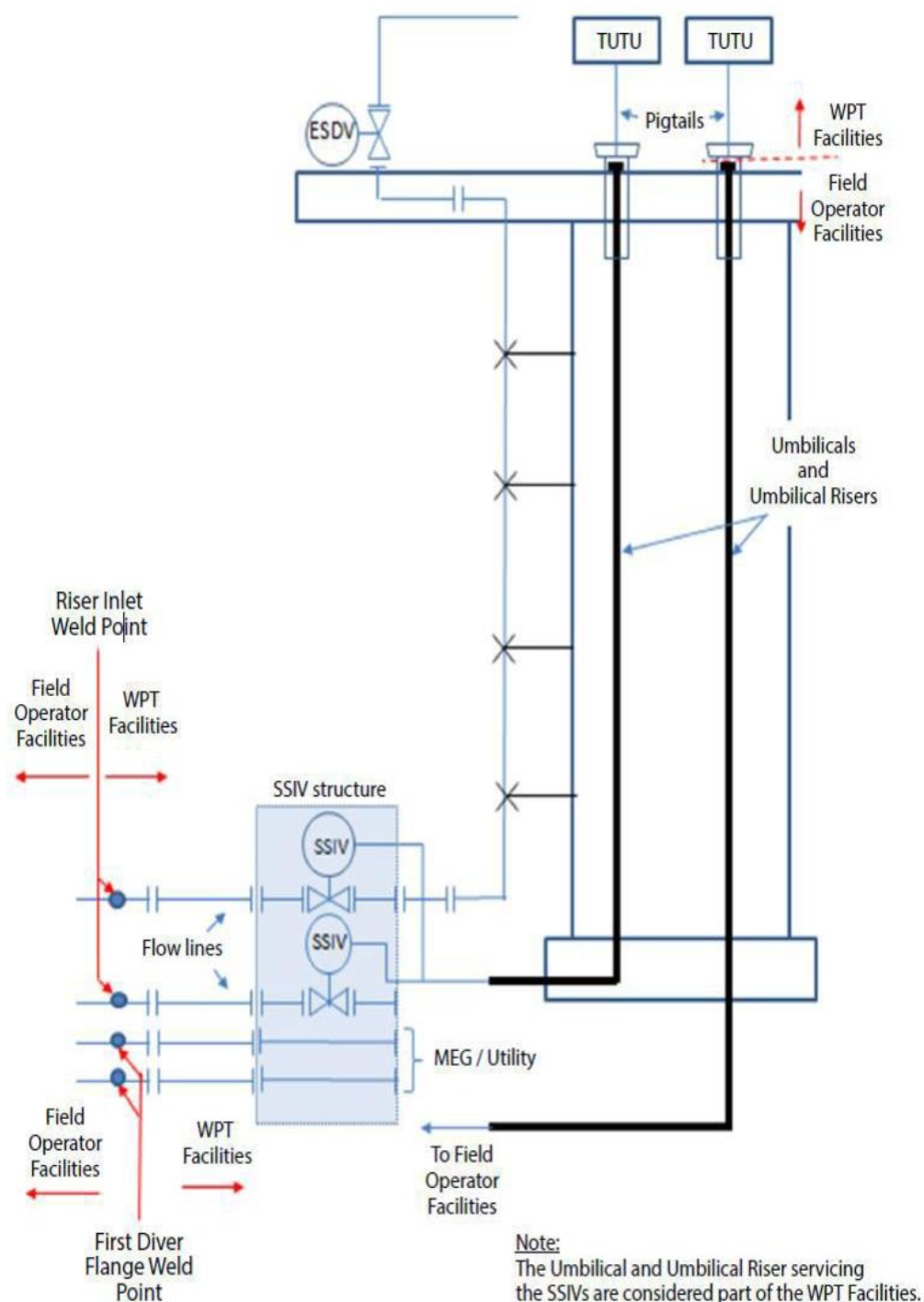
level of assurance that impacts and risks associated with the activity are reduced to ALARP and are acceptable.

1.3 Scope of the Environment Plan

The scope of this EP covers the activities that define the Petroleum Activities Program, as described in Section 3 for a period of up to five years. The Operational Area, as defined in Section 3.3, defines the spatial boundary of the Petroleum Activities Program. This includes the commissioning and start-up activities for JDP3 wells and subsea infrastructure and operations of the wells and subsea infrastructure up to the first weld upstream of the tie-in spool to the subsea isolation valve (SSIV) on the Julimar and Brunello flowlines (Figure 1-1).

Julimar-Brunello well fluids will be processed on the Chevron Australia Pty Ltd (Chevron) operated Wheatstone Platform (WA-3-IL); all activity, environmental impacts and risks downstream of the aforementioned flange on the SSIV (Figure 1-1) are excluded from the scope of this EP and are described in the Start-Up and Operations Environment Plan: Wheatstone Project (Chevron Doc. WS2-COP-00001).

Chevron operates the subsea infrastructure commencing with well unloading. Normal operational discharges from the Wheatstone Platform arising from production of hydrocarbons commingled from the Petroleum Activities Program with other production wells are included in the scope of the Start-Up and Operations Environment Plan: Wheatstone Project. This EP addresses potential environmental impacts from planned activities and potential unplanned events that originate from within the Petroleum Activities Program. Transit to and from the Operational Area by vessels and helicopters, as well as port activities associated with the vessels, are not within the scope of this EP. Vessel and helicopter operations outside the Operational Area continue to be governed by applicable maritime and aerial Regulations and other requirements.



Note: ESDV = emergency shutdown valve, MEG = mono-ethylene glycol, SSIV = subsea isolation valve, TUTU = topside umbilical termination unit, WPT = Wheatstone Platform

Figure 1-1: Designation of Responsibility for Subsea Infrastructure between the Field Operator (Woodside Energy Julimar) and Wheatstone Platform Operator (Chevron), as described in the Julimar-Brunello Field Operating Services Agreement

1.4 Environment Plan Summary

Table 1-1 summarises the content of this EP, as required by Regulation 35(7).

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Page 20 of 445

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Table 1-1: EP summary

EP summary material requirement	Relevant section of this 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 7.12
Response arrangements in the oil pollution emergency plan	Section 7.16
Consultation already undertaken and plans for ongoing consultation	Section 5
Details of the titleholder's nominated liaison person for the activity	Section 1.7.2

1.5 Structure of the Environment Plan

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

Table 1-2: EP process phases, applicable Environment Regulations and relevant section of EP

Criteria for acceptance	Content requirements/relevant Regulations	Elements	Section of EP
Regulation 34(a): <i>is appropriate for the nature and scale of the activity</i>	Regulation 21: <i>Environmental Assessment</i> Regulation 22: <i>Implementation strategy for the environment plan</i> Regulation 24: <i>Other information in the environment plan</i>	The principle of 'nature and scale' applies throughout the EP	Section 2 Section 3 Section 4 Section 5 Section 6 Section 7
Regulation 34(b): <i>demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable</i>	Regulation 21(1)–21(7): <i>21(1) Description of the activity</i> <i>21(2)(3) Description of the environment</i> <i>21(4) Requirements</i> <i>21(5)(6) Evaluation of environmental impacts and risks</i> <i>21(7) Environmental performance outcomes and standards</i>	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): <i>demonstrates that the environmental impacts and risks of the activity will be of an acceptable level</i>	Regulation 24(a) - (b): <i>A statement of the titleholder's corporate environmental policy</i> <i>A report on all consultations between the titleholder and any relevant person</i>		
Regulation 34(d): <i>provides for appropriate</i>	Regulation 21(7): <i>Environmental performance outcomes and standards</i>	Environmental Performance Objectives (EPOs)	Section 6

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Criteria for acceptance	Content requirements/relevant Regulations	Elements	Section of EP
<i>environmental performance outcomes, environmental performance standards and measurement criteria</i>		Environmental Performance Standards (EPSs) Measurement Criteria (MC)	
Regulation 34(e): <i>includes an appropriate implementation strategy and monitoring, recording and reporting arrangements</i>	Regulation 22: <i>Implementation strategy for the environment plan</i>	Implementation strategy, including: <ul style="list-style-type: none"> • Environmental Management System (EMS) • Oil Pollution Emergency Plan (OPEP) and scientific monitoring • ongoing consultation. 	Section 7 Appendix D
Regulation 34(f): <i>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 EPBC Act</i>	Regulation 21(1)–21(3): <i>21(1) Description of the activity</i> <i>21(2) Description of the environment</i> <i>21(3) Without limiting [Regulation 21(2)(b)], particular relevant values and sensitivities may include any of the following:</i> <i>(a) the world heritage values of a declared World Heritage property within the meaning of that Act.</i> <i>(b) the National Heritage values of a National Heritage place within the meaning of that Act.</i> <i>(c) the ecological character of a declared Ramsar wetland within the meaning of that Act.</i> <i>(d) the presence of a listed threatened species or listed threatened ecological community within the meaning of that Act.</i> <i>(e) the presence of a listed migratory species within the meaning of that Act.</i> <i>(f) any values and sensitivities that exist in, or in relation to, part or all of:</i> <i>(i) a Commonwealth marine area within the meaning of that Act; or</i> <i>(ii) Commonwealth land within the meaning of that Act;</i>	No activity, or part of the activity, undertaken in any part of a declared World Heritage property	Section 3 Section 4 Section 6
Regulation 34(g): <i>(i) the titleholder has carried out the consultations required by Regulation 25; and</i>	<i>Regulation 25: Consultation with relevant authorities, persons and organisations, etc.</i> <i>Regulation 24(b): Report on all consultations under Regulation 25 of</i>	Consultation in preparation of the EP	Section 5

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Criteria for acceptance	Content requirements/relevant Regulations	Elements	Section of EP
<i>(ii) the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate</i>	<i>any relevant person by the titleholder, that contains:</i> <i>(i) a summary of each response made by a relevant person; and</i> <i>(ii) an assessment of the merits of any objection or claim about the adverse impact of each activity to which the environment plan relates; and</i> <i>(iii) a statement of the titleholder's response, or proposed response, if any, to each objection or claim; and</i> <i>(iv) a copy of the full text of any response by a relevant person</i>		
Regulation 34(h): <i>complies with the Act, this instrument and any other Regulations made under the Act</i>	Regulation 23: <i>Details of the Titleholder and nominated liaison</i> Regulation 24(c): <i>Details of all reportable incidents in relation to the proposed activity.</i>	<i>All contents of the EP must comply with the Act and the Regulations</i>	Section 1.7 Section 7.15

1.6 Description of the Titleholder

Woodside Energy Julimar Pty Ltd is the Titleholder for this activity, on behalf of its Joint Venture partner KUFPEC Australia (Julimar) Pty Ltd.

Woodside is Australia's leading natural gas producer. Woodside's operations are characterised by strong safety and environmental performance in remote and challenging locations. Wherever Woodside works, it is committed to living its values of one team, we care, innovate every day, results matter and build and maintain trust.

Since 1984, the company has been operating the landmark Australian project, the North West Shelf, which is one of the world's premier liquefied natural gas (LNG) facilities.

Woodside has an excellent track record of efficient and safe production. Woodside strives for excellence in safety and environmental performance and continues to strengthen relationships with customers, partners, co-venturers, governments and communities. Further information about Woodside can be found at <http://www.woodside.com>.

1.7 Details of Titleholder and Nominated Liaison

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

1.7.1 Titleholder

Woodside Energy Julimar Pty Ltd

11 Mount Street

Perth, Western Australia

Telephone: 08 9348 4000

ACN: 130 391 365

1.7.2 Nominated Liaison

Andrew Winter

Corporate Affairs Manager

11 Mount Street

Perth, Western Australia

Telephone: 08 9348 4000

Email: feedback@woodside.com

1.7.3 Arrangements for Notifying Change

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

1.8 Operational Interface with the Wheatstone Platform

A contract for services has been entered between Chevron as operator of the Wheatstone Platform (WA-3-IL) and trunkline (WA-25-PL, TPL/25, PL99) and Woodside as operator of the Julimar-Brunello field (WA-49-L) and associated petroleum pipeline and flowlines (WA-26-PL, WA-29-PL, WA-34-PL, WA-35-PL and WA-36-PL) (the Julimar Field Production System). The contract regulates the operational interface between Julimar-Brunello, the Julimar Field Production System and the Wheatstone Platform by specifying field operating services, emergency response arrangements, communication and reporting requirements between Chevron and Woodside.

Under this contract for services Chevron provides field operating services from the Wheatstone Platform to Woodside, which are necessary for the recovery of production fluids from the Julimar Field Production System. The field operating services include, among other matters, operation and maintenance services for the Julimar Field Production System from Wheatstone Platform. This includes operation and maintenance services for all Julimar subsea field infrastructure, wells, well jumpers, subsea wellheads, subsea manifolds, umbilicals and terminations, flowlines and subsea trees upstream of the Julimar Field Production System endpoint (Figure 1-1). The contract also provides for Woodside to conduct vessel-based inspection, maintenance and repair of the Julimar subsea infrastructure.

Chevron field operating services provided under the contract include, for example:

- operation of all field production system controls, valves, chokes and safety devices and monitoring of all the field production system sensors, alarm and instrument data as required by manuals provided by Woodside and consistent with general direction given by Woodside
- operation of all safety shutdown devices
- performing inspections and tests related to the field production system in accordance with applicable laws and Regulations
- integrity and production testing of the Julimar Field Production System (including the subsea trees and system valves, downhole safety valves and the opening of surface controlled subsurface safety valves (SCSSV) and subsea isolation valves (SSIV), as well as the testing of SCSSVs and SSIVs and monitoring and control of the SSIVs through the Wheatstone Platform facilities emergency shutdown system
- performing well tests (including pressure build-up tests and blowdown operations), monitoring well parameters and adjusting normal well parameters in accordance with Woodside's operating manuals and applicable Wheatstone Platform manuals

- performing visual inspection of piping and equipment associated with the Julimar Field Production System and the route of the field production system at time intervals prescribed by applicable Regulations.

Chevron has control of the Julimar Field Production System wells for the purpose of providing field operating services. Control of specific Julimar-Brunello wells is transferred back to Woodside during well work-overs/interventions and internal well work. Handover of control of the Julimar Field Production System or individual wells is undertaken according to a handover process between Chevron and Woodside, which involves confirming the status of the wells and infrastructure, and the transfer of relevant records and test results (with a handover certificate) to ensure system integrity is appropriately maintained.

In the addition to the above field operating services, Chevron also provides emergency response and maintenance services to Woodside and has agreed associated communication and reporting requirements.

Under the contract, Woodside retains commercial responsibility for all Julimar Field Production System operations that are not performed by Chevron from or on the Wheatstone Platform or which are not included in the field operating services provided by Chevron above.

These commercial arrangements do not alter the statutory obligations and responsibilities of the parties pursuant to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) and Environment Regulations.

1.8.1 Field Operations Manual

Under the aforementioned contract, field operating services are provided by Chevron from the Wheatstone Platform central control room and in accordance with a Field Production System Operating Manual (FPSOM). The FPSOM is required by the contract and applies to the Field Operator facilities, up to, and including, the Julimar well centre. The manual was developed and is maintained by Woodside and the requirements executed by Chevron. It describes the requirements for operating the Julimar-Brunello field including reference to relevant operating and maintenance procedures. It also defines the relevant emergency response bridging documents and communication arrangements.

The manual does not include maintenance or specific operating procedures for the topsides equipment relevant to the Julimar-Brunello field production system, which is maintained in accordance with the requirements of the Chevron Operational Excellence Management System under the Start-Up and Operations Environment Plan: Wheatstone Project.

The Julimar Subsea Inspection, Monitoring, and Maintenance (IMM) Plan describes the inspection, monitoring and maintenance requirements for the Julimar Field Production System, which may be executed either by Woodside or Chevron (Figure 1-2). Communication between Woodside and Chevron is described in Section 7.9.

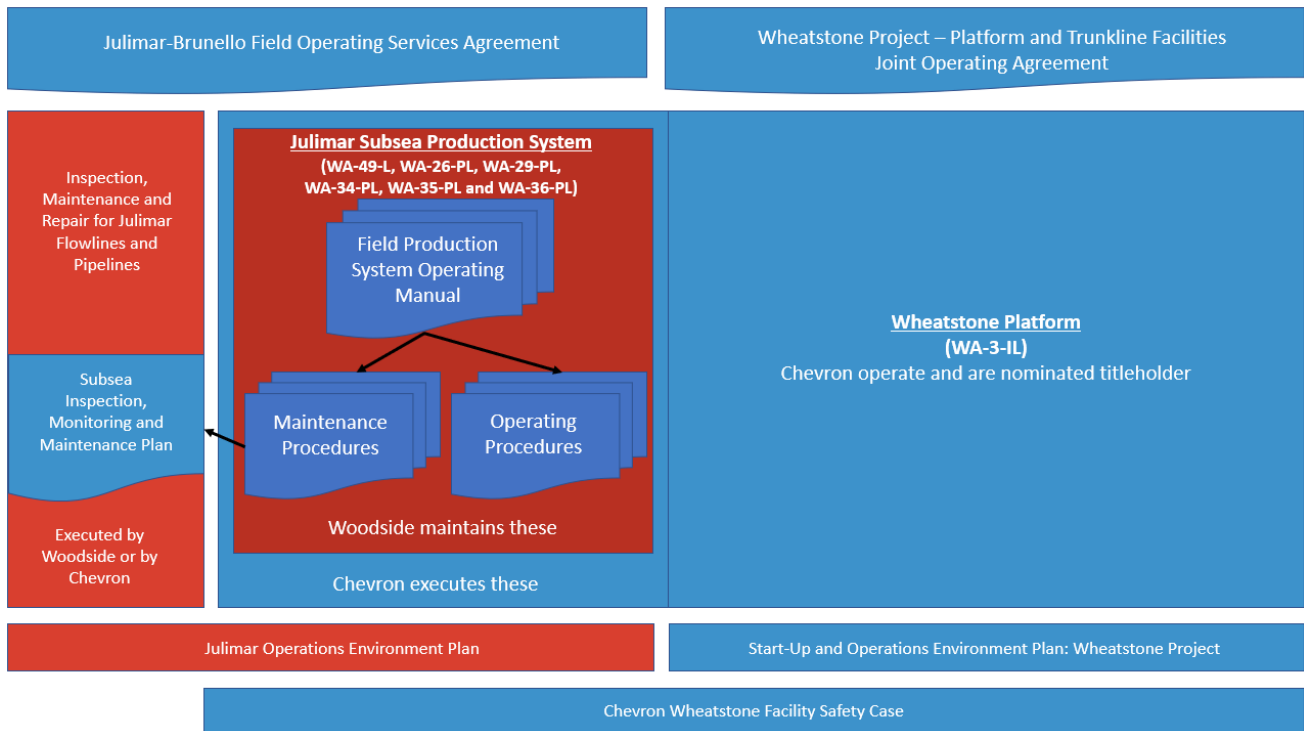


Figure 1-2: Agreements and Supporting Documentation for Operation of the Wheatstone Platform and Julimar Field Production System

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 outlined below (and illustrated in Figure 1-3):

- **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 developing processes and procedures
- **Processes and Procedures:** Processes identify the set of interrelated or interacting activities that transforms inputs into outputs, to systematically achieve a purpose or specific objective. Procedures specify what steps, by whom, and when 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 1-3: The four major elements of the WMS Seed

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 scalable wherever required. These key business activities are grouped into management, support, and value stream activities as shown in Figure 1-4. The value stream activities capture, generate and deliver value through the exploration and production lifecycle. The management activities influence all areas of the business, while support activities may influence one or more value stream activities.

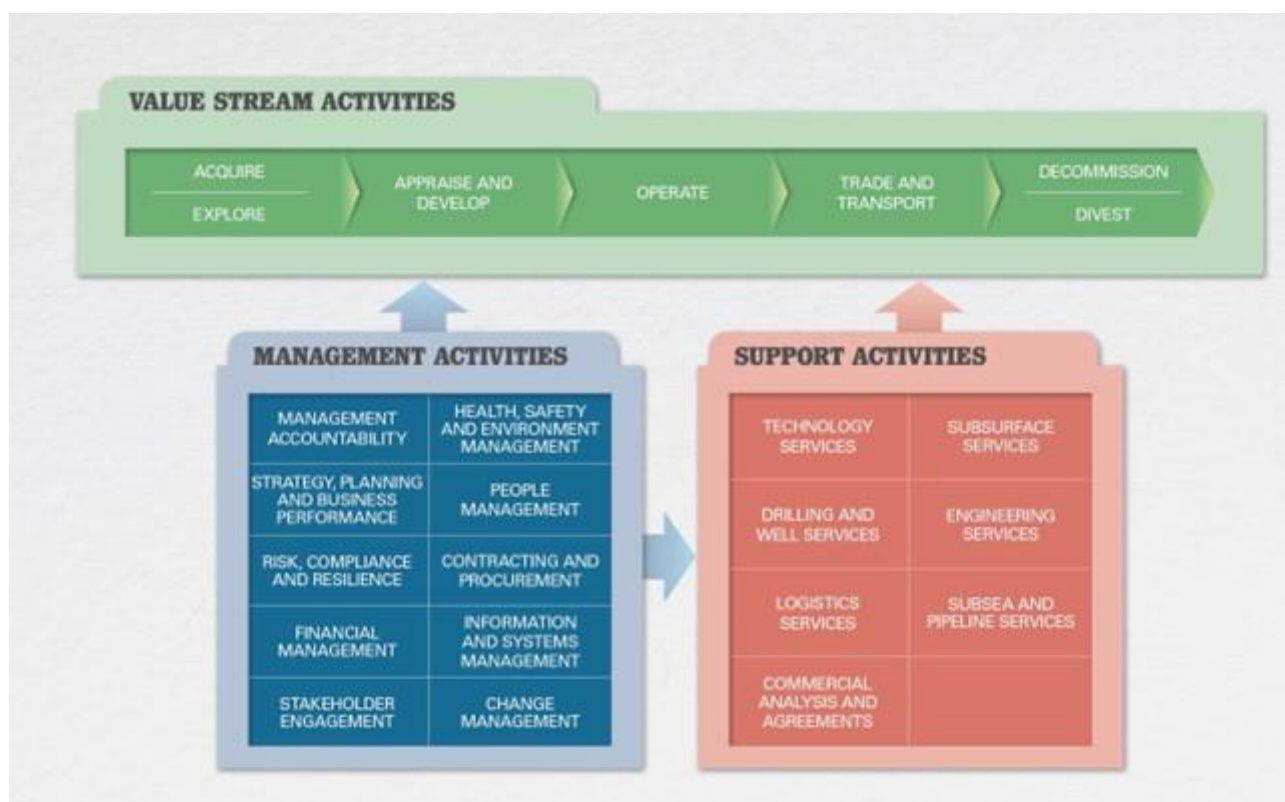


Figure 1-4: The WMS business process hierarchy

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 of this EP. The policy is reviewed regularly and 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>. The version applicable to the activity covered in this EP was reviewed in December 2024.

1.9.2 Climate Policy

Woodside's Climate Policy (included as Appendix A) identifies principles aimed to achieve Woodside's objective to thrive in this energy transition as a low cost, lower carbon energy provider.

For Woodside, a lower carbon portfolio is one from which the net equity Scope 1 and 2 greenhouse gas emissions, which includes the use of offsets, are being reduced towards targets, and into which new energy products and lower carbon services are planned to be introduced as a complement to existing and new investments in oil and gas. Our Climate Policy sets out the principles that we believe will assist us achieve this aim.

The Climate Policy applies to all Woodside's employees, contractors, and joint venture partners engaging in activities under Woodside's operational control. Woodside managers are also responsible for promotion of the Climate Policy in non-operated joint ventures. Please note that the Climate Policy is reviewed regularly and is updated as required. The 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>.

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 are relevant to the management of risks and impacts of the Petroleum Activities Program are detailed in Appendix B.

1.10.1 Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGGS Act)

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGGS Act) controls offshore petroleum activities beyond three nautical miles (nm) of the mainland (and islands) to the outer extent of the Australian Exclusive Economic Zone (EEZ) at 200 nm.

Table 1-3 outlines how the relevant decommissioning requirements of the OPGGS Act have been addressed in this EP. While decommissioning activities are not proposed under this EP the equipment has been designed for full removal. Timely and effective planning for decommissioning is ongoing throughout the asset's lifecycle and includes planning for decommissioning of property at the end of production and decommissioning of disused or redundant property at appropriate points throughout the life of an asset. Suspended, wet stored or preserved equipment will be maintained to enable removal at end of field life.

Table 1-3: Relevant requirements of the OPGGS Act 2006

Section Number	Relevant Requirement	Relevant Section of the EP
Section 270 – Consent to surrender title ¹		
(3)	The Joint Authority may consent to the surrender sought by the application only if the registered holder of the permit, lease or licence:	N/A
	c) has: <ul style="list-style-type: none">to the satisfaction of NOPSEMA, removed or caused to be removed from the surrender area (defined by subsection (7)) all property brought into the surrender area by any person engaged or concerned in the operations authorised by the permit, lease or licence; orarrangements that are satisfactory to NOPSEMA in relation to that property; and	N/A
	e) has provided, to the satisfaction of NOPSEMA, for the conservation and protection of the natural resources in the surrender area; and	N/A
	f) has, to the satisfaction of NOPSEMA, made good any damage to the seabed or subsoil in the surrender area caused by any person engaged or concerned in the operations authorised by the permit, lease or licence.	
Section 572 - Maintenance and removal of property etc. by titleholder		
(2)	A titleholder must maintain in good condition and repair all structures that are, and all equipment and other property that is: <ul style="list-style-type: none">in the title areaused in connection with the operations authorised by the permit, lease, licence or authority.	Section 7.4
(3)	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: (a) in the title area (b) used in connection with the operations authorised by the permit, lease, licence or authority.	Section 7.4

¹ There is no intent to surrender any titles in the scope of this EP.

Section Number	Relevant Requirement	Relevant Section of the EP
(7)	This section has effect subject to: (a) any other provision of this Act; and (b) the Regulations; and (c) a direction given by NOPSEMA or the responsible Commonwealth Minister under: Chapter 3; or this Chapter; and (d) any other law.	Section 7.4.2

Under the OPGGS Act, the Environment Regulations apply to petroleum activities in Commonwealth Waters and are administered by NOPSEMA. The objective of the Environment Regulations is to ensure petroleum activities are performed in a manner:

- consistent with the principles of ESD
- 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 (Cth)

One of the objectives 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 Act as 'matters of national environmental significance' (MNES). The EPBC Act sets a regime which aims to ensure actions taken on (or impacting upon) Commonwealth land or waters are consistent with the principles of ESD. When a person proposes to take an action that they believe may need approval under the EPBC Act, they must refer the proposal to the Commonwealth Minister for Environment.

In relation to offshore petroleum activities in Commonwealth waters, in accordance with the Streamlining Offshore Petroleum Approvals Program (the Program), requirements under the Act are now administered by NOPSEMA, commencing February 2014. The Program requires any offshore petroleum activities authorised by the OPGGS Act to be conducted in accordance with an accepted EP. The definition of 'environment' in the Program covers all matters protected under Part 3 of the EPBC Act.

1.10.3 Offshore Project Approval

The Julimar Brunello Gas Development Project was referred for assessment under the EPBC Act (2011/5936). A decision by the Environment Minister determined that the action is not a controlled action, provided it is undertaken in a particular manner. The manner in which the proposed action must be taken are provided in Table 1-4.

Table 1-4: Manner in which the proposed action must be taken as per EPBC 2011/5936 relevant to the Petroleum Activities Program

Condition number	Condition	Relevant Section of EP
1	An Oil Spill Contingency Plan and an Environment Plan as described in the referral and additional information must be approved by the relevant authority and in place prior to the proposed action commencing.	This EP and Appendix D
2	Procedures and equipment systems for ensuring well control must meet best practice industry standards and must be implemented prior to the proposed action commencing. This includes the installation of a minimum of two well barriers as specified in the referral and additional information.	Section 6.8.3

3	The oil spill preparedness and response measures and equipment described in the referral and additional information must be in place prior to the proposed action commencing.	Appendix D
4	To minimise risks of a hydrocarbon release during decommissioning, decommissioning activities must be taken into account in the Environment Plan, as specified in the referral.	N/A Decommissioning is not in scope of this EP (Section 1.10.1)

1.10.4 Recovery Plans and Threat Abatement Plans

Under Section 139(1)(b) of the EPBC Act, the Environment Minister 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 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 relation to offshore petroleum activities in Commonwealth waters, these requirements are now administrated by NOPSEMA in accordance with commitments set out in the Program. Relevant recovery plans or threat abatement plans relevant to the scope of this EP have been identified as described in Section 2.9 and assessed in Section 6.10.

1.10.5 Australian Marine Parks

Under the EPBC Act, Australian Marine Parks (AMPs), formerly 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 Commonwealth Government must not perform functions or exercise powers in relation to these parks that are inconsistent with management plans (s 362 of the EPBC Act). Relevant AMPs are listed in Section 4.8 and described in Appendix C. The North-west Marine Parks Network Management Plan describes the requirements for management.

Specific zones within 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).

Petroleum activities may occur within the Montebello Marine Park Multiple Use Zone (IUCN category VI). The principles for each zone determine what activities are acceptable within a protected area under the EPBC Act. In accordance with the North-west Marine Parks Network Management Plan (DNP 2018), petroleum activities including transportation of minerals by pipeline, and oil spill response are permissible subject to approval in Multiple Use Zone (IUCN category VI) and Special Purpose Zone Trawl (IUCN category VI). Proposed mining operations conducted under usage rights that existed immediately before the declaration of a marine park do not require approval. Conditions of the Class Approval that are considered relevant to the scope of this EP are provided in Table 1-5.

Table 1-5: Conditions of Class Approval relevant to the Petroleum Activities Program

Number	Condition	Relevant Section of EP
1	The Approved Actions must be conducted in accordance with: (a) an Environment Plan accepted under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations [2023] (b) the EPBC Act (c) the EPBC Regulations	Conditions 1a, b, c and f are met by the submitted EP. 1d The impacts on the marine park values have been considered Section 6.7 and 6.9. 1e Consultation has been undertaken with the Director of National Parks

Number	Condition	Relevant Section of EP
	(d) the North-west Network Management Plan (e) any prohibitions, restrictions or determinations made under the EPBC Regulations by the Director of National Parks (f) all other applicable Commonwealth and state laws (to the extent those laws are capable of operating concurrently with the laws and instruments described in paragraphs (a) to (e)).	and no prohibitions, restrictions or determinations have been made (Section 5).
2	If requested by the Director of National Parks, an Approved Person must notify the Director prior to conducting Approved Actions within Approved Zones.	Sections 6.7.1 and 7.14 describe requirements to notify the DNP prior to activities within the Montebello Multiple Use Zone.
3	If requested by the Director of National Parks, an Approved Person must provide the Director with information relating to undertaking the Approved Actions (or gathered while undertaking the Approved Actions), that is relevant to the Director's management of the Approved Zones.	If requested by the Director of National Parks, information relating to undertaking the Approved Actions (or gathered while undertaking the Approved Actions), that is relevant to the Director's management of the Approved Zones will be provided.

1.10.6 World Heritage Properties

Australian World Heritage management principles are prescribed in Schedule 5 of the EPBC Regulations 2000. Management principles that are considered relevant to the scope of this EP are provided in Table 1-6.

Table 1-6: Relevant Management Principles under Schedule 5—Australian World Heritage management principles of the EPBC Act

Number	Principle	Relevant Section of the EP
3	<p>Environmental impact assessment and approval</p> <p><i>3.01 This principle applies to the assessment of an action that is likely to have a significant impact on the World Heritage values of a property (whether the action is to occur inside the property or not).</i></p> <p><i>3.02 Before the action is taken, the likely impact of the action on the World Heritage values of the property should be assessed under a statutory environmental impact assessment and approval process.</i></p> <p><i>3.03 The assessment process should:</i></p> <ul style="list-style-type: none"> <i>(a) identify the World Heritage values of the property that are likely to be affected by the action; and</i> <i>(b) examine how the World Heritage values of the property might be affected; and</i> <i>(c) provide for adequate opportunity for public consultation.</i> <p><i>3.04 An action should not be approved if it would be inconsistent with the protection, conservation, presentation or transmission to future generations of the World Heritage values of the property.</i></p> <p><i>3.05 Approval of the action should be subject to conditions that are necessary to ensure protection, conservation, presentation or transmission to future generations of the World Heritage values of the property.</i></p> <p><i>3.06 The action should be monitored by the authority responsible for giving the approval (or another appropriate authority) and, if necessary, enforcement action should be taken to ensure compliance with the conditions of the approval.</i></p>	<p>3.01 and 3.02: Assessment of significant impact on World Heritage values is included in Section 6. Principles are met by the submitted EP.</p> <p>3.03(a) and (b): World Heritage values are identified in Section 4.9.3.3 and considered in the assessment of impacts and risks for the Petroleum Activity in Section 6.</p> <p>3.03(c): Relevant stakeholder consultation and feedback received in relation to impacts and risks to the World Heritage Properties are outlined in Section 5.</p> <p>3.04, 3.05 and 3.06: Principles are considered to be met by the acceptance of this EP.</p>

Note that Section 1 – General Principles and 2 – Management Planning of Schedule 5 are not considered relevant to the scope of this EP and, therefore, have not been included.

2. ENVIRONMENT PLAN PROCESS

2.1 Overview

This section outlines the process taken by Woodside to prepare this EP, once the activity was defined as a petroleum activity. The process describes the activity, the existing environment, followed by the environmental risk management methodology used to identify, analyse and evaluate risks to meet ALARP levels and acceptability requirements, and develop EPOs and EPSs. This section also describes Woodside's risk management methodologies as applied to implementation strategies for the activity. The process is repeated when submitting a revised EP having regard to changes to operational processes as well as confirming that the environmental management practices applied remain consistent with good industry practice.

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

Environmental impacts and risks include those directly and indirectly associated with the Petroleum Activities Program, and include potential emergency and accidental events:

- **Planned Activities** have the inherent potential to cause environmental impacts.
- **Environmental Risks** are unplanned events with the potential for environmental impact (termed risk 'consequence').

In this section, potential impacts from planned activities are termed 'impacts', and 'risks' are associated with unplanned events with the potential for environmental impact (should the risk be realised), with such impacts termed potential 'consequences'.

2.2 Environmental Impact and Risk Management Methodology

2.2.1 Woodside Risk Management Process

Woodside recognises that risk is inherent to its business and that effective management of risk is vital to delivering on company objectives, success and continued growth. Woodside is committed to managing risk proactively and effectively. The objective of Woodside's risk management system is to provide a consistent process for recognising and managing risks across Woodside's business. Achieving this objective includes ensuring risks consider impacts across these key areas of exposure: health and safety, environment, finance, reputation and brand, legal and compliance, and social and cultural. A copy of Woodside's Risk Management Policy is provided in Appendix A.

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 standard ISO 31000. 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 (Section 2.2.2 to 2.2.4):

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

The risk management methodology provides a framework to demonstrate that risks and impacts are continually identified, reduced to ALARP and assessed to be at an acceptable level, as required by the Environment Regulations. The key steps of Woodside's Risk Management Process

are shown in Figure 2-1. A description of each step and how it is applied to the scopes of this activity is provided in Section 2.2 to Section 2.12.



Figure 2-1: Woodside's risk management process

2.2.2 Health, Safety and Environment Management Procedure

The Health, Safety and Environment Management Procedure provides the structure for managing health, safety and environment (HSE) risks and impacts across Woodside, defines the decision authorities for company-wide HSE management activities and deliverables, and supports continuous improvement in HSE management.

2.2.3 Impact Assessment Procedure

To support effective environmental risk assessment, Woodside's Impact Assessment Procedure (Figure 2-2) provides the steps to meet the required environment, health and social standards by ensuring impact assessments are undertaken appropriate to the nature and scale of the activity, the regulatory context, the receiving environment, interests, concerns and rights of relevant persons, and the applicable framework of standards and practices.



Figure 2-2: Woodside's impact assessment process

2.2.4 Process Safety Management Procedure and Process Safety Risk Assessment Procedure

Due to the nature and scale of petroleum activities, Woodside's Process Safety Management Procedure establishes Woodside's framework for Process Safety Management (Section 7.2.2). This framework includes the Process Safety Risk Assessment Procedure (PSRA). The PSRA is a key part of Woodside's process safety management framework for managing the integrity of systems and processes that handle hazardous substances over the exploration and production lifecycle. The PSRA sets out methods to ensure that process safety risks are understood and controlled, including that all process safety hazards are systematically identified, assessed and treated so that the associated risks are reduced to a level that is tolerable and ALARP.

2.3 Environmental Plan Development Process

The EP development process is illustrated in Figure 2-3. Each element of this process is discussed further in Sections 2.4 to Section 2.11.

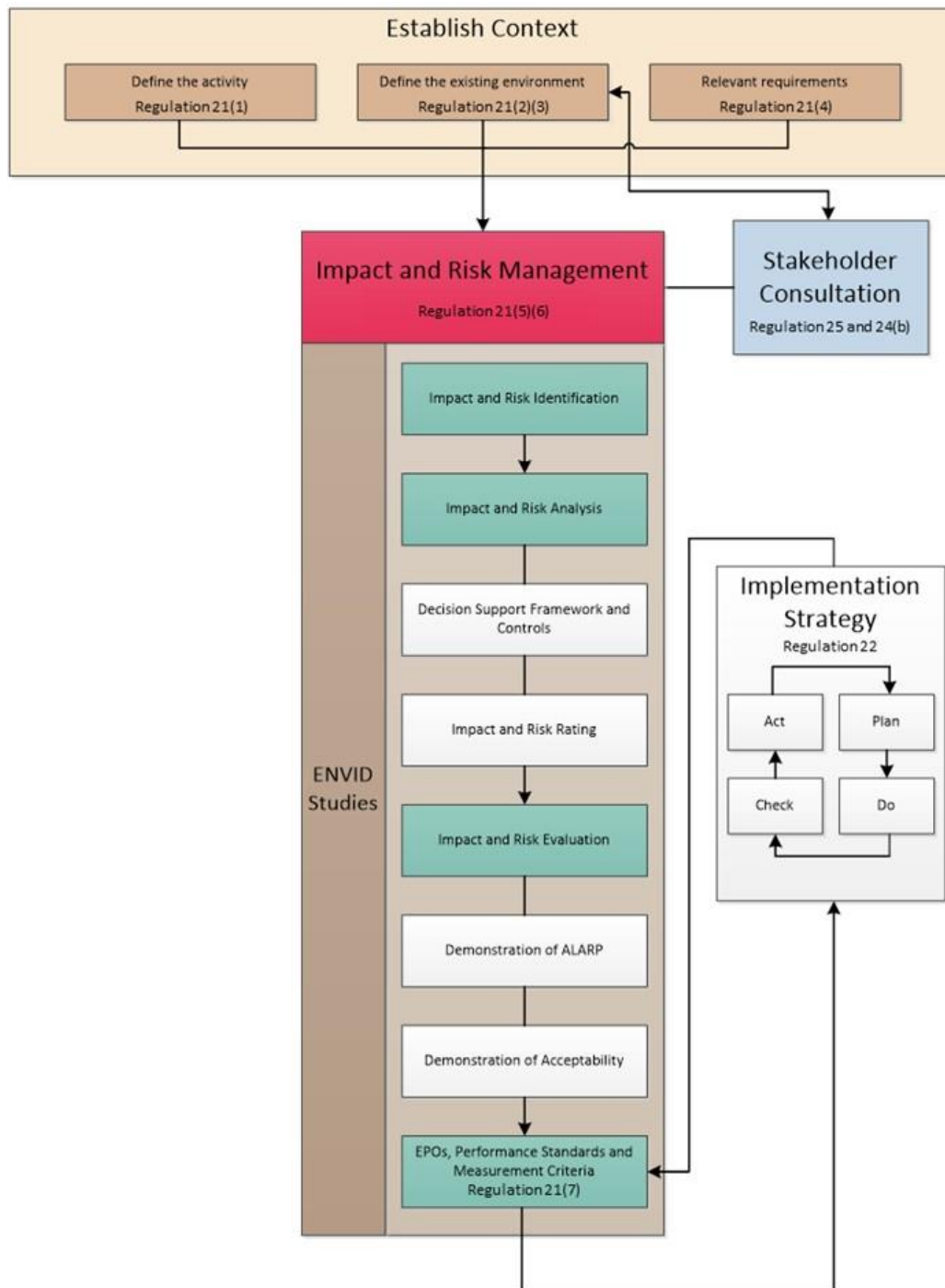


Figure 2-3: Environment Plan development process

2.4 Establish the Context

2.4.1 Define the Activity

This first stage involves evaluating whether the activity meets the definition of a ‘petroleum activity’ as defined in the Environment Regulations. The activity is described in relation to:

- the location
- what is to be undertaken

- how the activity is planned to be undertaken, including outlining operational details of the activity and proposed timeframes.

The 'what' and 'how' are described in the context of 'environmental aspects'² to inform the risk and impact assessment for planned (routine and non-routine) and unplanned (accidents, incidents, emergency conditions) activities.

The activity is described in Section 3 and is referred to as the Petroleum Activities Program.

2.4.2 Define the Existing Environment

The context of the existing environment is described and determined by considering the nature and scale of the activity (size, type, timing, duration, complexity, and intensity of the activity), as described in Section 4. The purpose is to describe the existing environment that may be impacted by the activity, directly or indirectly, by planned or unplanned³ events.

The Existing Environment (Section 4) is structured into subsections defining the physical, biological, socio-economic and cultural attributes of the area of interest, in accordance with the definition of environment in Regulation 5 of the Environment Regulations. These subsections make particular reference to:

- the environmental, and social and cultural consequences as defined by Woodside (refer to Table 2-1), which address key physical and biological attributes, as well as social and cultural values of the existing environment. These consequence definitions are applied to the impact and risk analysis (refer Section 2.2) and rated for all planned and unplanned activities. Additional detail is provided for unplanned hydrocarbon spill risk evaluation.
- EPBC Act MNES including listed threatened species and ecological communities and listed Migratory species. Defining the spatial extent of the existing environment is guided by the nature and scale of the Petroleum Activities Program (and associated sources of environmental risk). This considers the Operational Area and wider EMBA, as determined by the hydrocarbon spill risk assessments presented in Section 6.8.2. MNES, as defined under the EPBC Act, are addressed through Woodside's impact and risk assessment (Section 6).
- relevant values and sensitivities, which may include world or national heritage listed areas, listed threatened species or ecological communities, listed migratory species, or sensitive values.

By grouping potentially impacted environmental values by aspect (as presented in Table 2-1), the presentation of information about the receiving environment is standardised. This information is then consistently applied to the risk evaluation section to provide a robust approach to the overall environmental risk evaluation and its documentation in the EP.

² An environmental aspect is an element of the activity that can interact with the environment.

³ For each source of risk, the credible worst-case scenario in conjunction with impact thresholds is used to determine the spatial extent of the EMBA. The worst-case unplanned event is considered to be an unplanned hydrocarbon release, further defined for each activity through the risk assessment process. Interpretation of stochastic oil spill modelling determines the EMBA for the release, which defines the spatial scale of the environment that may be potentially impacted by the Petroleum Activities Program and in turn provides context to the 'nature and scale' of the existing environment.

Table 2-1: Example of the environment values potentially impacted which are assessed within the Environment Plan

Environmental Value Potentially Impacted Regulations 21(2), (3)					
<i>Marine Sediment</i>	<i>Water Quality</i>	<i>Air Quality (incl Odour)</i>	<i>Ecosystems/ Habitat</i>	<i>Species</i>	<i>Socio- economic</i>

2.4.3 Relevant Requirements

The relevant requirements in the context of legislation, other environmental approval requirements, conditions and standards that apply to the Petroleum Activities Program are identified and reviewed; and are presented in Appendix B.

The Risk Management, Climate and Environment and Biodiversity Policies are referenced in Appendix A.

2.5 Impact and Risk Identification

Relevant environmental aspects and hazards were identified that support the process to define environmental impacts and risks associated with an activity.

The environmental impacts and risks presented in this EP has been informed by recent and historic hazard identification (HAZID) and environmental risk identification studies (e.g., HAZID/ENVID) consequence modelling studies for high consequence, low probability environmental risks, bowtie risk assessments for the Major Environmental Events (MEE) as required by Woodside's PSRA processes, desktop reviews and studies associated with the Petroleum Activities Program. These studies have been reviewed and revalidated, as required, for the revision of this EP. In preparing the revision, Woodside also considers environmental performance and compliance information gathered during the implementation phase of the in-force EP. Further, feedback from NOPSEMA to Woodside across Woodside's portfolio of environment plans has been considered and integrated, where relevant.

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 consultation process (Section 5). The environmental outputs of applicable risk and impact workshops and associated studies are referred to as ENVID in this EP.

An environmental impacts and risks identification and assessment workshop was undertaken by multidisciplinary teams comprising relevant operational and environmental personnel with sufficient breadth of knowledge, training and experience to reasonably assure that risks and impacts were identified, and their potential environmental consequences assessed. Impacts and risks were identified, during the workshop, 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.

Impacts and risks were evaluated and tabulated for each planned activity and unplanned events respectively. Environmental impacts and risks were recorded in an environmental impacts and risk register. The output of the workshop is used to present the risk assessment and form the basis of performance outcomes, standards, and measurement criteria. This information is presented in Section 6, following the format presented in Table 2-2.

Table 2-2: Example of layout of identification of risks and impacts in relation to risk sources

Impact and Risk Evaluation Summary													
Source of Risk	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Summary of source of impact/risk													

2.6 Impact and Risk Analysis

As this EP is a revision of an existing operations EP, the risks and impacts from the previous revision of the Julimar Operations EP were reviewed and, where required, revised using the same impact and risk management process applied to new EPs. This allows all previously identified risks and impacts to be fully reassessed, including considering any new or changes to sensitivities, to ensure ALARP and acceptability requirements continue to be met.

Risk analysis further develops the understanding of a risk by defining the impacts and assessing appropriate controls, as well as considering previous risk assessments for similar activities, relevant studies, past performance, external consultation feedback, and the existing environment.

The key steps undertaken for each identified risk during the risk assessment were to:

- identify the Decision Type in accordance with the decision support framework
- identify appropriate control measures (preventive and mitigation) aligned with the Decision Type
- assess the risk rating.

2.6.1 Decision Support Framework

To support the risk assessment process and Woodside's determination of acceptability (Section 2.8.2), 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 (OGUK 2014). This concept is integrated into the environmental impacts and risks identification and assessment workshop to determine the level of supporting evidence that may be required to draw sound conclusions regarding risk level and whether the risk is acceptable and ALARP (Section 2.8). Application of the decision support framework confirms:

- activities do not pose an unacceptable environmental risk
- appropriate focus is placed on activities where the impact or risk is anticipated to be acceptable and demonstrated to be ALARP
- appropriate effort is applied to manage risks and impacts 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/impact (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/impact and is documented in impacts and risk register worksheets.

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

2.6.1.1 Decision Type A

Decision type A risks and impacts are well understood and established practice; they are generally recognised as good industry practice and are often embodied in legislation, codes and standards, and use professional judgment.

2.6.1.2 Decision Type B

Decision type B risks and impacts typically involve greater uncertainty and complexity and can include potential higher-order impacts and 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 that 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.

2.6.1.3 Decision Type C

Decision Type C risks and impacts typically have significant risks related to environmental performance. Such risks typically involve greater complexity and uncertainty, therefore requiring the 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 or impacts, 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.



Figure 2-4: Risk-related decision-making framework (Oil and Gas UK 2014)

2.6.1.4 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.

2.6.1.5 Decision Calibration

To determine that the alternatives selected, and control measures applied are suitable, the following 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.

2.6.2 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 impact or 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).

2.6.3 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 2-5).

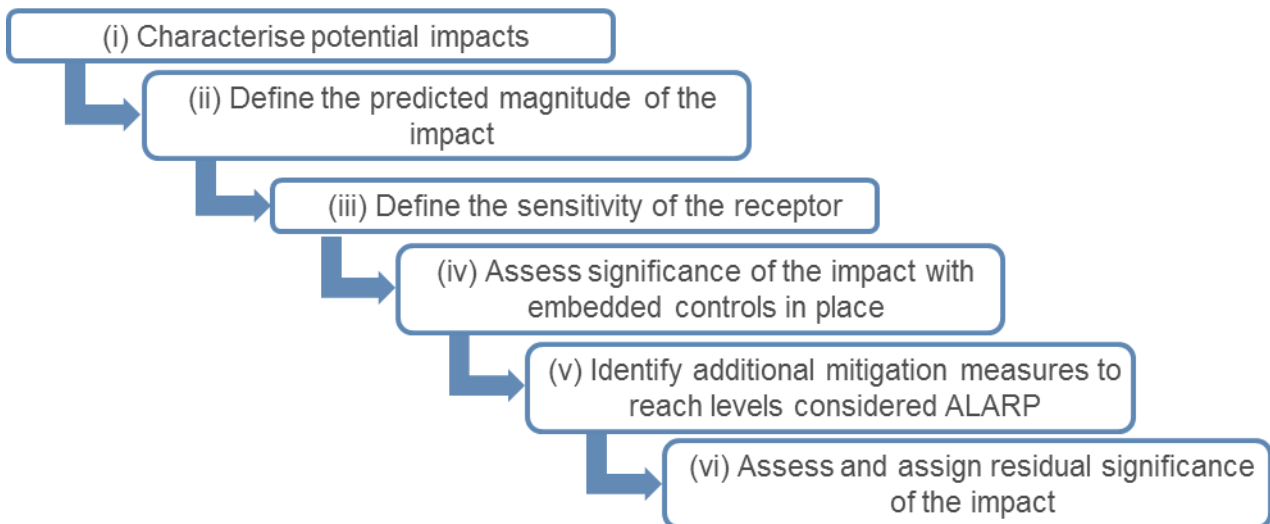


Figure 2-5: Environmental risk and impact analysis

Impacts are classified in accordance with the consequence (Table 2-3) outlined in Woodside's Risk Management Procedure and Risk Matrix (Figure 2-6). 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 2-2), are tabulated for each planned activity and unplanned event.

Table 2-3: 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
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

2.6.4 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 2-6).

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

Select the Consequence Level

Determine the worst-case credible consequence (Table 2-3) 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.

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 2-4).

Table 2-4: 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

Calculate the Risk Rating

The risk rating is derived from the consequence and likelihood levels determined above, in accordance with the Woodside Risk Matrix shown in Figure 2-6. 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.

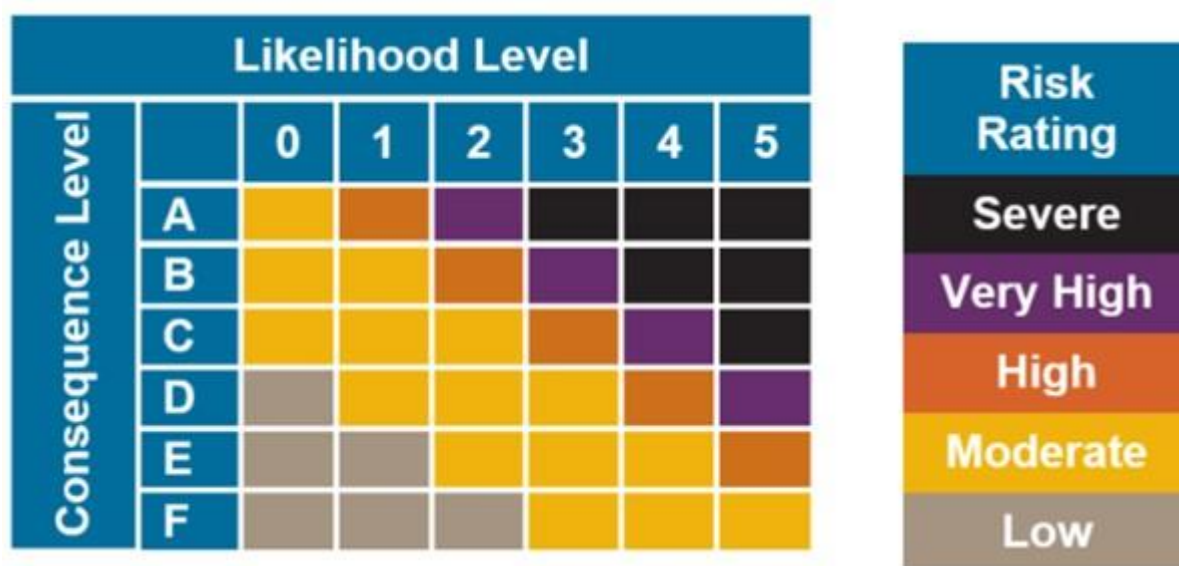


Figure 2-6: Woodside risk matrix – risk level

To support of ongoing risk management (a key component of Woodside’s Process Safety Management Framework – refer to 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 the 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 the communication and making visible the risk events and ensures the continual management of risk to ALARP by identifying risk reduction measures and assessing acceptability.

2.7 Classification and Analysis of Major Environmental Events (MEEs)

For Woodside’s production facilities, a further level of analysis is undertaken to identify, classify and analyse 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.

Woodside defines a 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 2-6). MEEs are evaluated against credible worst-case scenarios that may occur when all controls are absent or have failed. For this EP, the MEEs presented in the previous revision of the Julimar Operations EP were reviewed and revised to ensure they remain accurate and are adequately managed.

2.7.1 Major Environment Event Identification

The ENVID process identifies numerous sources of risk with differing consequence levels. These risks are screened for those risk events that meet the MEE criteria, and MEE risks are analysed further through detailed consequence modelling and probability/ frequency studies and examined for ‘appropriateness’ of controls in a bowtie risk assessment.

Risks that do not meet the MEE definition, although screened out of the MEE process, are still evaluated for ALARP and risk acceptability using the methodology described in Section 2.8. Some high consequence/low probability 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 company's reputation or relationships with relevant persons, beyond requirement to demonstrate ALARP and acceptable risk levels following application of controls.

2.7.2 Major Environment Event Classification

A standard naming convention has been established for MEEs; this is based around ensuring the MEE titles reflect the cause of the event (e.g. 'subsea system loss of containment') rather than the event itself (e.g. significant hydrocarbon spill to the marine environment). The MEEs are assigned a unique identification code (e.g. MEE-01, MEE-02, etc.).

2.7.3 Bowtie Analysis

MEEs are subject to more detailed analysis using the bowtie risk assessment technique, which illustrates cause outcomes pathways for each MEE and controls in place to prevent the 'top event' or mitigate the consequences. The key drivers for adopting the bowtie technique for MEEs are that it:

- identifies the controls (prevention and mitigation barriers) necessary to ensure the risk is acceptable and ALARP
- supports the process of demonstrating ALARP (described in Section 2.8)
- enables verification of and linking to the relevant sections of the WMS that supports barriers
- improves the capacity for lessons learnt and incident prevention by being able to directly relate causes of an incident to those controls that failed
- ensures greater visibility and granularity in the assessment process and enables complex risk scenarios to be presented in an easy to understand format.

The bowtie technique (an example bowtie diagram is shown in Figure 2-7) shows the relationships between the 'causes' that may lead to a particular unwanted event ('top event'), together with the range of potential escalation paths that can lead to a variety of 'outcomes' (or consequences). A bowtie also shows the preventive barriers that may prevent a top event from occurring specific to each cause, and the mitigation barriers in place to limit the potential effects once the top event has been realised, specific to each credible MEE outcome.

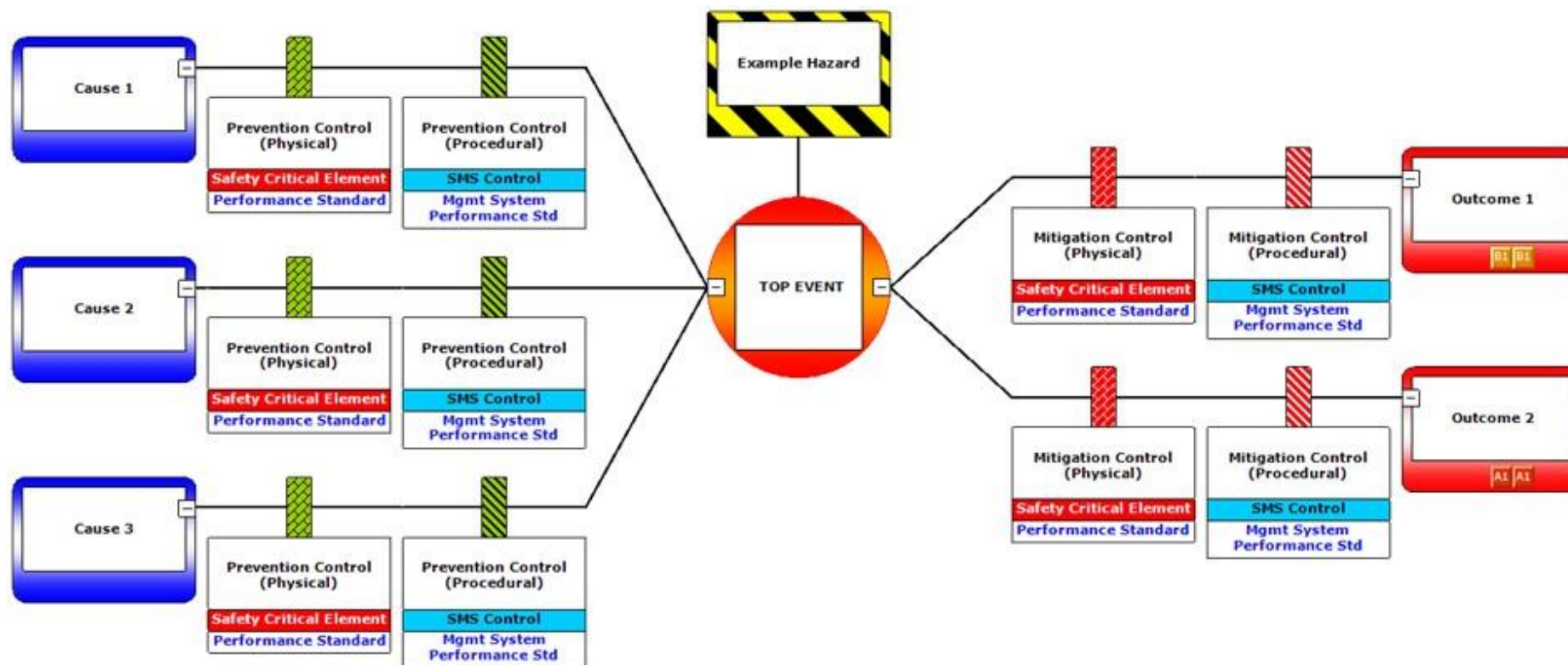


Figure 2-7: Example of bowtie diagram structure

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Revision: 8.0

Woodside ID: 10484514

Page 47 of 445

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2.7.4 Major Environment Event Register

A MEE register is prepared for each production facility after completing bowtie diagrams. The purpose of the MEE register is to record the MEE identification process, groupings, bowtie diagrams and datasheets in a consolidated format. Datasheets are prepared for each MEE, which summarise the hazard description, hazard management, emergency response, ALARP summary and a list of critical barriers identified on the bowties (known as Safety and Environment Critical Elements (SCEs)).

Potential common causes that contribute to MAEs/MEEs, or that can result in failure or degradation of the controls in place to protect against MAEs/MEEs, include some generic mechanisms of SCE failure and generic human error. These are represented in bowties applicable to multiple MEEs and identified in the MEEs applicable to this EP.

2.7.5 Safety and Environment Critical Elements and Technical Performance Standards

Woodside identifies and manages SCE 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. 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 process safety event. In addition, Woodside defines safety and environment critical equipment (SCQ) 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 Procedures and form the SCE facility performance standards. 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 7.3.4). 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 process safety 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.

The results of the MEE classification and analysis for Julimar are presented in Section 6.8.1 of this EP. More detail on the SCE and Performance Standards process, and the interrelationships to other parts of the SCE Management Procedures, is described in Section 7.3.4.

2.7.6 Safety-critical Management System Barriers

For each MEE, 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 MEEs.

2.8 Impact and Risk Evaluation

Environmental impacts and risks cover a wider range of issues, differing species, persistence, reversibility, resilience, cumulative effects, and variability in severity than safety risks. Determining the degree of environmental risk, and the corresponding threshold for whether a risk/impact has been reduced to ALARP and is acceptable, is evaluated to a level appropriate to the nature and scale of each impact or risk. Evaluation includes considering the:

- decision type
- principles of ESD – as defined under the EPBC Act
- internal context – ensuring the proposed controls and risk level are consistent with Woodside policies, procedures and standards (Section 7 and Appendix A)
- external context – the environment consequence (Section 6) and stakeholder acceptability (Section 5)
- other requirements – ensuring the proposed controls and risk level are consistent with national and international standards, laws and policies.

In accordance with Regulation 34(a), 34(b), 34(c) and 21(5)(b), Woodside applies the following process to evaluate impacts and risks and demonstrate ALARP and acceptability for environmental impacts and risks, appropriate to the nature and scale of each impact or risk.

2.8.1 Demonstration of As Low As Reasonably Practicable

The descriptions in Table 2-5 articulate how Woodside demonstrates that different risks, impacts and Decision Types identified within this EP are ALARP.

Table 2-5: Summary of Woodside's criteria for demonstrating 'as low as reasonably practicable'

Risk	Impact	Decision type
<i>Low and moderate (C, D, E or F level consequence)</i>	<i>Negligible, slight, or minor (D, E or F)</i>	<i>A</i>
Woodside demonstrates these impacts, risks and decision types are reduced to ALARP if: <ul style="list-style-type: none"> • identified controls meet legislative requirements, industry codes and standards, applicable company requirements and industry guidelines, or • further effort towards impact/risk reduction (beyond employing opportunistic measures) is not reasonably practicable without sacrifices that are grossly disproportionate to the benefit gained. 		
<i>High, very high or severe (A or B level consequence)</i>	<i>Moderate and above (C, B or A)</i>	<i>B and C</i>
Woodside demonstrates these higher-order impacts, risks and decision types are reduced to ALARP where it can be shown good industry practice and RBA has been employed, if legislative requirements are met, societal concerns are accounted for, and the alternative control measures are grossly disproportionate to the benefit gained.		

2.8.2 Demonstration of Acceptability

The descriptions in Table 2-6 articulate how Woodside demonstrates how different risks, impacts and decision types identified within this EP are Acceptable.

Table 2-6: Summary of Woodside's criteria for acceptability

Risk	Impact	Decision type
Low and moderate	Negligible, slight, or minor (D, E or F)	A
Woodside demonstrates these risks, impacts and decision types are 'broadly acceptable' if they meet legislative requirements, industry codes and standards, applicable company requirements and industry guidelines. Further effort towards risk reduction (beyond using opportunistic measures) is not reasonably practicable without sacrifices that are grossly disproportionate to the benefit gained.		
High, very high or severe	Moderate and above (C, B or A)	B and C
<p>Woodside demonstrates these higher order impacts, risks and decision types are 'acceptable if ALARP' if it can be demonstrated using good industry practice and risk based analysis (RBA), if legislative requirements are met and societal concerns are accounted for and the alternative control measures are grossly disproportionate to the benefit gained.</p> <p>In undertaking this process for Moderate and High risks, Woodside evaluates:</p> <ul style="list-style-type: none"> the Principles of ESD as defined under the EPBC Act the internal context – the proposed controls and consequence/risk level are consistent with Woodside policies, procedures and standards. the external context – consideration of the environment consequence (Section 6) and stakeholder acceptability (Section 5) are considered Other requirements – the proposed controls and consequence/risk level are consistent with national and international industry standards, laws and policies, and applicable plans for management and conservation advices, conventions, and significant impact guidelines (e.g. for MNES). <p>Additionally, Very High and Severe risks require 'Escalated Investigation' and mitigation. If after further investigation the risk remains in the Very High or Severe category, the risk requires appropriate business engagement with increasing involvement of senior management in accordance with Woodside's Risk Management Procedure to accept the risk. This includes due consideration of regulatory requirements.</p>		

2.9 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 (**Section 1.10.4**). 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 6.10)
- 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 6.10).
- 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 6.10).

2.10 Environmental Performance Outcomes, Environmental Performance Standards and Measurement Criteria

The Environment Regulations define environmental performance outcomes (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 (Department of the Environment 2013), or
- specific agreements or expectations with other relevant persons (e.g. fishers or other marine users).

For each evaluated impact and risk, controls adopted during the ENVID and through demonstrating ALARP are paired with activity-specific EPOs, performance standards (PS) and measurement criteria (MC). EPOs, PS and MC form the basis for monitoring and auditing and allow Woodside's environmental performance to be measured through the implementation of this EP to ensure impacts and risks will be managed to a level that is ALARP and acceptable. EPOs, PS and MC are defined for each identified credible impact and risk in Section 6.

2.11 Implement, Monitor, Review and Reporting

An implementation strategy for the Petroleum Activities Program describes the specific measures and arrangements to be implemented for the duration of the Program. The strategy is based on the principles of AS/NZS ISO 14001 Environmental Management Systems, and demonstrates:

- control measures are effective in reducing the environmental impacts and risks of the Petroleum Activities Program to ALARP and acceptable levels
- EPOs and EPSs set out in the EP are met through monitoring, recording, auditing, managing non-conformance, and reviewing
- all environmental impacts and risks of the Petroleum Activities Program are periodically reviewed in accordance with Woodside's risk management procedures
- roles and responsibilities are clearly defined, and personnel are competent and appropriately trained to implement the requirements set out in this EP, including in emergencies or potential emergencies
- arrangements are in place for oil pollution emergencies, to respond to and monitor impacts
- environmental reporting requirements are met, including 'reportable incidents'
- appropriate consultation is undertaken throughout the activity.

The implementation strategy is presented in Section 7.

2.12 Consultation

Woodside consults relevant persons in the course of preparing an EP in accordance with Regulation 25 of the Environment Regulations. Woodside's consultation methodology is presented in Section 5. Woodside's consultation record is provided in Appendix F.

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. It includes the location of the activity, general details of the Julimar Development⁴ layout, the operational details of the activity, and additional information relevant to consideration of environmental risks and impacts. An overview of the Petroleum Activities Program is provided in Table 3-1.

Table 3-1: Petroleum Activities Program Overview

Item	Description
Production / Infrastructure Licences	Production licence: <ul style="list-style-type: none"> • WA-49-L Non-Julimar licence areas within the Operational Area (for vessel operations only): <ul style="list-style-type: none"> • WA-34-L Non-Woodside licence area connected to the Julimar Field Production System: <ul style="list-style-type: none"> • WA-3-IL (Chevron operated, includes 20% Julimar Joint Venture), • WA-48-L.
Pipeline Licences	WA-26-PL, WA-29-PL, WA-34-PL, WA-35-PL and WA-36-PL
Water Depth	71 m to 244 m
Key components of subsea infrastructure	Wells, Xmas trees, manifolds, flowlines/pipelines, umbilicals.
Vessels	Subsea support vessels and others appropriate to the nature of the petroleum activities.
Key activities	Julimar Operations include: <ul style="list-style-type: none"> • Routine production from Julimar and Brunello wells; 13 proposed (with up to 16 wells capacity). • Routine and non-routine inspection, maintenance, monitoring and repair of subsea infrastructure (including use of ROVs, AUVs and acoustic sensors). • Initial commissioning and start-up activities for JDP3 wells and subsea infrastructure.

3.2 Location

The Petroleum Activities Program is located in Commonwealth waters in the Carnarvon Sub-basin, within licence areas WA-49-L, WA-26-PL, WA-29-PL, WA-34-PL, WA-35-PL and WA-36-PL. The Operational Area (Figure 3-1) is ~160 km north-west of Dampier and adjacent to the Wheatstone Platform. The closest landfall to the Petroleum Activities Program is the Montebello Islands, about 46 km south-east. Approximate location details for the Petroleum Activities Program are provided in Table 3-2.

⁴ The Julimar Development consists of three development phases: Brunello Phase 1, Julimar Development Phase 2 and Julimar Development Phase 3; collectively these are referred to as the "Julimar Development" throughout this EP.

Table 3-2: Julimar Development and Associated Infrastructure Locations and Petroleum Permits

Activity	Water depth (Approx. in LAT)	Latitude (WGS84)	Longitude (WGS84)	Production licence
Well and centre locations				
BruA-2	149 m	20°01'49.1571" S	115°12'05.6357" E	WA-49-L
BruA-3	149 m	20°01'47.8720" S	115°12'07.0511" E	WA-49-L
BruA-4	149 m	20°01'48.1207" S	115°12'07.5964" E	WA-49-L
BruA-5	149 m	20°01'49.6633" S	115°12'05.7596" E	WA-49-L
BruA-6	149 m	20°01'48.4958" S	115°12'07.8942" E	WA-49-L
JULA-01	174 m	20° 08' 52.996" S	115° 02' 28.377" E	WA-49-L
JULA-02	174 m	20° 08' 52.222" S	115° 02' 26.436" E	WA-49-L
JULA-04	174 m	20° 08' 53.554" S	115° 02' 28.078" E	WA-49-L
J85 Development Well*	158 – 207 m	20° 08' 52.917" S	115° 02' 27.23" E	WA-49-L
JUA1C (J54)*	173 m	20° 08' 59.969" S	115° 02' 23.622" E	WA-49-L
JUA1E (J25W)*	174 m	20° 08' 58.753" S	115° 02' 22.501" E	WA-49-L
JUB1A (J14)*	191 m	20° 06' 27.931" S	115° 03' 23.418" E	WA-49-L
JUB1B (Penfolds)*	169 m	20° 05' 39.071" S	115° 05' 44.871" E	WA-49-L
Pipeline/flowline route corridor location				
Brunello, Julimar, MEG pipeline/ production flowline corridor	148 m (start) 71 m (end)	20°01'51.7586" S (start) 19°55'45.776" S (end)	115°12'11.3265" E (start) 115°23'02.215" E (end)	WA-26-PL
JDP2 Flowline / Umbilical Route	145 m (start) 174 m (end)	20° 01' 53.43" S (start) 20° 08' 52.917" S (end)	115° 12' 09.28" E (start) 115° 02' 27.23" E (end)	WA-29-PL
JDP3 JUA1C to JUA1M- Man01*	174 m (start) 174 m (end)	20° 08' 59.75" S (start) 20° 08' 52.917" S (end)	115° 02' 24.59" E (start) 115° 02' 27.23" E (end)	WA-35-PL
JDP 3 JUA1E to JUA1M- Man01*	174 m (start) 174 m (end)	20° 08' 59.25" S (start) 20° 08' 52.917" S (end)	115° 02' 23.05" E (start) 115° 02' 27.23" E (end)	WA-36-PL
JDP 3 JUB1B-JULB MAN- ILT*	170 m (start) 192 (mid) 174 m (end)	20° 05' 39.01" S (start) 20° 06' 26.41" S (mid) 20° 07' 36.11" S (end)	115° 05' 44.84" E (start) 115° 03' 24.02"E (mid) 115°04' 12.23" E (end)	WA-34-PL
Manifolds				
BruA manifold	149 m	20°01'49.0788" S	115°12'06.8670" E	WA-49-L
BruA Crossover manifold (BruA XOM)	149 m	20°01'51.1115" S	115°12'09.0653" E	WA-49-L
JULA manifold	174 m	20° 08' 52.917" S	115°02' 27.23" E	WA-49-L
JULB manifold*	192 m	20° 06' 26.41"S	115° 03' 24.02"E	WA-49-L
Inline T Assembly	167 m	20° 07' 36.11" S	115°04' 12.23" E	WA-49-L

* Indicative locations, infrastructure yet to be installed.

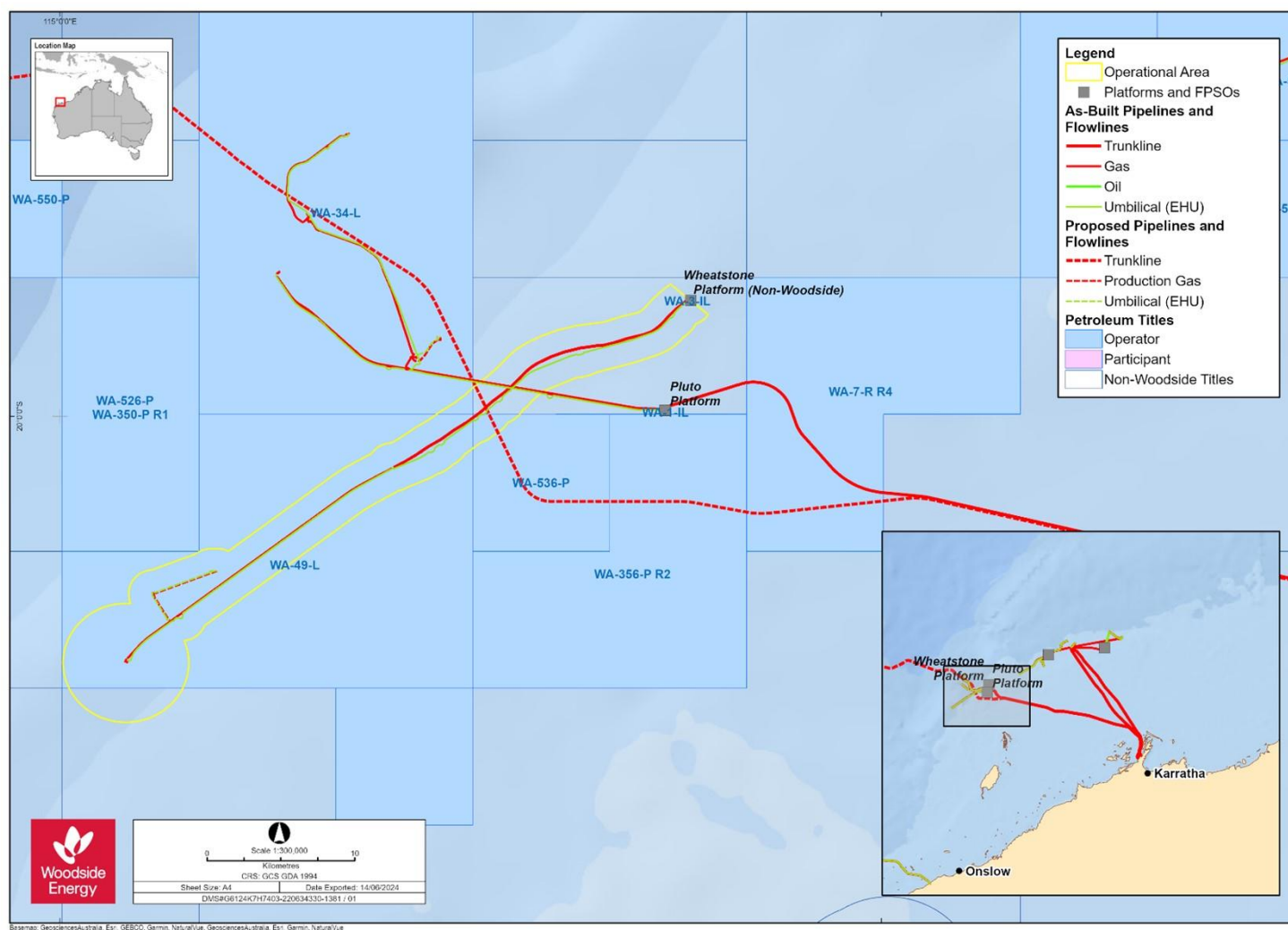


Figure 3-1: Location of the Petroleum Activities Program

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 54 of 445

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3.3 Operational Area

The Operational Area defines the spatial boundary of the Petroleum Activities Program (**Figure 3-1**), as described, risk assessed and managed by this EP, including vessel related petroleum activities within the Operational Area⁵.

For the purposes of this EP the following Operational Area applies:

- subsea hydrocarbon gathering system infrastructure, including historic production wells (BruA-2, BruA-3, BruA-4, BruA-5, BruA-6, JULA-01, JULA-02 and JULA-04), new JDP3 production wells (J85 Development Well, JUA1C, JUA1E, JUB1A and JUB1B), flowlines, umbilicals and an area within 1500 m around the subsea infrastructure up to the first weld upstream of the flowline flange at the Riser Inlet Point.
- a four km radius around the centre of JULA manifold to accommodate a future well into the J-85 reservoir.

3.4 Timing

Production from the Julimar-Brunello Development commenced in 2016 and operates 24 hours a day, year-round. The Brunello and Julimar fields are predicted to remain active for the life of this EP.

3.5 Activity Components

3.5.1 Field Inventory

The layout of the Julimar Brunello Development subsea infrastructure is shown in Figure 3-2. The subsea system is typically controlled from Wheatstone Platform via an integrated power and control cable through the following components:

- umbilicals, which provide hydraulic and electric power, communications and chemical supplies between the platform and subsea components. Umbilicals run between the platform and cross-over manifold through to wells.
- Subsea Control Modules (SCM), which are sealed and pressure compensated electro-hydraulic units (typically found on Xmas trees) and link the surface and subsea controls.

A number of subsea valves may also be overridden manually from a Remote Operated Vehicle (ROV). The subsea infrastructure in title is recorded and tracked using a database. This database is updated as equipment is brought into title, which may include new or replacement equipment (Section 3.9.4; Section 6.7.2). ROV as-found and as-left surveys are undertaken to identify the location of items placed on the seabed. At the completion of an IMMR campaign this data is used to update the inventory for the title. Material items dropped to the marine environment and not recovered (see Section 6.9.4) are added to the inventory for the title. The subsea system has been designed, fabricated and installed in accordance with good practice and international standards. The pipelines, flowlines and wells are marked on nautical charts. Decommissioning planning is done for infrastructure no longer in use.

⁵ Vessels supporting the Petroleum Activities Program operating outside of the Operational Area (e.g. transiting to and from port) are subject to applicable maritime regulations and other requirements which are not managed under this EP

Table 3-3: Inventory of installed wells and subsea infrastructure, including status

Infrastructure	Status ¹	Decommissioning Planning
2 x 22 km 18" Julimar/Brunello flowlines/pipeline	Maintained for production	Section 7.4
1 x 22 km 18" JDP2 flowline	Maintained for production	
1 x ~ 70m 8" JULB1A well to JULB1M manifold flexible flowline	Planned for installation	
1 x ~4.35 km 8" JULB1B well to JULB1M manifold flexible flowline	Planned for installation	
1 x ~2.5 km 10" JULB to ILT flexible flowline	Planned for installation	
1 x ~2 km 8" J-85 (name TBA) to JULA manifold flexible flowline	Planned for installation	
Horizontal spools and vertical jumpers and connectors	Maintained for production	
13 production wells with Xmas trees ²	Maintained for production ³	
Four production manifolds (BruA PM, JULA, JULB, BruA XOM) including SCM's and CDU's	Maintained for production ³	
Electrical, hydraulic and optical flying leads	Maintained for production	
Electro-hydraulic umbilicals and associated structures including MEG Line.	Maintained for production	
Tie-in structures and skids /pipeline end terminations	Maintained for production	
Adjustable pipe support structures	Maintained for production	
Flowline deflection initiators (shrouds)	Maintained for production	

¹ Status at time of submission of this EP (Revision 8)

² Provision for a further 3 wells in a future EP based on available slots in existing manifolds

³ JULB manifold and the five JDP3 wells with Xmas trees are planned for installation at the time of submission of this EP (Revision 8)

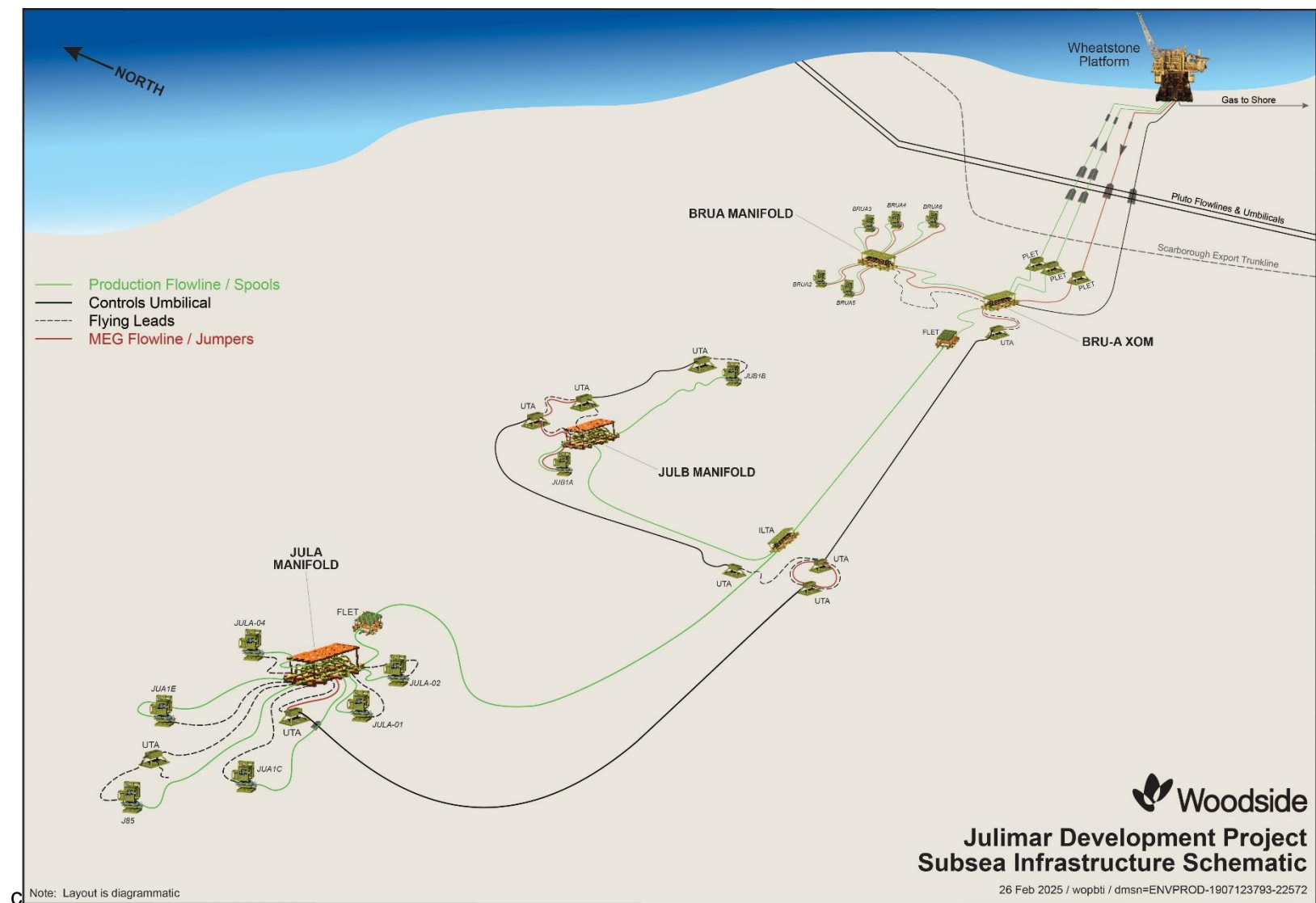


Figure 3-2: Julimar Development Overview

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 57 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

3.5.2 Julimar Phase 3 Commissioning and Start-up

The start-up activities associated with the JDP 3 wells and associated subsea infrastructure are planned to commence H1 2026. All activities may be subject to rescheduling, including delay, based on operational requirements of the Wheatstone Platform or other operational requirements, and external influences such as weather.

Activities for pre-commissioning of the Julimar Phase 3 subsea infrastructure are covered under the accepted *Julimar Phase 3 Drilling and Subsea Installation EP* (Rev. 2), up to the point of introduction of hydrocarbons. Commissioning, including unload and clean-up of wells to maximum rates is covered in this EP. Once hydrocarbons have been introduced into the system (hot commissioning), well completion fluid and subsea flowline preservation fluid (MEG/water mix) are displaced to the Wheatstone platform.

Commissioning and start-up of the JDP3 wells is estimated to take approximately 20 days per well and may occur in a single campaign or over the course of a number of campaigns.

A support vessel (Section 3.6) will be in the field during JDP3 commissioning, assisting with start-up activities, including opening process isolation valves with a remotely operated vehicle (ROV). During commissioning and start-up, support vessels may also assist with troubleshooting or IMMR activities as required for any contingency scenarios.

3.5.3 Steady State Production Operations

In steady state production, reservoir fluids are produced from the Brunello and Julimar fields prior to comingling at the BruA XOM (Figure 3-2). Eight wells currently produce from the fields. This EP includes production from a further three wells tied into the six slot JULA production manifold and two wells tied into a new two slot production manifold at JULB.

Production fluids flow into a separator on the Wheatstone Platform. Separated gas, condensate and produced water (PW) streams are metered prior to combining with the Wheatstone production streams. Combined dehydrated gas and dewatered condensate from the Wheatstone Platform enter the trunkline for the onshore Wheatstone Gas Plant supply, which is outside the scope of this EP.

Emissions and discharges from the Wheatstone Platform are managed under the *Start-Up and Operations Environment Plan: Wheatstone Project*.

3.5.4 Greenhouse Gas Emissions

Direct and indirect sources of greenhouse gas (GHG) emissions associated with the Julimar Operations are summarised in Table 3-4. GHG sources that are not part of Julimar Operations (e.g., from gas processing at the Chevron operated onshore facilities at Ashburton North) are included for completeness, with the relevant EP for these emissions listed in Table 3-4.

Table 3-4: Direct and indirect greenhouse gas emissions sources associated with Julimar Operations and supply chain

Emission Type	Emissions Source	Location	Jurisdiction	Process	EP
Direct	Wheatstone facility process	Offshore facility operated by Chevron	Commonwealth	GHG emissions from fuel, flares, fugitives and process vents	Wheatstone Project Start-up and Operations EP ¹

Indirect	Support vessels (on charter to Woodside)	Offshore at Julimar Operational Areas	Commonwealth	GHG emissions from engines and fugitives on vessels	This EP
	Gas processing at the onshore facilities at Ashburton North	Onshore facility operated by Chevron	State (WA)	GHG emissions from venting reservoir CO ₂ , combustion of gas as fuel, flares and fugitives associated with processing gas to products such as LNG, LPG, condensate and domestic gas	Wheatstone Project Start-up and Operations EP ¹
	Third party transport, regassification and end use of products	Transit and Market managed by Chevron	Subject to consumer location	GHG emissions from transport of products to market, including regassification and distribution of LNG in customer markets, and from combustion of products as part of power generation and other energy solutions within the final market	Wheatstone Project Start-up and Operations EP ¹

1. As noted in Consultation (SI Report, reference 27.3 – 27.6 and summarised in Appendix F Section 4.7) an MOC has been conducted that describes, risk assesses, manages to ALARP and demonstrates these emissions are of an acceptable level within the Start-Up and Operations Environment Plan: Wheatstone Project. In accordance with Regulation 56(1) of the Environment Regulations, Woodside refers NOPSEMA to the information previously given to NOPSEMA in the accepted Wheatstone Start-Up and Operations EP which is available on the NOPSEMA website using the following link: <https://docs.nopsema.gov.au/A853704>.

3.6 Support Vessel Operations

3.6.1 Subsea Support Vessels

Subsea support vessels including uncrewed surface vessels (USVs, see Section 3.6.2) are used to support field work such as subsea IMMR and start-up activities and can operate 24 hours a day. Subsea activities are typically undertaken from a subsea support vessel or USV and may use an ROV (see Section 3.6.3) with transponders. Typical subsea support vessels use a 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.

The DP system requires the temporary deployment of up to six transponders on the seabed. Transponders are also used for monitoring the location of infrastructure/equipment during a repair. The transponders are attached to small recoverable moorings (metal clump weight or tripod) that are lowered to the seabed and placed in position by ROV. The transponders have a small footprint; less than 0.5 m². The transponders and moorings are recovered using ROVs at the end of the activity.

The length of time that vessels are in field varies depending on the nature of the activity. It is anticipated that vessel time for routine inspection activities will involve no more than one to two weeks per campaign, depending on operational requirements. Maintenance and repair activities may result in additional vessel time of approximately 4 weeks, depending on the scale and complexity of the work scope, but such activities are expected to be infrequent.

Vessels supporting the activities will vary depending on operational requirements, vessel schedules, capability and availability. The specifications of the Fugro Etive (Figure 3-3) are presented in Table 3-5 as an example and represent the typical specifications of a support vessel. IMMR activities may require the use of vessels of various sizes, depending on the scope of work.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 59 of 445

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Typically, smaller vessels will be used for non-intervention, inspection activities and the larger vessels for scopes requiring heavier equipment and craneage.



Figure 3-3: Typical Support Vessel (*Fugro Etive*)

On rare occasions, more than one vessel may be needed. This might occur once every two or three years in circumstances where there are several activities that need to be conducted simultaneously.

Table 3-5: Indicative Subsea Support Vessel Specifications (*Fugro Etive*)

Attribute	Details
Type	Operations support vessel
Length overall (LOA)	92.95 m
Breadth	19.70 m
Depth	7.7 m
Gross tonnage	4926 Tonne
Accommodation	100
Dynamic positioning system	DP2
Fuel Capacity	2,225 m ³ (241 m ³ largest isolated diesel tank)

All vessels are typically required to undergo a Woodside Marine Assurance inspection to review compliance with marine laws and Woodside safety and environment requirements. Refer to Section 7.12.2.3 for a summary of the marine assurance process.

Support vessels have appropriate lighting to ensure a safe working environment. They also have appropriate navigational lighting as per maritime requirements. Light and noise emissions may be generated by temporary subsea ROV and transponder (positioning) activities.

Typical support vessels use a dynamic positioning (DP) system in combination with satellite navigation to allow manoeuvrability, maintain position and avoid anchoring when undertaking works due to the proximity of subsea infrastructure. Vessels are equipped with anchors which may be deployed in the event of an emergency. All subsea support vessels will use marine diesel oil or marine gas oil and will be provisioned in port or designated bunkering facilities. There will be no refuelling on site in the Operational Area.

3.6.2 Uncrewed Surface Vessel

A USV may be utilised to complete 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

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 60 of 445

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management team and include a Vessel Master, 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 vessels are also fitted with 360-degree cameras monitored by the remote vessel master supporting safe navigation. The USV is assessed by Woodside Marine (Section 7.12.2.3) to review compliance with marine laws, flag requirements, vessel class and Woodside's safety and environment requirements. Because there are no facilities to support human occupancy on USVs, 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. USV's have a maximum speed of 10 knots and 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 3-6.

Table 3-6: Indicative USV 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

3.6.3 Remotely Operated Vehicles

Subsea support vessels may be equipped with an ROV system that is maintained and operated by a specialised contractor aboard the vessel. ROVs may be used during for activities such as:

- blowout preventer (BOP) land-out and recovery
- BOP well control contingency
- pre and post installation survey
- removal of sediments on or around subsea infrastructure
- commissioning and start-up of subsea infrastructure.

An ROV can be fitted with various tools and camera systems that can be used to capture permanent records (both still images and video) of the operations and immediate surrounding environment. Specifically, during installation, the ROV is fitted with hydraulically driven tools to facilitate flowline tie-in. An ROV may also be used in the event of an incident to deploy the Subsea First Response Toolkit.

3.7 Helicopter Operations

Helicopters may be used to transport specialist personnel and/or urgent freight to/from the activity vessels. They may also be used as a means of evacuating personnel in the event of an emergency. Helicopter support is principally supplied from Karratha Airport. Helicopter use for the activity is limited to occasional periods of short duration when vessels are present within the Operational Area.

3.8 Chemical Usage

Production chemicals are utilised for purposes such as scale inhibition and prevention of bacterial growth. These may originate from the Wheatstone platform or from a chemical package on a support vessel.

Continuous use chemicals are those that are typically supplied to the Brunello and Julimar fields via Mono Ethylene Glycol (MEG) flowline and umbilicals from the Wheatstone platform and continuously added into the process. These may include:

- MEG used as a hydrate inhibitor
- scale inhibitor manages and prevents scale build-up within subsea equipment
- the subsea control fluid, Castrol Transaqua HT2 and MacDermid Oceanic ECF is used in the subsea control system. The subsea control system is an open-loop system that releases hydraulic fluid by design during valve functioning under steady state operations (about 6 L released per valve actuation)
- Subsea Control Modules (SCM), Control Distribution Units (CDU) and Electrical Flying Leads (EFL) have dielectric fluid to compensate for hydrostatic pressure and protect the electrical components in the subsea control system.

Chemicals that may be used intermittently during subsea IMMR activities are outlined in Section 3.9.5.

3.9 Subsea Inspection, Monitoring, Maintenance, and Repair Activities

Subsea infrastructure is designed not to require significant intervention. Inspection and maintenance are undertaken to ensure 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. Maintaining infrastructure integrity also supports decommissioning planning. Intervention may be required to repair identified problems.

Subsea activities can be broadly categorised into Inspection, Monitoring, Maintenance and Repair activities.

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. This temporary equipment is removed from the field via recovery to support vessels at the completion of IMMR activities. Typical IMMR activities are described below.

3.9.1 Inspections

Inspection of subsea infrastructure is the process of physical verification and assessment of components in order to detect changes to the as-installed location and condition by comparison to initial state following installation and previous inspections. Details of typical subsea infrastructure inspections/surveys and frequencies are provided in Table 3-7. Actual scope and frequency of subsea equipment (operational and redundant) and pipeline inspections are determined using a Risk Based Inspection (RBI) methodology and associated plans. RBI is commonly used within the industry as a method for determining inspection frequencies (Energy Institute, 2009; DNV, 2019). RBI for redundant/suspended subsea equipment that has been wet-parked, inherently pose less risk to the environment and may drive a less frequent inspection frequency.

During planned inspections, anomalies may be identified by ROV, for example visible hydrates, discharges or bubbling which may indicate fugitive emissions. In accordance with the Subsea and Pipelines Integrity Management Procedure, the anomaly is identified and assessed for scale during the inspection by performing visual bubble estimates or bubble measurements, where it is feasible

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 62 of 445

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to do so. The anomaly and its scale are noted in the anomaly/inspection report and recorded in Woodside's centralised Inspection Database. The anomaly is then assessed to determine future monitoring and/or corrective actions to address the anomaly.

Table 3-7: Typical Subsea Infrastructure Inspections/Surveys and frequencies

Type of Inspection/Survey	Subsea Infrastructure	Purpose	Approximate Frequency
General Visual Inspection (GVI)	All subsea infrastructure	Check general infrastructure integrity.	Varied – every 2-8 years
Close Visual Inspections (CVI)	Production trees and manifold valves	Investigate certain subsea infrastructure components.	Varied – every 2-6 years
Cathodic Protection (CP)	All metallic subsea infrastructure	Check for corrosion and renew sacrificial anodes, if required.	Varied – every 2-6 years
Wall Thickness Surveys	Production and crossover manifolds, flowlines and pipelines	Monitor the condition of subsea infrastructure. (i.e. ultrasonic testing).	Typical: Once every 25 years. Worst Case: Once every 5 years
Acoustic survey including Side Scan Sonar (SSS) and Multibeam Sonar (MBES)	Pipelines and spools	Identify buckling, movement, scour and seabed features. Low frequency/ intensity signals undertaken on the flowlines.	Varied – every 1-6 years
Non-Destructive Testing (NDT)	Pipeline and manifolds (if required)	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	N/A	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
Water sampling surveys	N/A	Determine water quality around the pipeline.	Typical: Once every 25 years. Worst Case: Once every 5 years
Anode sampling	Production and crossover manifolds, trees, flowlines and pipelines	Samples taken of anode materials for testing.	Typical: Once every 25 years. Worst Case: Once every 25 years.
Marine growth sampling	All subsea infrastructure	Samples taken of marine growth for testing.	Typical: Once every 25 years. Worst Case: Once every 5 years
Sub bottom profiling	Around subsea components	Low frequency echo sounder undertaken to identify returns of metals under the seabed	Varied – every 1-6 years
Laser surveys	Dimensional check on infrastructure	Used to conduct dimensional checks on spools etc. and measure proximity.	Varied – every 1-6 years

3.9.2 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, 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, acoustic sand detectors, erosion probes, metocean and geological seismic monitoring, and cathodic protection testing.

Pigging may be required for a variety of reasons, including monitoring, or to facilitate modifications. Should pigging be required, provision has been made for the installation of a temporary subsea pig launcher. The pipeline pigging system including the launcher, receiver and the pipeline itself is designed for maximum operating pressure of the production system. The two closed valves on the manifold where the pig launcher is installed remain closed until the pig launcher installation. A seal test is completed creating a sealed process during routine pigging operations.

3.9.3 Maintenance

Maintenance activities on subsea infrastructure are those required at regular or planned intervals 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	Subsea infrastructure	Purpose	Approximate Frequency
Cycling of valves	Wells	Test functionality of technical integrity valves	Every 6 months
Marine growth removal	Production and cross over manifolds and retrieval components (e.g. chokes)	Reduce weight or gain visual access	Based on outcomes from visual inspections (Table 3-7) and marine growth trends on regional infrastructure.
Flushing of chemical hydraulic fluid lines	Hydraulic fluid lines	For maintenance and repair scenarios	When required for repair.
Leak and pressure testing	All subsea infrastructure	Test integrity of subsea infrastructure	Following installation of subsea infrastructure components after a repair or intervention, prior to return to service.

Flushing is typically conducted before disconnecting a subsea component to maximise hydrocarbon displacement to reduce potential residual hydrocarbon or chemical releases to the subsea environment upon disconnection. The flushing chemicals used for this activity may be supplied from either the facility (Wheatstone Platform) or a chemical package via a downline from a support vessel. Where possible, flushed fluids are returned to the platform, processed and treated through the production system.

Pressure testing is undertaken to test the integrity of subsea infrastructure, test isolations and identify any leaks. Pressure testing is typically done after construction and prior to normal operation. In the operation phase, there are no planned pressure tests for the Julimar subsea system. If required, pressure is usually applied to the component from the production system but can also be applied via a downline from a support vessel.

Pressure in the isolated section of pipeline or subsea component is monitored to check for any drop-in pressure and review of locations of leaks detected by visual inspection. This is undertaken by flushing the line with a small volume of a chemical dye and an ROV or AUV will be used to locate and observe the leak. A typical release of chemical dye during leak testing is estimated to be <10 L.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 64 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

3.9.4 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 will be undertaken on an as needs basis. The requirements and frequency of these repairs will be dictated by the outcome of the inspection and maintenance regimes described in Table 3-7 and Table 3-8. Typical subsea repair activities included but not limited to, are described below:

- subsea choke replacement
- chemical injection metering valve insert replacement
- subsea control module (SCM) or Control Distribution Unit (CDU) replacement
- hydraulic flying lead (HFL) replacement
- electrical flying lead (EFL) replacement
- hotstab change out
- span rectification, pipeline protection and stabilisation
- retrofitting span vibration mitigation devices (shrouds)
- spool replacement repair and recovery
- umbilical/ jumper replacement, relocation, repair and recovery
- flowline/pipeline replacement repair and recovery
- scour prevention installation
- Cathodic Protection System replenishment/repair.

When equipment is replaced, the redundant equipment, may remain in-situ or be removed from the field. The inventory is used to track equipment on the seabed to enable planning for future removal. Currently, there is no redundant equipment in the Operational Area.

A number of techniques may be used for span rectification or component stabilisation and protection including grout bags, mattresses, vibration shrouds, anchors or rock dumping. All techniques require the use of a support vessel crane to deploy the material, and an ROV to ensure it is accurately placed on the seabed. Woodside's operational experience on the North West Shelf 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.

Mattresses are typically made of concrete and may be used for span rectification or pipeline protection and stabilisation. Mattresses are typically 3 m by 6 m in size, therefore, each may disturb 18 m² of the seabed.

3.9.5 Chemical Usage During IMMR Activities

IMMR chemicals for intermittent use typically originate from a chemical package located onboard a support vessel during specific activities, and may typically include:

- dye - chemical dyes used to identify the source of a leak
- acid – acetic or sulfamic acid (or equivalent) which removes calcium deposits
- grout - the material used in grout, mattresses, and rock is typically concrete-based

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 65 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

- biocide – Biocides are generally used to prevent the bacterial growth in pipelines that may cause corrosion.
- Staurolite products – Staurolite products are used for abrasive/sand blasting to clean and remove marine growth. The main component is staurolite, which is a naturally forming mineral.
- preservation fluids – chemicals used to preserve subsea infrastructure if scope requires subsea infrastructure replacement. Chemicals typically used may include MEG, corrosion inhibitor, oxygen scavenger and biocide.

3.9.5.1 Typical Discharges During IMMR 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; instead returning fluids to the Wheatstone platform. Flushing may be supplied from either the Wheatstone platform or via a support vessel. Table 3-9 lists typical discharge volumes during different IMMR activities.

Table 3-9: Typical Discharge Volumes During Different IMMR and Subsea Activities

Activity	Typical Discharge
Pressure/leak testing and investigation	Chemical dye <10 L.
Flushing	Residual hydrocarbon or chemical release (corrosion inhibitor and oxygen scavenger) volume depends on injection port size, component geometry, and pumping rates.
Hot stab change-out	Hydrocarbons or subsea control fluid <10 L.
SCM changeout	Typical releases: acid ~400 L; subsea control fluid ~10 L.
Umbilical replacement	Typical releases of hydraulic fluid, MEG and scale inhibitor are estimated to be <10 L each.
Choke change out	Release of hydrocarbons <10 L and a typical release of MEG is estimated to be 280 L.
Flowline or spools repair, replacement, and recovery	Typical release of hydrocarbon or other chemicals depends on equipment configuration and flushing ability. This will be subject to an ALARP determination for the activity, as per normal practice.

3.9.6 Marine Growth Removal

Due to the relatively high rate of marine growth on the NWS, excess growth may need to be removed before undertaking many subsea IMMR activities. Table 3-10 lists the different techniques used.

Table 3-10: Marine Growth Removal Methods

Activity/Equipment	Description
Water jetting	Uses high pressure water stream to remove marine growth.
Brush systems	Uses brushes attached to an ROV or AUV to physically remove marine growth.
Acid (typically sulfamic or acetic acid)	Chemically dissolves calcium deposits. Volume used is dependent on the amount of marine growth to remove.

3.9.7 Sediment Relocation and Disturbance

If sediment builds up around subsea infrastructure, an ROV-mounted suction pump/dredging unit may be used to relocate the sediment to allow inspection/works to be undertaken. This activity is limited to relocating small amounts of sediment material in the immediate vicinity of the subsea infrastructure (i.e. within the existing footprint). Sediment relocation typically results in minor seabed disturbance (up to 3 m³ if removed by ROV) and some localised turbidity.

If it is determined that anode skids are required for corrosion protection, they are placed on the seabed using a support vessel crane. Some sediment relocation may be required to prepare the area prior to positioning. A typical anode skid has a seabed footprint of about 8 m².

4. DESCRIPTION OF THE EXISTING ENVIRONMENT

4.1 Overview

In accordance with Regulation 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 2.4.2), including details of the particular relevant values and sensitivities of the environment, which were used for the risk assessment.

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 event of the worst-case credible spill. The ecological impact thresholds used to delineate the EMBA are defined in Section 6.8.2.2. The worst-case credible spill scenario for this EP is loss of well integrity. The EMBA also includes any areas that are predicted to experience shoreline contact with hydrocarbons above threshold concentrations.

Woodside recognises that hydrocarbons may be visible beyond the EMBA at lower concentrations than the ecological impact thresholds defined in Section 6.8.2.2. These visible hydrocarbons are not expected to cause ecological impacts. In respect 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 are shown in Figure 4-1 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.

Table 4-1: Hydrocarbon spill thresholds used to define EMBA 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. This low exposure value also establishes the planning area for scientific monitoring (NOPSEMA guidance note: A652993, (2019)).	
Dissolved	50 ppb This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA guidance note: A652993, (2019)). As dissolved hydrocarbons are within the water column and not visible, impacts to socio-cultural receptors are 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, (2019)). This area is described further in Appendix D: Figure 5-1.
Entrained	100 ppb		In the event of a spill, DNP will be notified of AMPs which may be
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Controlled Ref No: JU-00-RI-10006 Revision: 8.0 Native file DRIMS No: 10484514 Page 68 of 445			
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Hydrocarbon Type	EMBA ¹	Socio-cultural EMBA ¹	Planning Area for Scientific Monitoring
	This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA guidance note: A652993, (2019)). As entrained hydrocarbons are within the water column and not visible, impacts to socio-cultural receptors are associated with ecological impacts. Therefore, entrained hydrocarbons at this threshold also represent the level at which socio-cultural impacts may occur.		contacted by hydrocarbons at this threshold.
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 detail including the source of the thresholds used to define the EMBA in this table are provided in Section 6.8.2.2

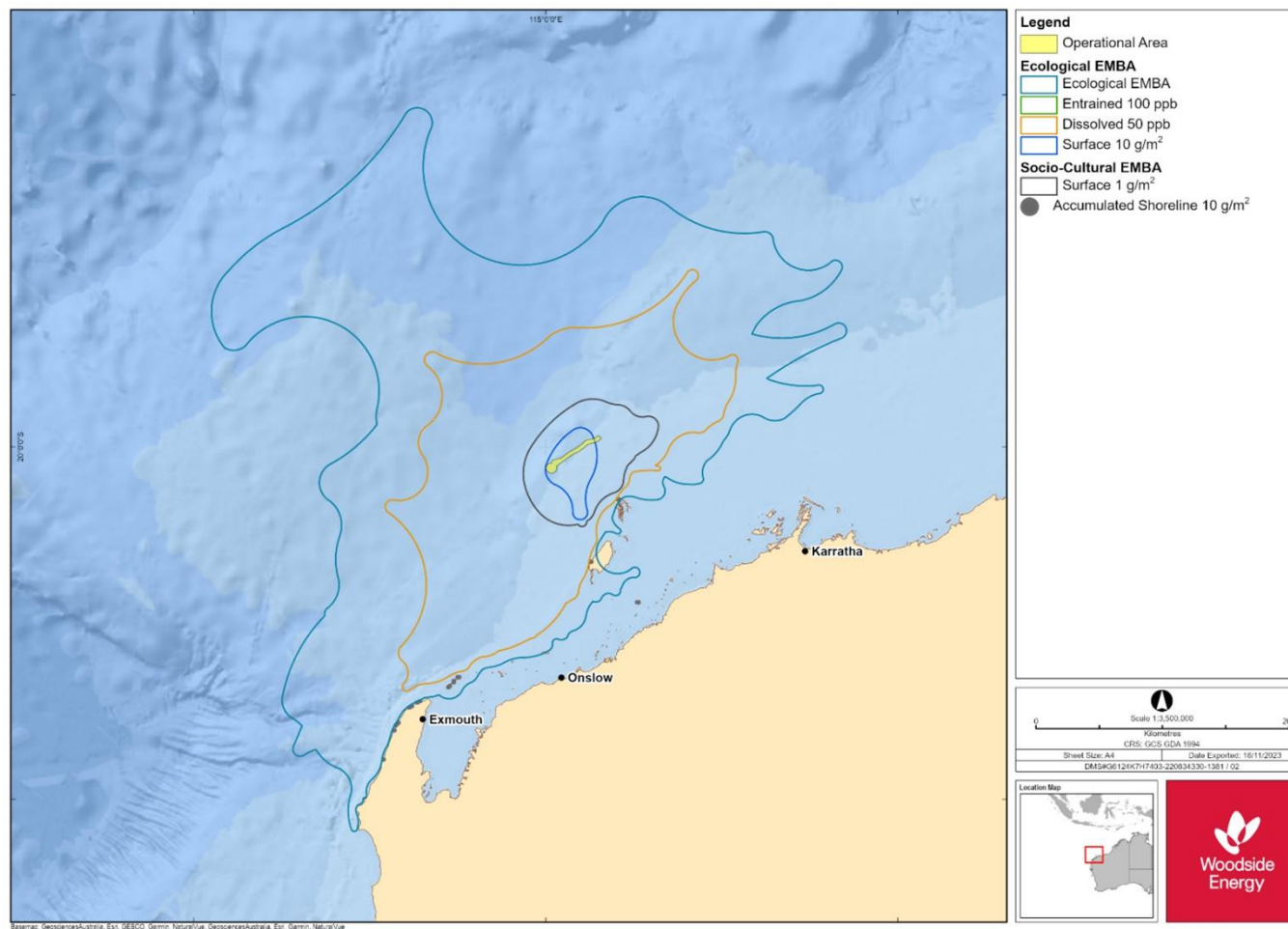


Figure 4-1: Environment that may be affected by the Petroleum Activities Program

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 70 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

4.2 Regional Context

The Operational Area is located in Commonwealth waters within the North-west marine region (NWMR), as defined under the Integrated Marine and Coastal Regionalisation of Australia (IMCRA v4.0) (Commonwealth of Australia 2006). Within the NWMR, the Operational Area predominantly lies within the Northwest Shelf Province provincial bioregion (Figure 4-2), with its western part extending into the Northwest Province. Additionally, the EMBA extends into the Northwest Transition, Central Western Transition, and Central Western Shelf Transition provincial bioregions. Additional information on relevant marine bioregions is described in Section 3 of the Master Existing Environment.

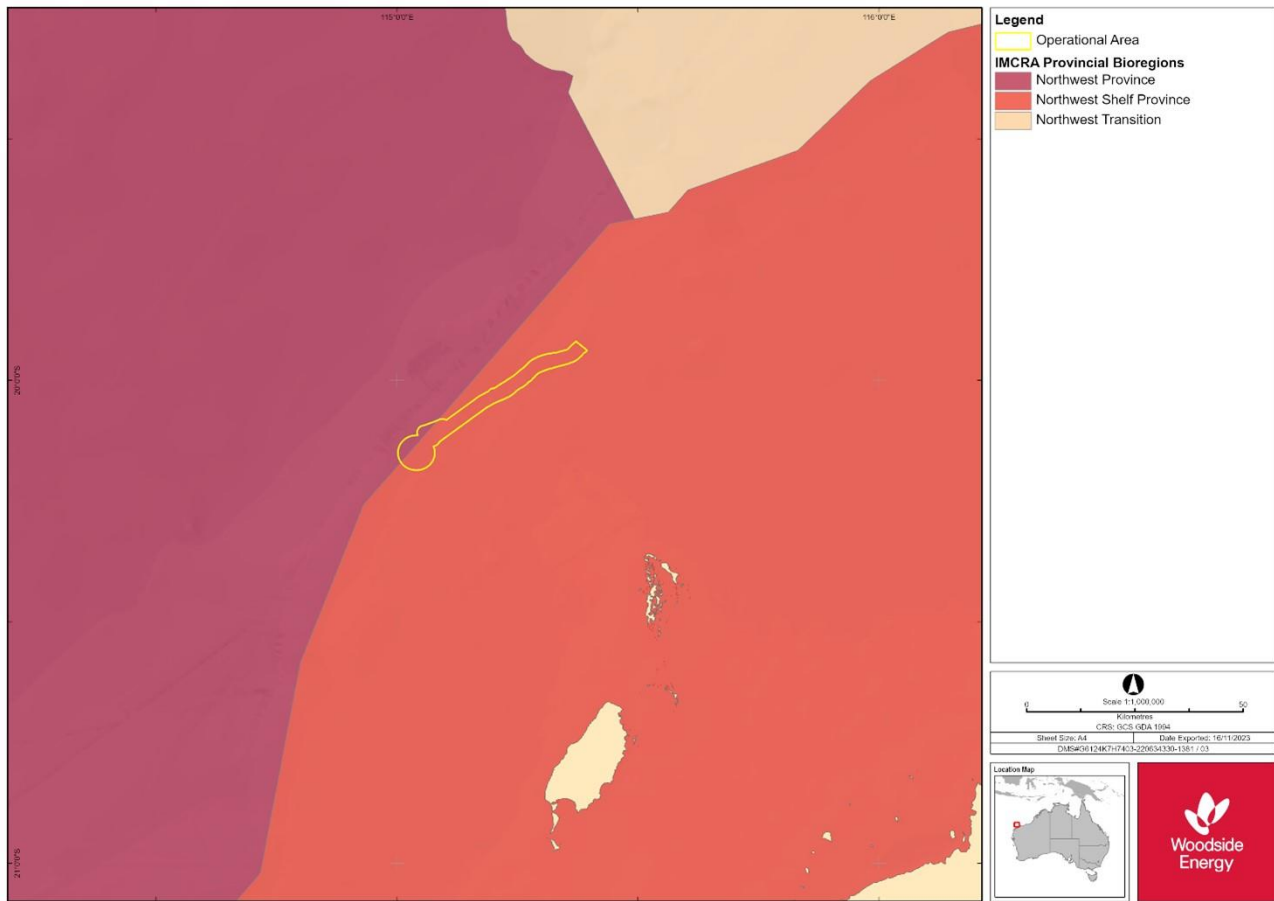


Figure 4-2: Location of the Operational Area and relevant marine bioregions

4.3 Physical Environment

A summary of the physical characteristics identified within the Operational Area and EMBA is described in Table 4-2 and further described in the Master Existing Environment.

Table 4-2: Summary of physical characteristics within the Operational Area and EMBA

Physical characteristics	Description
Climate	The Julimar Operation Area offshore conditions (as reported for the Pluto Offshore Basic Design Data (Woodside 2014) show air temperatures range from highest mean record of 28.71 °C in March to lowest mean record of 22.89 °C in July (as derived from North Rankin records (excluding tropical cyclones).

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 71 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Physical characteristics	Description
	The broader NWMR experiences a tropical or monsoon climate (in northern Australia areas), exhibiting a hot summer season from October to April and a milder winter season between May and September (BoM 2024)
Winds	Seasonal variability derived from Pluto Offshore Basic Design Data (Woodside 2014) predicted the highest mean wind speed for June and July (7.63 m/s) and the lowest mean wind speed for November and December (7.15 m/s) based on hindcast modelling of wind speed. Winds within the EMBA are expected to follow this pattern.
Currents and tides	The dominant annual current directions within the Pluto offshore facility, in close proximity of the Operational Area, are west or north-west and maximum current speeds between 2 and 3 m/s (Woodside 2014). Geophysical surveys undertaken within the Operational Area indicate that prevailing seafloor currents in this area are orientated east-north east / west-south west (Fugro 2011, Neptune Geomatics 2010). The broader NWMR is primarily influenced by the Indonesian Through Flow (ITF) current and the Leeuwin Current, internal tides and cyclones. The ITF brings warm waters from the Indonesian Archipelago into the NWMR and the Leeuwin Current flows southward along the edge of the continental shelf and is primarily a surface flow (up to 300 m deep). The ITF and Leeuwin Current are strongest during late summer and winter (Holloway and Nye 1985). Tides in the NWMR are semi-diurnal and have a pronounced spring-neap cycle, with tidal currents flooding towards the south-east and ebbing towards the north-west (Pearce, et al. 2003).
Water temperature	Measured seawater temperature (September 2005 and December 2007) in the Pluto offshore facility Basic Design Data shows the mean seawater temperatures at surface and through the water column in the upper 100 m depth range from 26.5 °C at surface to 24 °C at 100 m depth (Woodside 2014). The mean seawater temperature declines rapidly with mean temperatures of 17°C and 15°C at 200 m and 220 m, respectively (Woodside 2014). Within the NWMR the currents contribute to variability in seawater temperature and salinity throughout the water column. The water temperatures ranging between 30 °C in summer and 22 °C in winter (Pearce, et al. 2003). Water temperatures near the seabed have low interannual variability ($\pm 1.5^{\circ}\text{C}$ at depths of 150 m) and become more stable with increasing water depth (Pearce, et al. 2003).
Seabed features and marine sediments	Seabed features in the Operational Area are detailed in Section 4.3.1. Based on Geoscience Australia's geomorphic classification of seabed (Harris, et al. 2005), the geomorphic features present within the EMBA are 'canyon', 'deep/hole/valley', 'pinnacle', 'plateau', 'reef', 'shelf', 'slope', 'terrace', and trench/trough. Rankin Bank and Glomar Shoal located ~25 km and 148 km northeast of the Operational Area, respectively, where identified within the EMBA. Sediments in the NWMR generally become finer with increasing water depth, ranging from sand and gravels on the continental shelf to mud on the continental slope and abyssal plain (Brewer, et al. 2007). The predominant seafloor sediment type within the EMBA are 'calcareous gravel, sand and silt', 'calcareous ooze', and 'mud and calcareous clay' (CSIRO 2015).
Air quality	Due to the extent of the open ocean area, the ambient air quality in the Operational Area and wider offshore region is considered to be of high quality.

4.3.1 Seabed Features in the Operational Area

Approximately ~0.2% (~28 km) of the Ancient Coastline at 125 m depth contour KEF crosses the eastern part of the Operational Area (i.e. sections of the umbilical, MEG line and production flowlines). This KEF, as well as others within the Operational Area, are described in Section 4.7.

A survey by Fugro (2011) for the development of the Julimar Fields provides bathymetric and seabed geomorphological information for the majority of the Operational Area (Figure 4-3).

The survey confirmed the seabed composition is predominantly sediment grading from high energy sediment deposits such as coarse sand and gravel in the east and north-east to low energy sediment deposits such as silt and clay in the west and south-west.

Fugro (2011) reported on three main depth categories as follows:

- **in water depths <120 m LAT:** the seabed undulates due to north-west/south-east trending sand waves comprise coarse sand and gravel sediments. These sand waves, as well as shallow (<0.5 m) pockmarks (both individual and groups of pockmarks) and mega-ripples, were consistently noted in other surveys overlapping the northern portion of the Operational Area (Neptune Geomatics 2010, RPS 2010). Outcropping cemented sediments (reported as high relief and a low ridge) were also recorded in the far north-east of the Operational Area, near the Wheatstone platform, and are generally covered in a thin layer of unconsolidated and partially cemented sediments.
- **in water depths between 120 and 220 m LAT:** the seabed area is smooth and featureless with seabed sediment composition predominately silty fine to medium sand, grading to clay and silt with increasing water depth.
- **in water depths >220 m LAT:** to the southwest of the survey area and outside the Operational Area (beyond the continental shelf), there is a distinct break in the continental slope with north-west trending submarine canyons. Sediments predominately comprise clay and silt.

Past oil and gas activity within the Operational Area was evidenced by anchor scars and drilling discharge deposition associated with the Brunello-1 well (Neptune Geomatics 2008).

Geophysical and benthic habitat surveys within the Operational Area reported sediments to be primarily silty, fine to medium grain calcareous sands (Neptune Geomatics 2008, 2009, 2010, RPS 2010, 2011). Shell fragments were also reported amongst these finer sediments (Neptune Geomatics 2010). Sediment size increased with decreasing depth (toward the east and north-east of the Fugro survey area).

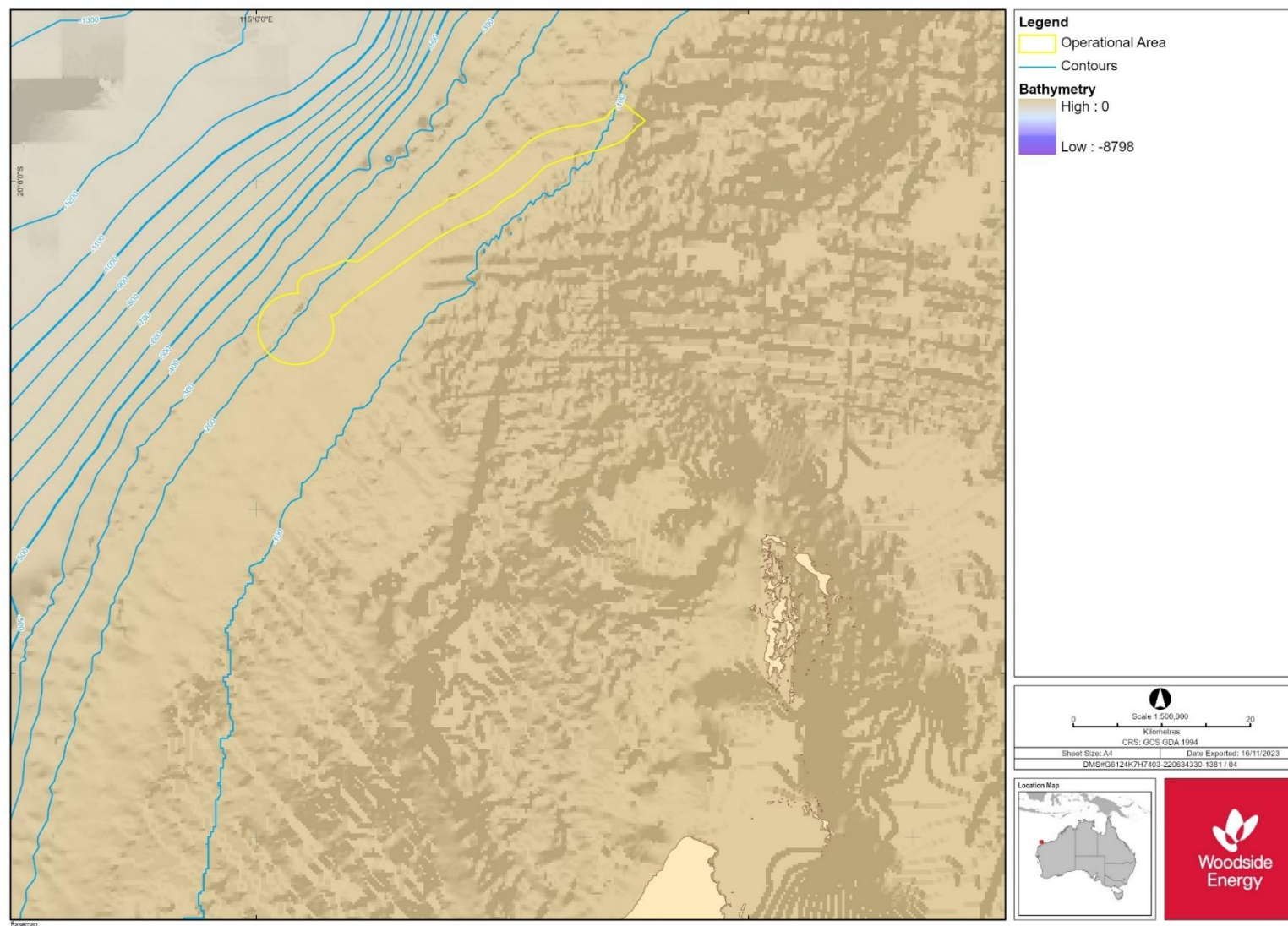


Figure 4-3: Bathymetry of the Operational Area

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 74 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

4.4 Habitats and Biological Communities

Key habitats and ecological communities within the Operational Area and EMBA are identified in Table 4-3 and described in Section 4 and 5 of the Master Existing Environment. There are no threatened ecological communities identified within the Operational Area or EMBA.

Table 4-3: Habitats and Communities within the EMBA

Habitat / Community	Description
Marine primary producers	
Coral	<p>Coral reef habitats typically have a high diversity of corals with associated fish communities and support numerous flora and fauna species; many of which are of both commercial and conservation importance. Coral reef habitats are an integral part of the marine environment within the NWMR.</p> <p>There are no coral reef habitats within the Operational Area. The nearest coral reef habitat is located at Rankin Bank, ~25 km northeast of the Operational Area, within the EMBA. Other coral reef habitats in the EMBA include those within the Montebello and Barrow Island protected areas, the Muiron Islands and Ningaloo Coast.</p>
Seagrass beds and macroalgae	<p>Seagrass beds and macroalgae habitats represent a food source for many marine species and may also provide key habitats and nursery grounds to species (DoF 2011). WA's clear coastal waters allow seagrasses to inhabit depths of >40 m; in contrast, in many estuaries, light penetration is poor, so seagrasses are limited to two m in depth (DoF 2011).</p> <p>Seagrass beds and macroalgae habitats represent a food source for many marine species and may also provide key habitats and nursery grounds to species (DoF 2011). WA's clear coastal waters allow seagrasses to inhabit depths of >40 m; in contrast, in many estuaries, light penetration is poor, so seagrasses are limited to two m in depth (DoF 2011). Given the water depth of the Operational Area and seabed habitat depth is beyond the phototrophic zone, ecologically sensitive primary producers do not occur.</p> <p>The nearest seagrass is located at the Montebello and Barrow Islands, ~46 km and 66 km southeast of Operational Area, respectively, within the EMBA. Seagrass beds and macroalgae habitat can also be found within the EMBA at some islands in the Pilbara Island Groups, the Muiron Islands and along the Ningaloo Coast.</p>
Mangroves	<p>Mangrove systems provide complex structural habitats that act as nurseries for many marine species as well as nesting and feeding sites. Mangroves also maintain sediment, nutrient and water quality within habitats and minimise coastal erosion (Nagelkerken, et al. 2008).</p> <p>The closest mangrove habitats to the Operational Area are located at the Montebello and Barrow Islands ~46 km and 66 km southeast of Operational Area, respectively, within the EMBA. Other mangrove habitats associated with the EMBA include those located along the Ningaloo Coast.</p>
Sandy beaches	<p>Given the location of the Operational Area, there are no sandy beaches within this area. Sandy beaches, within the broader EMBA, can be found around mainland and some Pilbara islands.</p>
Salt marshes	<p>Given the location of the Operational Area, there are no salt marshes within this area.</p> <p>The closest salt marshes habitats to the Operational Area are located at the Barrow Islands ~70 km southeast of Operational Area, within the EMBA. Other salt marshes habitats associated with the EMBA include those located along the Ningaloo Coast.</p>
Other communities and habitats	
Plankton	<p>Primary productivity of the NWMR 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. 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).</p> <p>Plankton within the Operational Area and EMBA are expected to be representative of the wider NWMR. Within the wider EMBA, peak primary productivity occurs in late summer / early autumn, along the shelf edge of the Ningaloo Reef. It also links to a larger biologically productive period in the area that includes mass coral spawning events, peaks in zooplankton and fish larvae abundance (MPRA 2005) with periodic upwelling throughout the year.</p>

Habitat / Community	Description
Pelagic and demersal fish populations	<p>Demersal fish are associated with a wide range of habitats, including coastal and estuarine ecosystems, macroalgal and seagrass communities, and coral reefs (Hutchins 2001, Blaber, Young and Dunning 1985). Abundance and species richness of demersal fish species and communities (those that live and feed on or near the seabed) typically increase with increasing marine habitat complexity (Gratwicke and Speight 2005).</p> <p>Benthic habitats of the Operational Area are not expected to support a high diversity of demersal fish species. The nearest location identified as supporting high demersal fish richness and abundance is located at Rankin Bank, ~25 km northeast of the Operational Area, within the EMBA. The Continental slope demersal fish communities KEF (see Section 4.7.2) which features high levels of demersal fish endemism has also been identified within the Operational Area and EMBA.</p> <p>Pelagic fish species within the NWMR include both small and large species; small pelagic fish inhabit a range of marine habitats, including inshore and continental shelf waters. They feed on pelagic plankton and represent a food source for a wide variety of predators including larger pelagic fish, sharks, seabirds and marine mammals (Mackie, et al. 2007). Large pelagic fish in the NWMR include commercially targeted species such as mackerel, barracuda, billfishes and tunas (Lewis 2020). Large pelagic fish are typically widespread, found mainly in offshore waters (occasionally on the shelf) and often travel extensively (Hobday, Griffiths and Ward 2009).</p> <p>Pelagic fish species may be present within the Operational Area, although there are no habitats considered important to these species within the Operational Area.</p>
Epifauna and infauna	<p>Surveys within the Operational Area (RPS 2010, 2011) have found that benthic epifauna associated with the soft sediment seabed habitat comprise sparsely (<5%) distributed filter and deposit feeding invertebrates; such as sea whips, soft corals, gorgonians and occasional echinoderms. Bioturbation of surveyed habitats ranged from sparse (>5% coverage) to dense (>25% coverage) indicating infauna and decapod (shrimp) and demersal fish presence.</p> <p>Outcropping hard substrates (e.g. emergent limestone) located to the east and north-east of the Operational Area (survey areas ENV001, ENV002, ENV003 shown on Figure 4-4) were found to feature a greater abundance of invertebrate fauna, including sea whips, gorgonians and sponges; these habitats were also associated with fish such as banner fish, trevally and red emperor (RPS 2010, 2011). An ROV inspection of existing petroleum infrastructure associated with the Pluto pipeline (north-east of the Operational Area) found these structures also provided shelter for fish species and substrate for filter feeding species to attach to (RPS 2011). Other petroleum infrastructure within the survey areas, such as well heads, were similarly found to be associated with benthic invertebrates and fish species (RPS 2010, 2011).</p> <p>The benthic infauna and epifauna found within the Operational Area are representative of the wider NWMR (and EMBA) (Brewer, et al. 2007, Rainer 1991).</p>

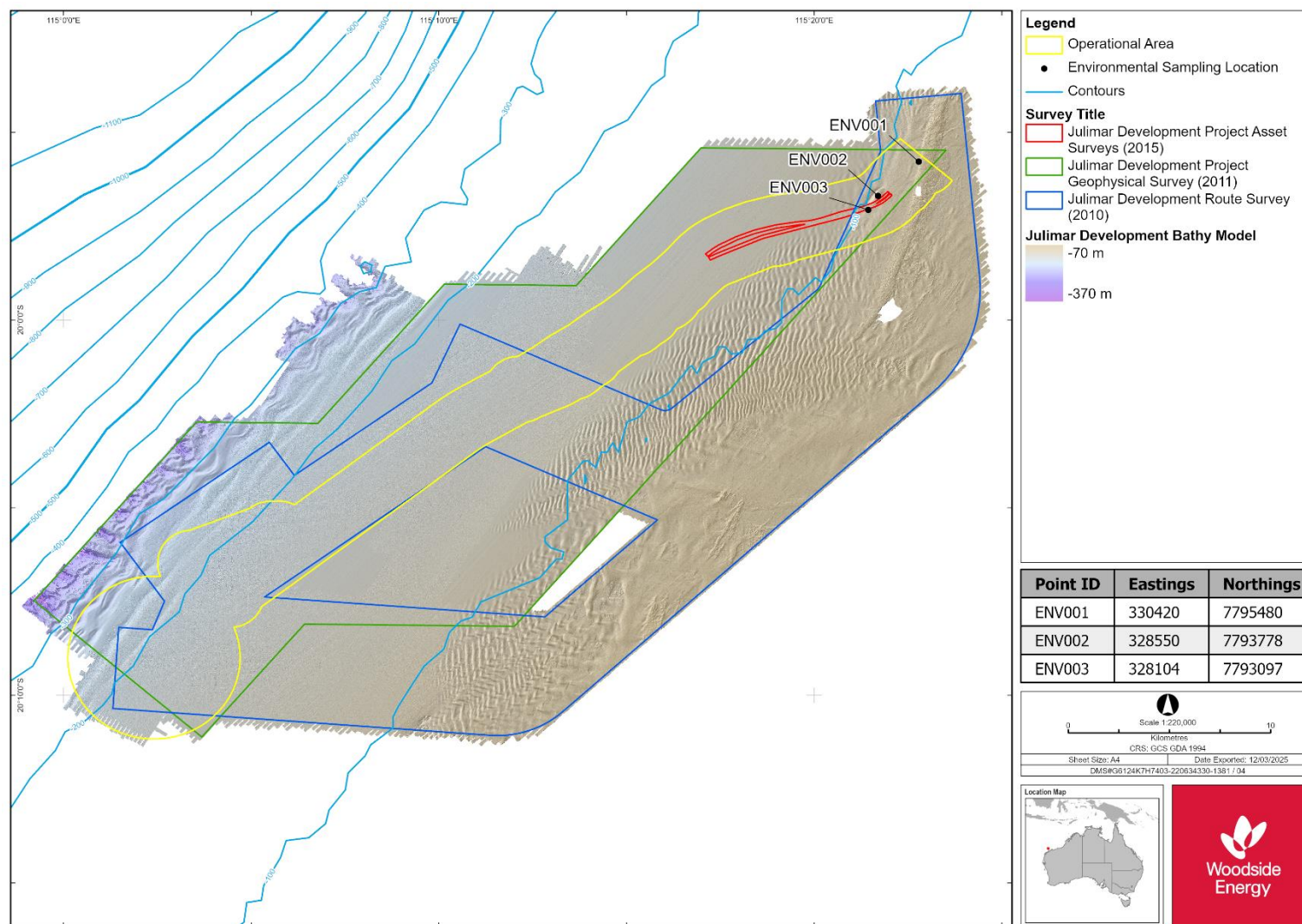


Figure 4-4: Survey Locations of Cemented Sediment Outcrops (RPS 2010, 2011, RPS 2015) in the Operational Area

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 77 of 445

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4.5 Matters of National Environmental Significance

Table 4-4 summarises the matters of national environmental significance (MNES) under the EPBC Act that overlap the Operational Area and EMBA, according to EPBC Act Protected Matters Search Tool (PMST) (Appendix H). The PMST is a general database that conservatively identifies areas in which protected species have the potential to occur.

Table 4-4: Summary of MNES identified by the EPBC Act PMST as potentially occurring within the Operational Area and EMBA

MNES	Number Overlapping the Operational Area	Number Overlapping the EMBA	Relevant Section of the EP and Master Existing Environment
World Heritage Properties	0	1	Section 4.9.3.3
National Heritage Places	0	1	Section 11.2 of the Master Existing Environment
Wetlands of International Importance (Ramsar)	0	0	Not relevant to this EP
Commonwealth Marine Area	2	2	Section 4 and 5 of the Master Existing Environment
Listed Threatened Ecological Communities	0	0	Not relevant to this EP
Listed Threatened Species	25	53	Section 4.6
Listed Migratory Species	37	62	Sections 3 to 8 of the Master Existing Environment.

4.6 Protected Species

A total of 91 EPBC Act listed species considered to be MNES were identified as potentially occurring within the EMBA, of which a subset of 44 species were identified as potentially occurring within the Operational Area. The full list of marine species identified from the PMST reports is provided in Appendix H including several MNES that are not considered to be credibly impacted (e.g. terrestrial species within the EMBA). Criteria for determining species to be considered for impact assessment is outlined in Section 3.2 of the Master Existing Environment.

Two conservation dependent species have also been identified with a potential to occur within the Operational Area and EMBA. These species, the scalloped hammerhead and Southern Bluefin Tuna, are listed on the Species Profile and Threats Database (DCCEE n.d.).

Table 4-5 to Table 4-13 list the species identified by the PMST that have a potential to be impacted by the Petroleum Activities Program, as well as overlapping Biologically Important Areas (BIAs) or Habitat Critical to Survival (Habitat Critical) for these species. Further information of threatened and/or migratory species with BIAs within the Operational Area is provided in the following subsections. An additional description of each species within the is included in Section 5 to Section 8 of the Master Existing Environment. Figure 4-5 to Figure 4-9 show the spatial overlap with relevant BIAs and Habitat Critical areas and the Operational Area.

4.6.1 Fish, Sharks and Rays

Table 4-5: Threatened and Migratory Fish, Shark and Ray Species predicted to occur within the Operational Area and EMBA

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				Operational Area	EMBA
<i>Anoxypristis cuspidata</i>	Narrow sawfish	N/A	Migratory	Species or species habitat may 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>Carcharias taurus</i> (west coast population)	Grey nurse shark (west coast population)	Vulnerable	N/A	Species or species habitat likely to occur within area	Congregation or aggregation known to occur within area
<i>Carcharodon carcharias</i>	White shark	Vulnerable	Migratory	Species or species habitat may 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	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Lamna nasus</i>	Porbeagle	N/A	Migratory	N/A	Species or species habitat may occur within area
<i>Mobula alfredi</i>	Reef manta ray	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
<i>Mobula birostris</i>	Giant manta ray	N/A	Migratory	Species or species habitat likely 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 may 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	
				Operational Area	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>Sphyrna lewini</i>	Scalloped hammerhead	Conservation Dependent	N/A	Species or species habitat known to occur within area	Species or species habitat known to occur within area
<i>Thunnus maccoyii</i>	Southern bluefin tuna	Conservation Dependent	N/A	Breeding known to occur within area	Breeding known to occur within area

Table 4-6: Fish, Shark and Ray BIAs within the Operational Area and EMBA

Species	BIA type	Approximate distance and direction of BIA from Operational Area (km)
Whale shark	Foraging (northward from Ningaloo along 200 m isobath, spring [July to November])	Overlaps the Operational Area
	Foraging (high density prey) (Ningaloo Marine Park and adjacent Commonwealth Waters, March-July, Autumn)	~206 km southwest of the Operational Area

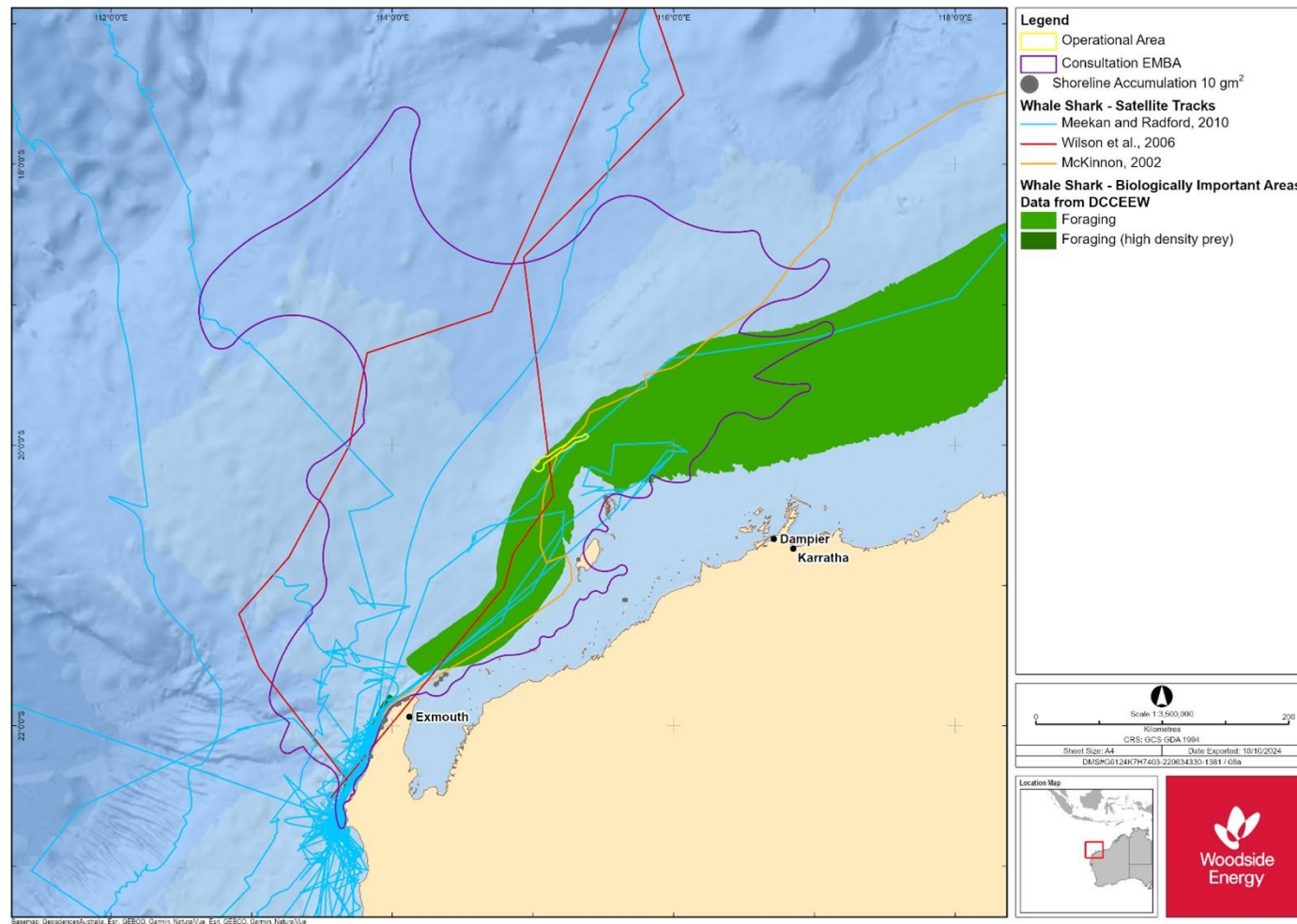


Figure 4-5: Whale shark BIA's overlapping the Operational Area and satellite tracks of whale sharks tagged between 2002 and 2010

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 81 of 445

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4.6.1.1 Whale shark

The whale shark, *Rhincodon typus*, is a planktivorous shark and feed on a variety of planktonic organisms including krill, jellyfish, and crab larvae (Last and Stevens, Sharks and rays of Australia. 2nd edition 2009).

Whale sharks form seasonal aggregations at Ningaloo Reef between March and July (TSSC 2015c). However, seasonal aggregation can be variable, with individual whale sharks recorded at other times of the year.

This species undergoes an annual migration along the 200 m isobath of the WA coast between July and November (TSSC 2015c). Timing of the whale shark migration to and from Ningaloo coincides with the coral mass spawning period when there is an abundance of food (krill, planktonic larvae and schools of small fish) in the waters adjacent to Ningaloo Reef (DCCEEW 2024a). At Ningaloo Reef, whale sharks stay within a few kilometres of the shore and in waters about 30–50 m deep (Wilson, et al. 2005). After the aggregation period, the distribution of the whale sharks is largely unknown. Satellite tracking Figure 4-5 has shown that the sharks may follow three migration routes from Ningaloo (Meekan and Radford 2010):

- north-west, into the Indian Ocean
- directly north, towards Sumatra and Java
- north-east, passing through the NWS and travelling along the shelf break and continental slope.

Anecdotal evidence from sightings data collected from the Woodside offshore facilities on the NWS indicate whale sharks are present on the NWS in the months of April, July, August, September and October, corresponding with the whale shark's seasonal migration to and from the Ningaloo Reef. However, the numbers of individual whale sharks that transit through the Operational Area is expected to be low, based on the number of whale sharks aggregating at Ningaloo and on the different migration paths that the sharks may follow.

It is expected that whale sharks may traverse the vicinity of the Operational Area during their migrations to and from Ningaloo Reef. However, presence of the whale shark within the area would be of a relatively short duration and not in significant numbers, given the main aggregations are recorded in coastal waters, particularly the Ningaloo Reef edge (DPW 2013, MPRA 2005).

4.6.2 Marine Reptiles

Table 4-7: Threatened and Migratory Marine Reptile Species predicted to occur within the Operational Area and EMBA

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				Operational Area	EMBA
<i>Aipysurus apraefrontalis</i>	Short-nosed sea snake ⁶	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 sea snake	Critically Endangered	N/A	N/A	Species or species habitat known to occur within area
<i>Caretta caretta</i>	Loggerhead turtle	Endangered	Migratory	Species or species habitat known to occur within area	Breeding known to occur within area
<i>Chelonia mydas</i>	Green turtle	Vulnerable	Migratory	Species or species habitat known to occur within area	Breeding known to occur within area
<i>Dermochelys coriacea</i>	Leatherback turtle	Endangered	Migratory	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
<i>Eretmochelys imbricata</i>	Hawksbill turtle	Vulnerable	Migratory	Species or species habitat 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

Table 4-8: Marine Turtle BIAs within the Operational Area and EMBA

Species	BIA type	Approximate Distance and Direction of BIA from Operational Area (km)
Flatback turtle	Aggregation: <ul style="list-style-type: none"> coral reef habitat west of the Montebello group. Extends the entire length of Montebello. 	~47 km southeast of the Operational Area

⁶ The Short-nosed sea snake was identified within the PMST as potentially being present within the Operational Area. This species is not considered likely to be present since the species occur primarily on reef flats or in shallow waters of the outer reef edges to depths of 10 m (DSEWPac 2011). The Operational Area occurs in water depths >70 m with no emergent reef features

Species	BIA type	Approximate Distance and Direction of BIA from Operational Area (km)
	Foraging: <ul style="list-style-type: none"> Barrow Island coral reef habitat west of the Montebello group. Extends the entire length of Montebello Montebello Island, Hermite Island, NW Island, Trimouille Island). 	~64 km south of the Operational Area ~47 km southeast of the Operational Area ~45 km southeast of the Operational Area
	Interesting: <ul style="list-style-type: none"> coral reef habitat west of the Montebello group. Extends the entire length of Montebello. 	~47 km southeast of the Operational Area
	Interesting buffer: <ul style="list-style-type: none"> Dampier Archipelago (islands to the west of the Burrup Peninsula) Intercourse Island Legendre Island, Hauy Island Montebello Island, Hermite Island, NW Island and Trimouille Island Thevenard Island (South coast). 	~57 km southeast of the Operational Area ~71 km southeast of the Operational Area ~120 km east of the Operational Area Overlaps the Operational Area ~44 km south of the Operational Area
	Mating: <ul style="list-style-type: none"> Barrow Island coral reef habitat west of the Montebello group. Extends the entire length of Montebello Montebello Island, Hermite Island, NW Island, Trimouille Island. 	~64 km south of the Operational Area ~47 km southeast of the Operational Area ~45 km southeast of the Operational Area
	Nesting: <ul style="list-style-type: none"> Barrow Island Montebello Island, Hermite Island, NW Island, Trimouille Island Thevenard Island (South coast). 	~64 km south of the Operational Area ~45 km southeast of the Operational Area ~123 km southwest of the Operational Area
Green turtle	Aggregation: <ul style="list-style-type: none"> coral reef habitat west of the Montebello group. Extends the entire length of Montebello. 	~47 km southeast of the Operational Area
	Basking <ul style="list-style-type: none"> Middle Island West Coast; Barrow Island West Coast and North Coast. 	~65 km south of the Operational Area

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Species	BIA type	Approximate Distance and Direction of BIA from Operational Area (km)
	Foraging: <ul style="list-style-type: none"> coral reef habitat west of the Montebello group. Extends the entire length of Montebello inshore tidal and shallow subtidal areas around Barrow Island Montebello Island, Hermite Island, NW Island and Trimouille Island Montebello Islands. 	~47 km southeast of the Operational Area ~65 km south of the Operational Area ~45 km southeast of the Operational Area ~40 km southeast of the Operational Area
	Internesting: <ul style="list-style-type: none"> Barrow Island coral reef habitat west of the Montebello group. Extends the entire length of Montebello Montebello Islands. 	~65 km south of the Operational Area ~47 km southeast of the Operational Area ~40 km southeast of the Operational Area
	Internesting buffer: <ul style="list-style-type: none"> Middle Island West Coast, Barrow Island West Coast and North Coast Montebello Island, Hermite Island, NW Island and Trimouille Island Montebello Islands. 	~44 km south of the Operational Area ~26 km south of the Operational Area ~21 km south of the Operational Area
	Mating: <ul style="list-style-type: none"> coral reef habitat west of the Montebello group. Extends the entire length of Montebello Middle Island West Coast, Barrow Island West Coast and North Coast Montebello Island, Hermite Island, NW Island and Trimouille Island Montebello Islands. 	~47 km southeast of the Operational Area ~65 km south of the Operational Area ~45 km southeast of the Operational Area ~40 km southeast of the Operational Area
	Nesting: <ul style="list-style-type: none"> Middle Island West Coast, Barrow Island West Coast and North Coast Montebello Island, Hermite Island, NW Island and Trimouille Island Montebello Islands North and south Muiron Island. 	~65 km south of the Operational Area ~45 km southeast of the Operational Area ~40 km southeast of the Operational Area ~171 km southwest of the Operational Area
Hawksbill turtle	Foraging: <ul style="list-style-type: none"> Lowendal Island Group Montebello Island, Hermite Island, NW Island and Trimouille Island shallow water coral reef and artificial reef (pipeline) habitat. 	~65 km southeast of the Operational Area ~45 km southeast of the Operational Area ~64 km southeast of the Operational Area

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Species	BIA type	Approximate Distance and Direction of BIA from Operational Area (km)
	Internesting: <ul style="list-style-type: none"> Lowendal Island Group 	~65 km southeast of the Operational Area
	Internesting buffer: <ul style="list-style-type: none"> Ah Chong and South East Islands Barrow Island Lowendal Island Group Montebello Island, Hermite Island, NW Island and Trimouille Island Montebello Island, NW Island and Trimouille Island Ningaloo coast and Jurabi coast Thevenard Island Varanus Island. 	~36 km southeast of the Operational Area ~44 km southeast of the Operational Area ~46 km southeast of the Operational Area ~24 km southeast of the Operational Area ~40 km southeast of the Operational Area ~176 km southwest of the Operational Area ~115 km southwest of the Operational Area ~46 km southeast of the Operational Area
	Mating: <ul style="list-style-type: none"> Barrow Island Lowendal Island Group Montebello Island, Hermite Island, NW Island and Trimouille Island 	~64 km southeast of the Operational Area ~65 km southeast of the Operational Area ~45 km southeast of the Operational Area
	Nesting: <ul style="list-style-type: none"> Barrow Island Lowendal Island Group Montebello Island, Hermite Island, NW Island and Trimouille Island Ningaloo coast and Jurabi coast Thevenard Island. 	~63 km southeast of the Operational Area ~65 km southeast of the Operational Area ~45 km south of the Operational Area ~196 km southwest of the Operational Area ~137 km southwest of the Operational Area
Loggerhead turtle	Internesting buffer: <ul style="list-style-type: none"> Lowenthal Island Montebello Islands Muiron Island Ningaloo coast and Jurabi coast. 	~50 km southeast of the Operational Area ~34 km southeast of the Operational Area ~150 km southwest of the Operational Area ~178 km southwest of the Operational Area

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Species	BIA type	Approximate Distance and Direction of BIA from Operational Area (km)
	Nesting: <ul style="list-style-type: none"> Muiron Island Ningaloo coast and Jurabi coast. 	~170 km southwest of the Operational Area ~195 km southwest of the Operational Area

Table 4-9: Internesting Habitat Critical to the Survival of Marine Turtle Species predicted to occur within the Operational Area and EMBA

Species	Genetic Stock	Nesting Locations	Approximate Distance and Direction from Operational Area (km)	Inter-nesting buffer	Nesting period	Hatching period
Flatback turtle	Pilbara stock	Barrow Island, Montebello Islands, coastal islands from Cape Preston to Locker Island.	Overlaps the Operational Area	60 km	October to March	February to March
		Dampier Archipelago, including Delambre Island and Hauy Island.	70 km southeast of the Operational Area			
Green turtle	Northwest Shelf	Barrow Island, Montebello Islands, Serrurier Island and Thevenard Island.	26 km south of the Operational Area	20 km	November to March	January to May (peak: February to March)
		Exmouth Gulf and Ningaloo coast.	179 km southwest of the Operational Area			
Hawksbill turtle	Western Australia	Cape Preston to mouth of Exmouth Gulf including Montebello Islands and Lowendal Islands.	26 km south of the Operational Area	20 km	October to February	All year (peak: December to February)
Loggerhead turtle	Western Australia	Exmouth Gulf and Ningaloo coast.	179 km southwest of the Operational Area	20 km	November to May	January to May

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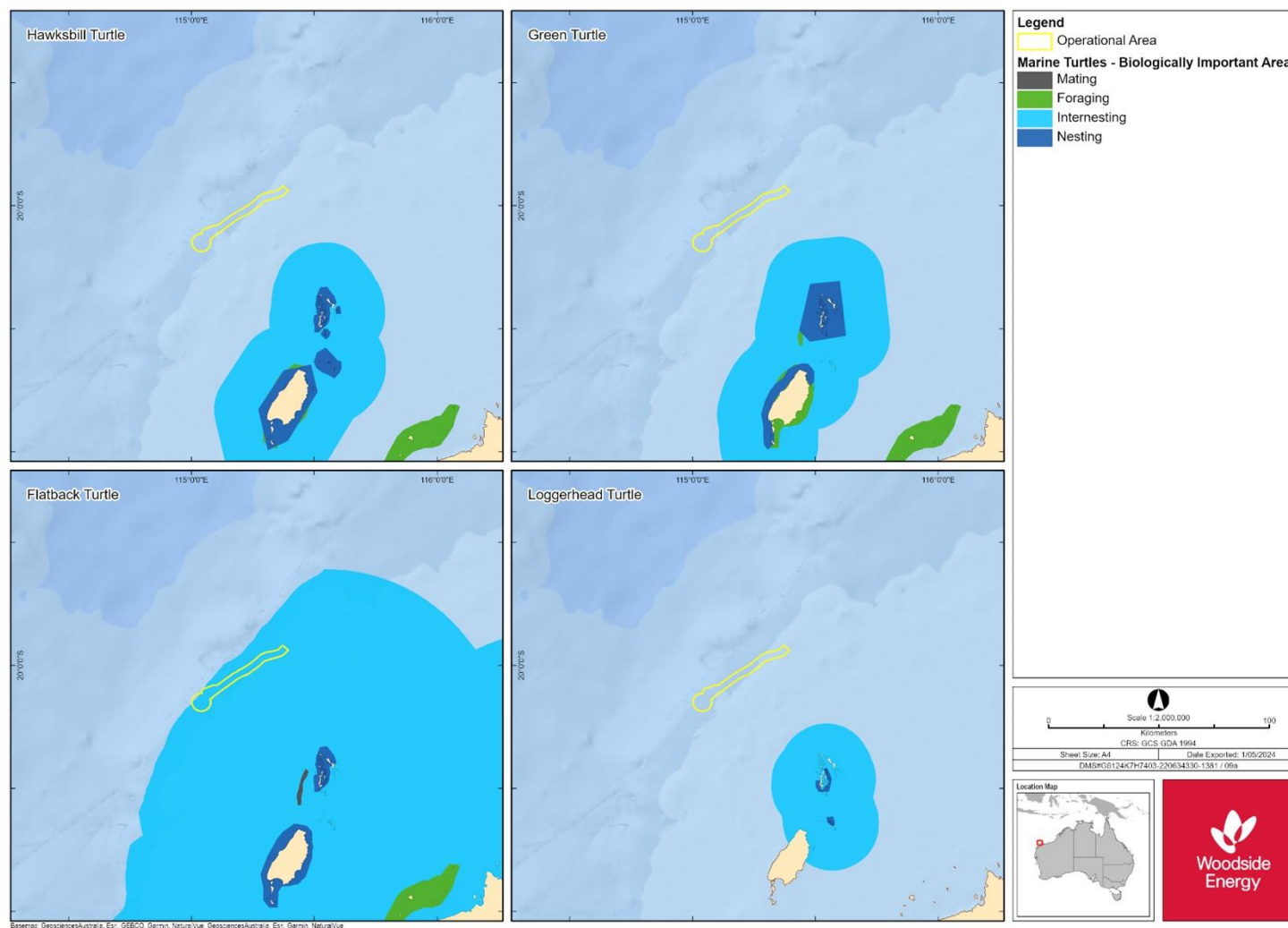


Figure 4-6: Marine turtles BIA's location relative to the Operational Area

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Native file DRIMS No: 10484514

Page 88 of 445

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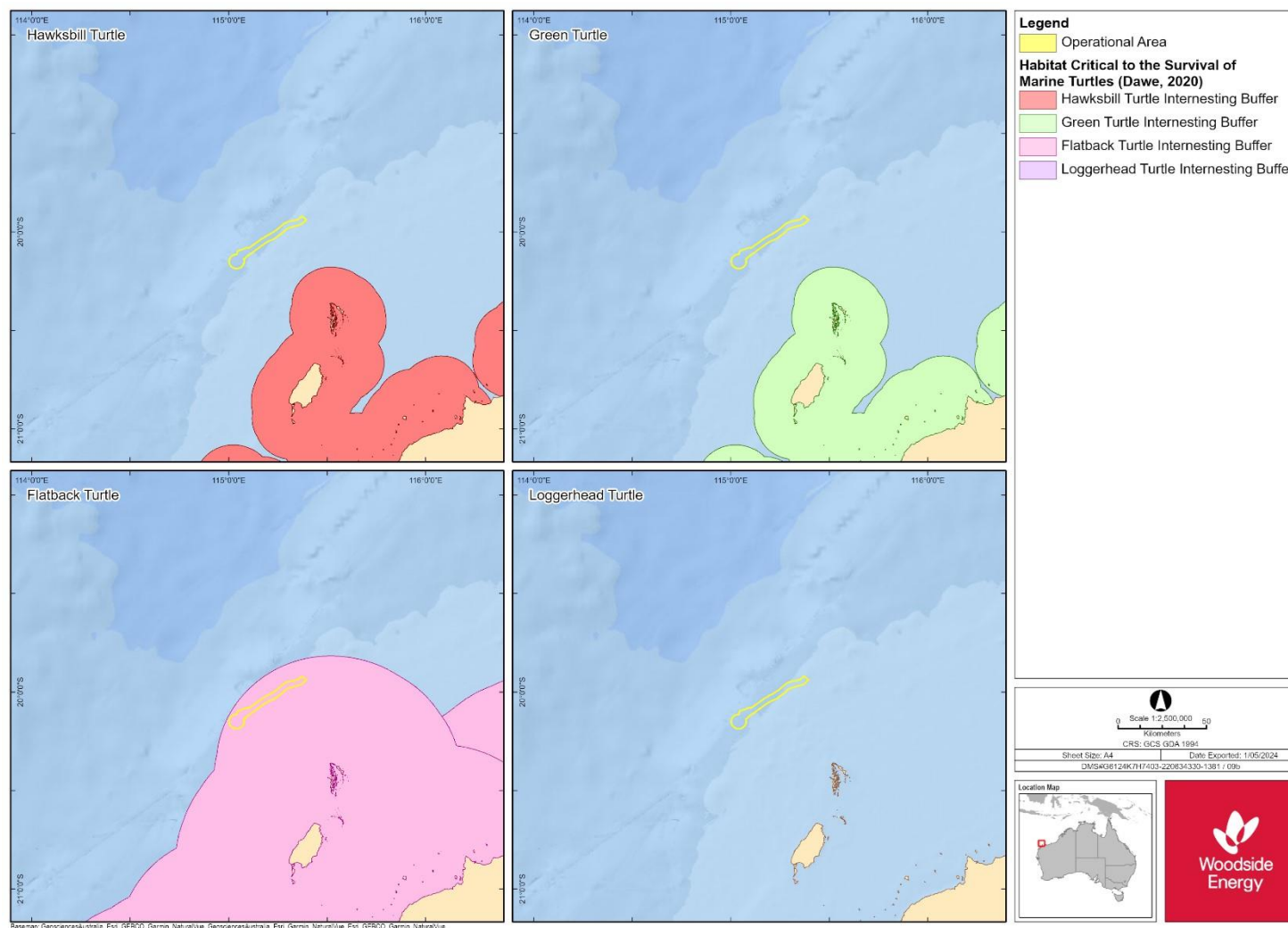


Figure 4-7: Marine turtles' habitat critical to the survival of the species location relative to the Operational Area

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Revision: 8.0

Native file DRIMS No: 10484514

Page 89 of 445

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4.6.2.1 Flatback turtle

Flatback turtle nesting on Barrow Island occurs between October and March, with peak nesting activity occurring between November and January (Commonwealth of Australia 2017a). On Barrow Island, nesting activity is concentrated on the east coast on sandy, low-sloped, low-energy beaches with wide, shallow intertidal zones (K. Pendoley 2005, Pendoley, et al. 2014).

The Montebello Islands and Barrow Island are identified as nesting habitat critical to the survival of the species, as is the 60 km internesting buffer (Figure 4-7) around the Montebello Islands (Commonwealth of Australia 2017a).

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 2017a). However, the foraging ecology of post-hatchling Flatback turtles is currently unknown. Limited observations suggest they feed on small animals living in the water column (Commonwealth of Australia 2017a). During internesting turtles remain close to the nesting beach or rookery (Commonwealth of Australia 2017a).

A habitat suitability modelling study for internesting Flatback turtles in the NWS region of WA (Whitlock, Pendoley and Hamann 2016) was conducted to identify areas of suitable Flatback turtle internesting habitat and determine overlap with identified industrial hazards. The study used a turtle tracking dataset of 47 nesting female turtles from five important rookeries in the NWS study area, including Barrow Island. The results showed internesting Flatback turtles from all rookeries remained within water depths of <44 m, with a mean depth of <10 m (Whitlock, Pendoley and Hamann 2016). Results also showed internesting turtles from all rookeries remained within <28 km of the nearest coast, with a mean distance from the coast of <6.1 km. The habitat suitability modelling study defined suitable Flatback turtle internesting habitat as water depths of 0–16 m within 5–10 km of the coast. Unsuitable Flatback turtle internesting habitat was defined as waters >25 m deep and >27 km from the coast (Whitlock, Pendoley and Hamann 2016). The Operational Area is therefore, classified as unsuitable for internesting Flatback turtles.

Another recent study involving satellite tracking data for 11 Flatback turtles following nesting on the Lacepede Islands (Thums, Waayers and Pattiaratchi 2017) found that Flatback turtles remained at an average distance of 15.75 ± 12.25 km from the nesting beach in water depths of <20 m.

Other previous studies (Dobbs 2007, Guinea, Sperling and Whiting 2006, Pendoley Environmental 2010) have also presented findings that internesting behaviour was only observed in water depths of <40 m. One of these studies (Pendoley Environmental 2010) further indicates that internesting Flatback turtles have relatively shallow dives, with 85% of the time during spent in ≤ 20 m water depth, of which most was spent in 5–10 m ($27 \pm 2.7\%$) and 10–15 m ($22.3 \pm 3.5\%$) water depths.

The Operational Area is in water depths ranging from ~71 m to ~244 m and ~46 km from the nearest Island. As such is not likely that Flatback turtles occur in the Operational Area.

4.6.3 Marine Mammals

Table 4-10: Threatened and Migratory Marine Mammal Species predicted to occur within the Operational Area and EMBA

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				Operational Area	EMBA
<i>Balaenoptera bonaerensis</i>	Antarctic minke whale	N/A	Migratory	N/A	Species or species habitat likely to occur within area
<i>Balaenoptera borealis</i>	Sei whale	Vulnerable	Migratory	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour likely 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>Balaenoptera musculus</i>	Blue whale	Endangered	Migratory	Migration route known to occur within area	Migration route known to occur within area
<i>Balaenoptera omurai</i>	Omura's whale	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Balaenoptera physalus</i>	Fin whale	Vulnerable	Migratory	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour likely to occur within area
<i>Dugong dugon</i>	Dugong	N/A	Migratory	N/A	Breeding known to occur within area
<i>Eubalaena australis</i>	Southern right whale	Endangered	Migratory	N/A	Species or species habitat 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>Orcaella heinsohni</i>	Australian snubfin dolphin	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
<i>Orcinus orca</i>	Killer whale	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may 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>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	
				Operational Area	EMBA
<i>Tursiops aduncus</i> (Arafura/Timor Sea populations)	Spotted bottlenose dolphin (Arafura/Timor Sea populations)	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat known to occur within area

Table 4-11: Marine Mammal BIAs within the Operational Area and EMBA

Species	BIA type	Approximate Distance and Direction from Operational Area (km)
Dugong	Foraging (high density seagrass beds) and breeding (year-round).	~182 km southwest of the Operational Area
Humpback whale	Migration (north and south). Northern migration, June to September and southern migration July to November	~21 km south of the Operational Area
Southern right whale	Migration (~April to October).	~193 km southwest of the Operational Area
	Reproduction (~May to October).	~193 km southwest of the Operational Area
Pygmy blue whale	Foraging	~212 km southwest of the Operational Area
	Migration. Northern migration enters Perth canyon April/May; pass the North-West Shelf June/July; continue north to Indonesia) southern migration (follow WA coastline from October to late December)	Partially overlaps the northwestern part of the Operational Area.

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Page 92 of 445

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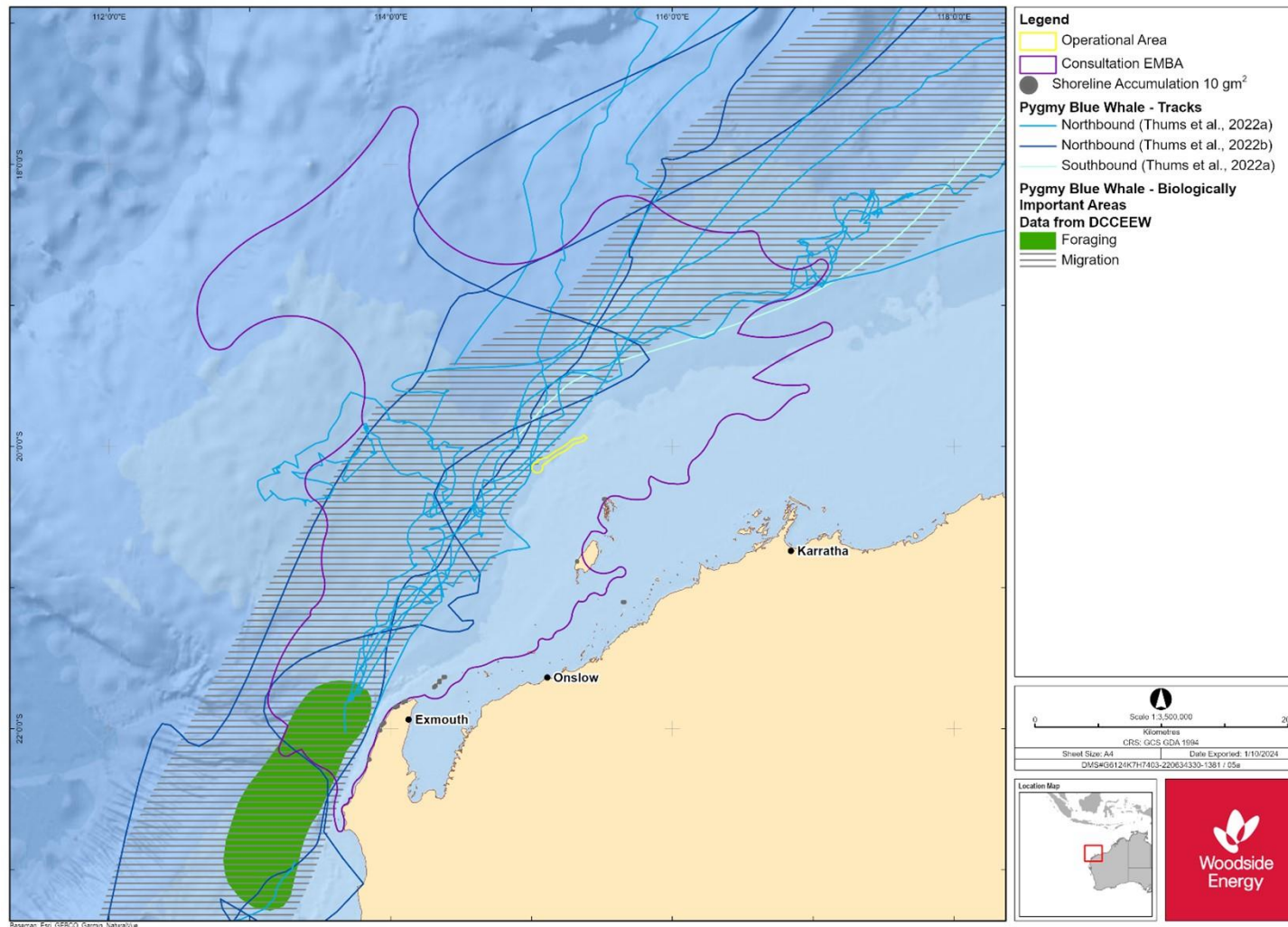


Figure 4-8: Pygmy blue whale BIA's overlapping the Operational Area and EMBA and satellite tracks of tagged whales (Thums, Ferreira, et al. 2022)

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Revision: 8.0

Native file DRIMS No: 10484514

Page 93 of 445

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4.6.3.1 Pygmy Blue Whale

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 (*Balaenoptera musculus*) and the 'pygmy' blue whale (*Balaenoptera musculus brevicauda*) (Commonwealth of Australia 2015). In general, southern blue whales occur in waters south of 60°S (i.e. in the Antarctic). and pygmy blue whales occur in waters north of 55°S. On this basis, blue whales sighted in the NWMR are likely to be pygmy blue whales.

The East Indian Ocean (EIO) pygmy blue whale 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). McCauley et al. (2018) describe three migratory stages around Australia for the EIO pygmy blue whale population: a 'southbound migratory stage' where whales travel southwards from Indonesian waters offshore from the WA coastline; a protracted 'southern Australian stage' where animals spread across southern waters of the Indian Ocean and south of Australia; and a 'northbound migratory stage' where animals travel north back to Indonesia again.

Extensive passive acoustic monitoring throughout the NWMR indicates migratory timing and distribution of pygmy blue whales (noting this survey method detects vocalising whales):

- acoustic monitoring conducted by McCauley and Jenner 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 (noting the absence of any southbound detection in 2007) (R. McCauley 2011)
- 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 ~50 km northwest of the Operational Area, 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)
- 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 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.

Thums et.al. (2022) used passive acoustic monitoring and satellite telemetry data to assess the spatial extent of the distribution, migration and foraging areas for pygmy blue whales in the South-east Indian Ocean. They highlighted extensive use of slope habitat off Western Australia and minimal use of shelf habitat. Additionally, pygmy blue whales off WA were mostly engaged in

migration, with short periods of foraging. This study (Thums, Ferreira, et al. 2022) determined the 'most important areas' based on largest percentage of whales and high move persistence, for migration along the WA coast as an almost continuous stretch from southern WA to around the latitude of Rowley Shoals. The Operational Area does not intersect with this 'most important areas' for migration (Figure 4-8).

Whale density predictions indicate greatest numbers of pygmy blue whales during April - June (northern migration), and November - December (southern migration) (Thums, Ferreira, et al. 2022).

Thums et.al. (2022) also identified the 'most important areas' for foraging based on greatest time spent, largest percentage of whales, and lowest move persistence along the WA coast included the Perth Canyon and vicinity, the shelf edge off Geraldton, and discontinuous use of the shelf edge from Ningaloo Reef to Rowley Shoals. The Operational Area does not intersect with this 'most important areas' for foraging (Figure 4-8).

A recent satellite tracking data for pygmy blue whales have identified that the continental slope off the north-west Australian coast was predicted to be suitable habitat for migration and foraging (Ferreira, Jenner and Jenner 2024). This information is aligned with other recent studies in the north-west of Australia. The Operational Area intersects with these suitable habitats for migration and foraging.

The Conservation Management Plan for the Blue whale (Commonwealth of Australia 2015) also identifies 'Possible Foraging Areas'. These 'Possible Foraging Areas' have been characterised as foraging BIAs. The closest foraging BIA is ~212 km southwest of the Operational Area.

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) (Commonwealth of Australia 2015). 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 2015).

4.6.4 Seabirds and Migratory Shorebirds

Table 4-12: Threatened and Migratory Seabird and Migratory Shorebird Species predicted to occur within the Operational Area and EMBA

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				Operational Area	EMBA
<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>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>Apus pacificus</i>	Fork-tailed swift	N/A	Migratory	N/A	Species or species habitat likely to 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>Ardenna pacifica</i>	Wedge-tailed shearwater	N/A	Migratory	N/A	Breeding 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 canutus</i>	Red knot	Vulnerable	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 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>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>Charadrius leschenaultii</i>	Greater sand plover	Vulnerable	Migratory	N/A	Species or species habitat known to occur within area
<i>Charadrius veredus</i>	Oriental plover	N/A	Migratory	N/A	Species or species habitat may occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				Operational Area	EMBA
<i>Erythrotriorchis radiatus</i>	Red goshawk	Endangered	N/A	N/A	Species or species habitat may occur within area
<i>Falco hypoleucos</i>	Grey falcon	Vulnerable	N/A	N/A	Species or species habitat likely to occur within area
<i>Fregata ariel</i>	Lesser frigatebird	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
<i>Fregata minor</i>	Great frigatebird	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>Hirundo rustica</i>	Barn swallow	N/A	Migratory	N/A	Species or species habitat may occur within area
<i>Hydroprogne caspia</i>	Caspian tern	N/A	Migratory	N/A	Breeding known to occur within area
<i>Limnodromus semipalmatus</i>	Asian dowitcher	Vulnerable	Migratory	N/A	Species or species habitat known to occur within area
<i>Limosa lapponica</i>	Bar-tailed godwit	N/A	Migratory	N/A	Species or species habitat known to occur within area
<i>Limosa lapponica menzbieri</i>	Northern Siberian bar-tailed godwit	Endangered	N/A	N/A	Species or species habitat known to occur within area
<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>Malurus leucopterus edouardi</i>	White-winged fairy-wren (Barrow Island)	Vulnerable	N/A	N/A	Species or species habitat likely to occur within area
<i>Motacilla cinerea</i>	Grey wagtail	N/A	Migratory	N/A	Species or species habitat may occur within area
<i>Motacilla flava</i>	Yellow wagtail	N/A	Migratory	N/A	Species or species habitat may occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				Operational Area	EMBA
<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>Onychoprion anaethetus</i>	Bridled tern	N/A	Migratory	N/A	Breeding known to occur within area
<i>Pandion haliaetus</i>	Osprey	N/A	Migratory	N/A	Breeding known to occur within area
<i>Papasula abbotti</i>	Abbott's booby	Endangered	N/A	N/A	Species or species habitat may occur within area
<i>Pezoporus occidentalis</i>	Night parrot	Endangered	N/A	N/A	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 known to occur within area
<i>Phaethon 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 rubricauda westralis</i>	Red-tailed tropicbird (Indian Ocean)	Endangered	N/A	Species or species habitat likely to occur within area	Species or species habitat likely to 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>Rostratula australis</i>	Australian painted snipe	Endangered	N/A	N/A	Species or species habitat likely to occur within area
<i>Sterna dougallii</i>	Roseate tern	N/A	Migratory	N/A	Breeding known to occur within area
<i>Sternula albifrons</i>	Little tern	N/A	Migratory	N/A	Breeding known to occur within area
<i>Sternula nereis nereis</i>	Australian fairy tern	Vulnerable	N/A	Foraging, feeding or related behaviour likely to occur within area	Breeding known to occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				Operational Area	EMBA
<i>Thalassarche carteri</i>	Indian, yellow-nosed albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area
<i>Thalassarche impavida</i>	Campbell albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area
<i>Thalasseus bergii</i>	Greater crested tern	N/A	Migratory	N/A	Breeding known to occur within area
<i>Tringa nebularia</i>	Common greenshank	Endangered	Migratory	N/A	Species or species habitat likely to occur within area

Table 4-13: Seabird and Shorebird BIAs within the Operational Area and EMBA

Species	BIA type	Approximate Distance and Direction from Operational Area (km)
Fairy tern	Breeding. Pilbara and Gascoyne coasts and islands (Breeding from June to September, birds from South-west Marine Region dispersing northwards in winter).	~38 km southwest of the Operational Area
Lesser crested tern	Breeding. Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef (Breeding March to June).	~41 km south of the Operational Area
Roseate tern	Breeding. Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef (Breeding from May to August. Also, birds from South-west Marine Region dispersing north in winter).	~41 km south of the Operational Area
Wedge-tailed shearwater	Breeding. Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef (Breeding from November to April in the Pilbara).	Overlaps the Operational Area.

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Page 99 of 445

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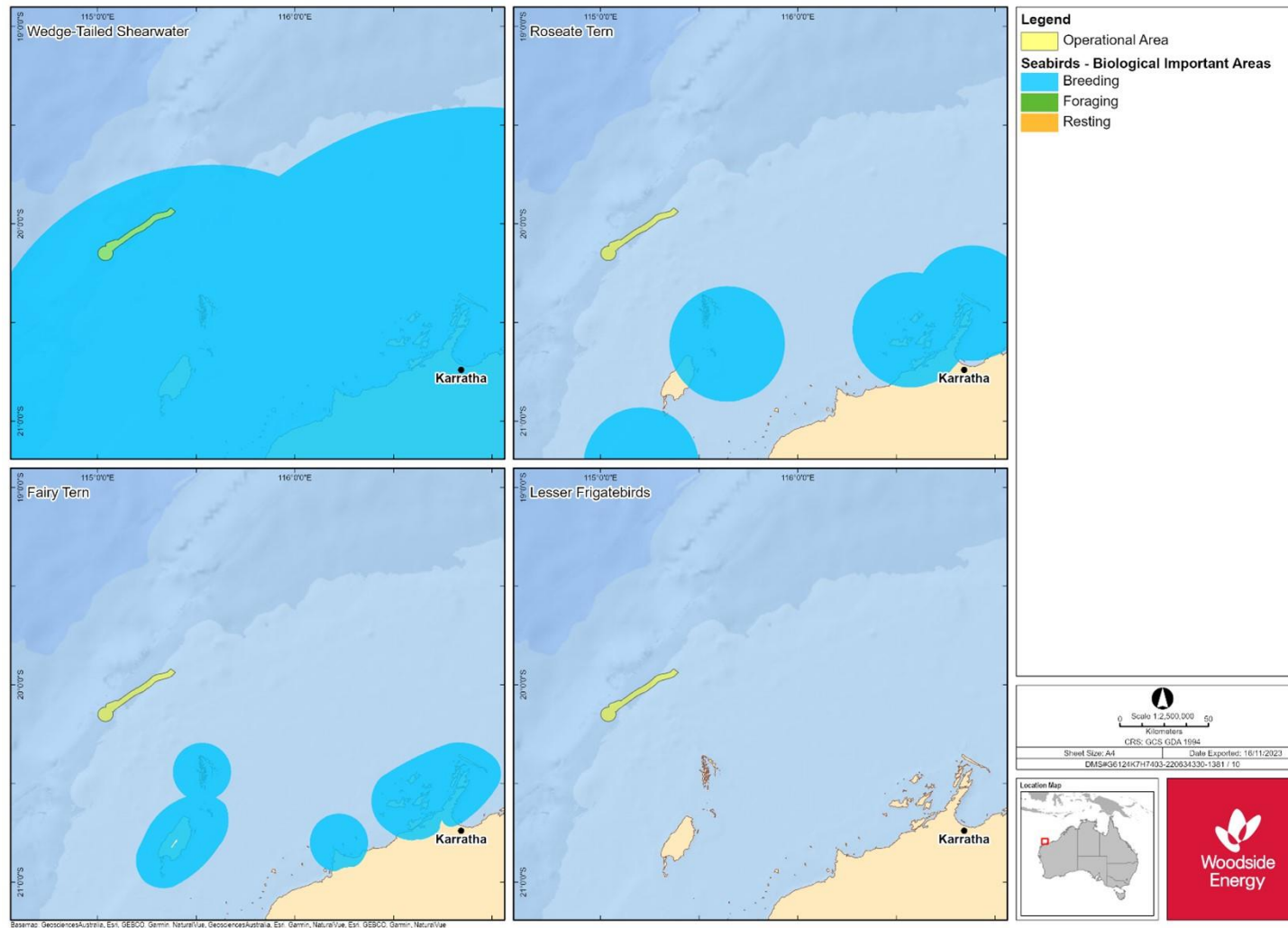


Figure 4-9: Seabird and Shorebird BIAs overlapping the Operational Area

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Native file DRIMS No: 10484514

Page 100 of 445

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4.6.4.1 Wedge-tailed Shearwater

The Wedge-tailed shearwater (*Arena pacific*) is a pelagic, marine seabird known from tropical and subtropical waters (DCCEEW 2024). Its distribution is widespread across the Indian and Pacific oceans with a global population of 2.6 million pairs. Of this, approximately one million pairs breed in Australia, most of which do so on islands in WA between Rottnest Island in the south to Ashmore Reef in the north (DCCEEW 2024).

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 (Pendoley Environmental 2019). This species is highly synchronous in timing of breeding; all eggs within a colony are laid within a ten-day period (Pendoley Environmental 2019). 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).

This species is seen in North West WA from June to April (DBCA 2017). The breeding season in the Pilbara region occurs between November and April (DBCA 2017). Breeding behaviours are typically nocturnal in Wedge-tailed shearwaters.

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. Known breeding locations in the NWMR include Forestier Island (Sable Island), Bedout Island, Dampier Archipelago, Passage Island, Lowendal Island, islands off Barrow Island (Mushroom, Double and Boodie islands), islands in the Onslow area (including Airlie, Bessieres, Serrurier, North and South Muiron and Locker islands), islands in Freycinet Estuary, and south Shark Bay (Slope, Friday, Lefebvre, Charlie, Freycinet, Double and Baudin islands (DSEWPC 2012). This species forages relatively close to breeding islands and its diet consists of squid, fish and crustaceans (DSEWPC 2012), tracking studies found that foraging activities at sea were more frequent during the day compared with at night (Catry, et al. 2009, Weimerskirch, de Grissac, et al. 2020).

Wedge-tailed shearwaters breeding on the Muiron Island (north) undertook extensive foraging trips during the incubation period (1,200 – 1,400 km) and shorter trips during chick rearing (<300 km, (Cannell, Hamilton and Driessen 2019)). Longer foraging trips took individuals in a NW direction offshore towards oceanic seamounts. Conversely, the shorter tended to include waters to the west and NW of the Muiron Islands (Cannell, Hamilton and Driessen 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 in the east of Australia (Peck and Congdon 2005), and New Caledonia (Weimerskirch, Le Corre, et al. 2005). However, divergent foraging strategies have been detected between colonies, which is linked to the proximity of colonies to high productivity waters (Peck and Congdon 2005, Weimerskirch, Le Corre, et al. 2005).

4.6.5 Seasonal Sensitivities for Protected Species

Seasonal sensitivities for protected migratory species identified as potentially occurring within the Operational Area are identified in Table 4-14 Movement patterns of all protected species identified in Section 4.5 are described in Section 5 of the Master Existing Environment.

Table 4-14: Key seasonal sensitivities for protected migratory species identified as occurring within the Operational Area.

Species	January	February	March	April	May	June	July	August	September	October	November	December
Fish, sharks and rays												
Whale shark - foraging (northward from Ningaloo) ¹												
Mammals												
Pygmy blue whale - northern Migration ²												
Pygmy blue whale - southern Migration ³												
Marine reptiles												
Flatback turtle - Pilbara Stock (F-Pil) ⁴ Nesting												
Seabirds and shorebirds												
Wedge-tailed shearwater - breeding / foraging *fledgling emergence (first two weeks of April)												
	Species may be present in the Operational Area and display biologically important behaviour in the region.											
	Peak period. Presence of animals is reliable and predictable each year in the region.											
	Species not likely to be present or undertaking biologically important behaviour in											

References for species seasonal sensitivities:

¹ Whale 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).

² Pygmy blue whale northern migration April - August (DCCEEW, 2024b15; DSEWPaC, 2012a; McCauley et al., 2018; CoA, 2015a). Peak April- July (Thums et al., 2022)

³ 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).

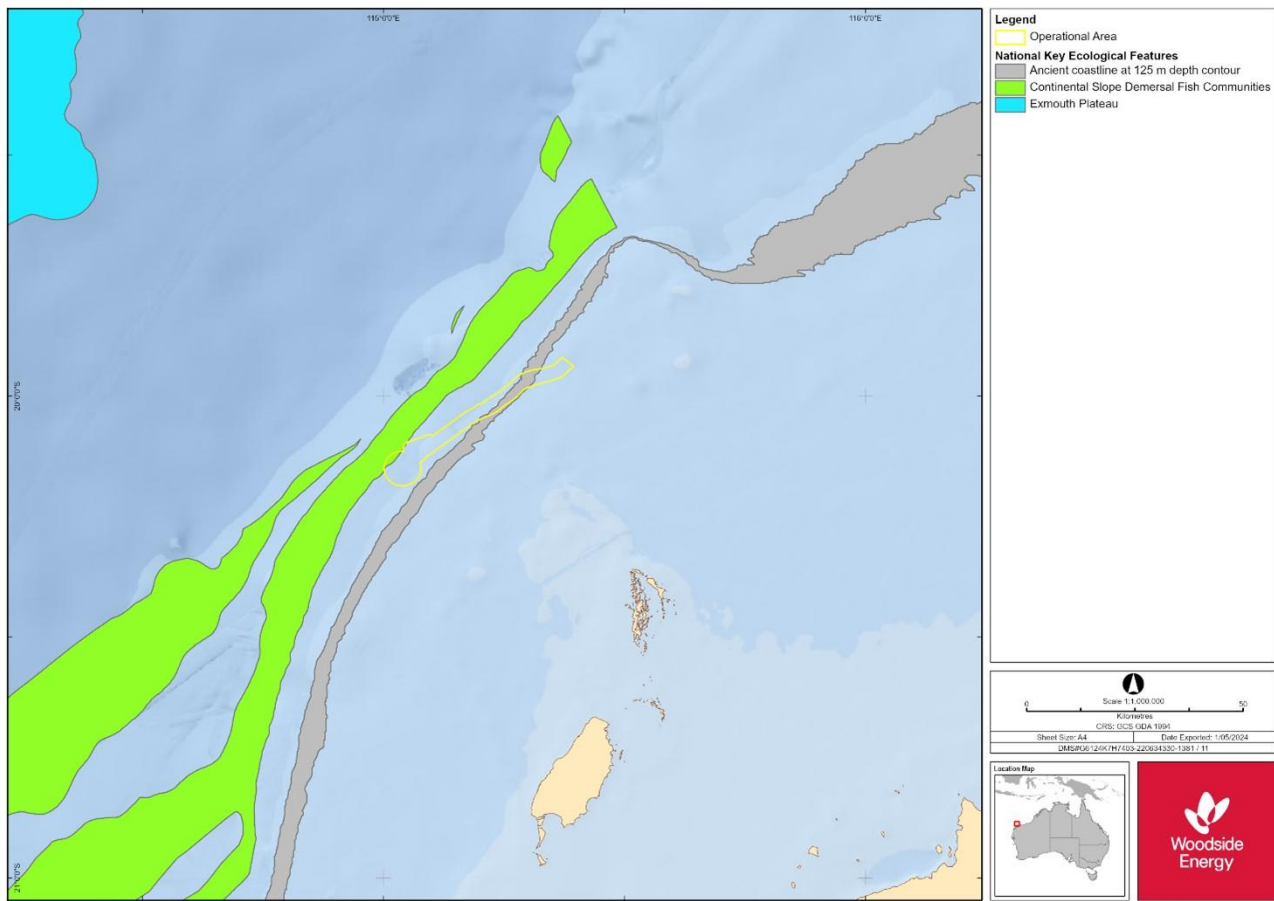
⁴ Flatback turtle nesting Pilbara stock October- March (CoA, 2017).

4.7 Key Ecological Features (KEFs)

KEFs within the Operational Area and EMBA are identified in Table 4-15 and described in Section 9 of the Master Existing Environment. Further information of the KEFs within the Operational Area is provided in the following subsections. Figure 4-10 shows the spatial overlap with KEFs and the Operational Area.

Table 4-15: KEFs within the Operational Area and EMBA

Key Ecological Feature	Distance and Direction from Operational Area to KEF (km)
Ancient Coastline at 125 m depth contour	~0.2% of the KEF (~31 km ²) crosses the eastern part of the Operational Area (i.e. sections of the umbilical, MEG line and production flowlines)
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	~140 km southwest of the Operational Area
Commonwealth waters adjacent to Ningaloo Reef	~41 km south of the Operational Area
Continental Slope Demersal Fish Communities	~0.02% of the KEF (~6 km ²) overlaps the northwest of the Operational Area (no planned overlap with the infrastructure)
Exmouth Plateau	~184 km southwest of the Operational Area
Glomar Shoals	~130 km east of the Operational Area


Figure 4-10: KEFs overlapping the Operational Area

4.7.1 Ancient Coastline at 125 m Depth Contour

The Ancient Coastline at 125 m depth contour KEF is recognised for its biodiversity values (unique sea-floor feature with ecological properties of regional significance), which apply to both the benthic and pelagic habitats within the feature (DSEWPC 2012).

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Revision: 8.0

Native file DRIMS No: 10484514

Page 103 of 445

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Parts of the Ancient Coastline, particularly where it exists as a rocky escarpment, are thought to provide biologically important habitats in areas otherwise dominated by soft sediments (DSEWPC 2012). The escarpment type features may also potentially facilitate mixing within the water column due to upwelling, providing a nutrient rich environment. Little is known about fauna associated with the hard substrate of the escarpment, but it is likely to include sponges, corals, crinoids, molluscs, echinoderms and other benthic invertebrates' representative of hard substrate fauna in the North West Shelf bioregion (DSEWPC 2012).

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).

4.7.2 Continental Slope Demersal Fish Communities

This species assemblage is recognised as a KEF because of its biodiversity values, including high levels of endemism (DSEWPC 2012).

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 (DSEWPC 2012). 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, Lyne, et al. 2005).

Demersal fish species occupy two distinct demersal biomes associated with the upper slope (225–500 m water depths) and the mid-slope (750–1,000 m) (DSEWPC 2012). Bacteria and fauna present on the continental slope are the basis of the food web for demersal fish and higher-order consumers in this system. Loss of benthic habitat along the continental slope at depths known to support demersal fish communities may lead to a decline in species richness, diversity and endemism associated with this feature (DSEWPC 2012).

4.8 Protected Places

The Operational Area (i.e. <1 km of the umbilical, MEG line and production flowlines) overlaps with ~0.1% (3.26 km²) of the Montebello Marine Park. No other protected places overlap the Operational Area. 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. Further information on the Montebello Australian Marine Park within the Operational Area is provided in Section 4.8.1.

Protected places within the Operational Area and EMBA are identified in Table 4-16 and presented in Figure 4-11. Section 10 of the Master Existing Environment (Appendix C) describes the values and sensitivities of protected places and other sensitive areas in the EMBA.

There are no wetlands of international importance (Ramsar) identified within the Operational Area or EMBA.

Table 4-16: Established protected places and other sensitive areas location relative to the Operational Area overlapping the EMBA

	Distance and Direction from Operational Area to protected place or sensitive area (km)	IUCN category* or relevant park zone
AMPs		
<u>NWMR</u>		
Gascoyne	~144 km southwest of the Operational Area	Multiple Use Zone (IUCN VI)
Montebello	Overlaps part of the Operational Area (i.e. small sections of the umbilical and flowline)	Multiple Use Zone (IUCN VI)
Ningaloo	~184 km southwest of the Operational Area	Recreational Use Zone (IUCN IV)
State Marine Parks and Nature Reserves		
<u>Marine Parks</u>		
Barrow Island	~65 km southeast of the Operational Area	Unassigned (IUCN IA)
Montebello Islands	~37 km southeast of the Operational Area	General use zone (IUCN II)
	~37 km southeast of the Operational Area	Special Purpose Zone (Benthic Protection [IUCN IV])
	~41 km southeast of the Operational Area	Sanctuary Zone (IUCN IA)
Ningaloo	~185 km southwest of the Operational Area	General Use (IUCN II)
	~196 km southwest of the Operational Area	Recreation Area (IUCN II)
	~199 km southwest of the Operational Area	Sanctuary Zone (IUCN IA)
	~240 km southwest of the Operational Area	Special Purpose Zone (Benthic Protection [IUCN IV])
	~308 km southwest of the Operational Area	Unassigned (IUCN IV)
<u>Marine Management Areas</u>		
Barrow Island	~47 km southeast of the Operational Area	Unassigned (IUCN VI)
Muiron Islands	~175 km southwest of the Operational Area	Conservation Area (IUCN IA)
	~168 km southwest of the Operational Area	Unclassified (IUCN VI)
<u>Nature Reserves</u>		
Thevenard Island	~139 km southwest of the Operational Area	Unassigned (IUCN IA)
<u>Conservation Park</u>		
Montebello Islands	~46 km southeast of the Operational Area	Unassigned (IUCN II)
State Terrestrial Parks and Nature Reserves^		
<u>Conservation Park</u>		
Montebello Islands	~47 km southeast of the Operational Area	IUCN II
<u>National Park</u>		
Cape Range	~225 km southwest of the Operational Area	IUCN II
<u>Nature Reserves</u>		
Barrow Island	~74 km southeast of the Operational Area	IUCN IA
Muiron Islands	~174 km southwest of the Operational Area	IUCN IA
North Sandy Island	~118 km southeast of the Operational Area	IUCN IA
<u>5(1)(h) Reserve</u>		

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	Distance and Direction from Operational Area to protected place or sensitive area (km)	IUCN category* or relevant park zone
Jurabi Coastal Park	~202 km southwest of the Operational Area	IUCN II

*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.

^Terrestrial parks and nature reserves were identified from hydrocarbon spill modellings based on the predicted shoreline contact with hydrocarbons above threshold concentrations for the socio-cultural EMBA (Table 4-1).

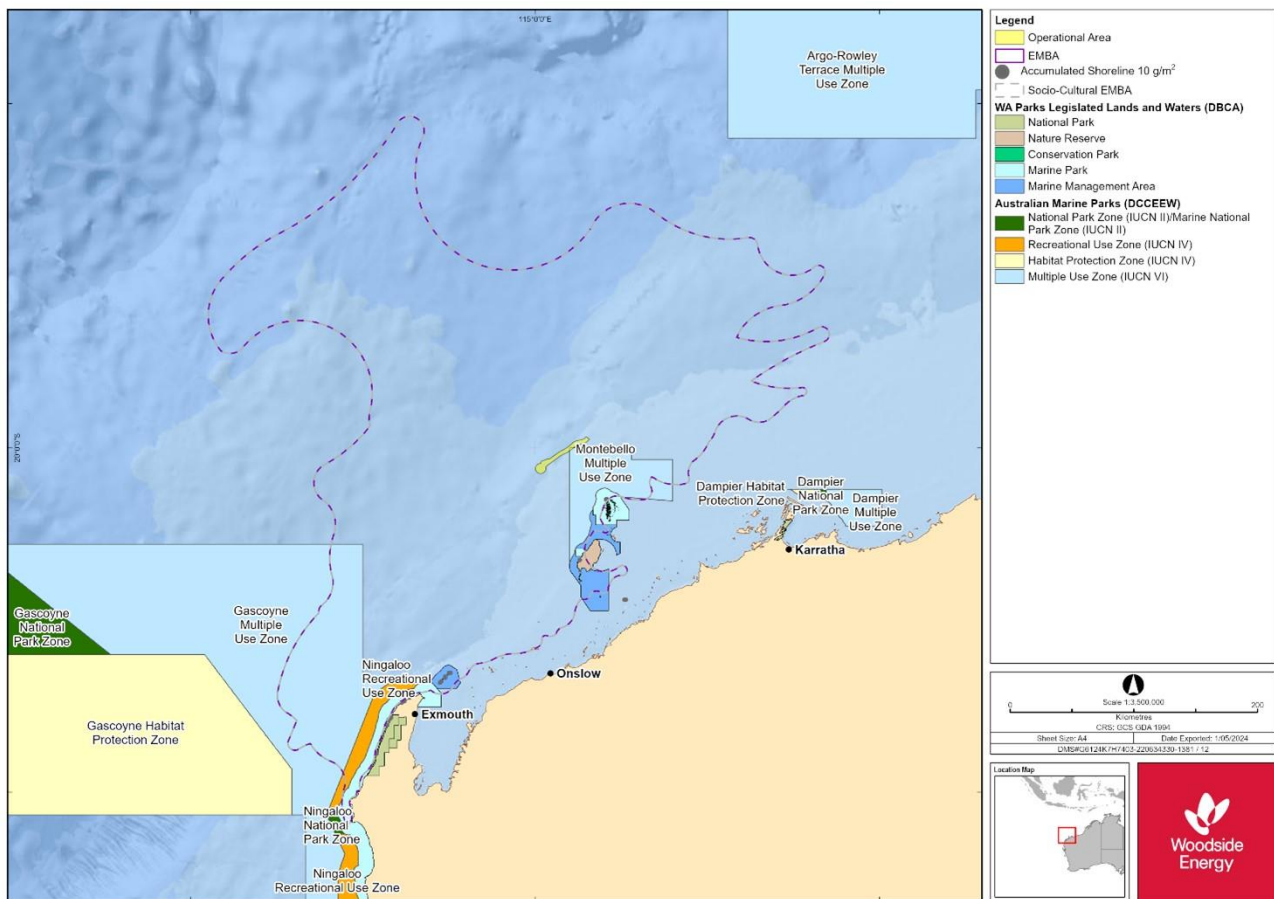


Figure 4-11: Protected Areas overlapping the Operational Area or EMBA

4.8.1 Montebello Marine Park

The Montebello Marine Park includes shallow shelf environments and provides protection for shelf and slope habitats, as well as pinnacle and terrace seabed features. The North-west Marine Parks Network Management Plan (DNP 2018) identifies the following values for the Montebello Marine Park:

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 106 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

- **Natural Values:** the 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 the Marine Park is the Ancient Coastline at the 125 m depth contour. The Marine Park supports a range of species listed under the EPBC Act. Biologically important areas within the 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.
- **Cultural Values:** the Yamatji Marlpa 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.
- **Heritage Values:** no international, Commonwealth or national listings apply to the Marine Park, however the 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. The Marine Park contains two known shipwrecks listed under the *Historic Shipwrecks Act 1976*: Trial (wrecked in 1622), the earliest known shipwreck in Australian waters and Tanami (unknown date).
- **Social and Economic Values:** tourism, commercial fishing, mining and recreation are important activities in the Marine Park.

4.9 Socio-Economic and Cultural Environment

4.9.1 Cultural Values and Heritage

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

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

In line with The Australia ICOMOS Burra Charter (2013) (Burra Charter) and associated practice notes, Woodside understands heritage value to refer to the cultural significance of a place to an individual 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 or intangible dimensions (ICOMOS 2013).

4.9.1.1 Native Title

There are no native title claims/determinations, or ILUAs overlapping the Operational Area (Table 4-17 and Figure 4-12). There is one Native Title claim and no ILUAs overlapping the EMBA (Table 4-17 and Figure 4-12).

As a starting point for understanding social and cultural features of the environment for Indigenous (First Nations) groups, Woodside uses the existing systems, such as Native Title, to identify Indigenous 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 may overlap. Woodside considers this to be the broadest extent over which Indigenous groups have claimed Native Title rights and interests. Further information of native titles and ILUAs is provided in the Master Existing Environment.

4.9.1.2 Coastally Adjacent First Nations Groups

Woodside understands that Indigenous 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 a 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 Indigenous groups to be consulted (see Section 5.3).

Table 4-17 and Figure 4-12 identifies the Native Title claims, determinations and ILUAs overlapping or coastally adjacent to the EMBA.

Table 4-17: Summary of Native Title Claims, Determinations and ILUAs which overlap or are coastally adjacent to the EMBA

Claim / Determination / ILUA	Registered Native Title Body Corporate (RNTBC)	Overlap with EMBA	Coastally adjacent to the EMBA
Determination			
Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People	Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation	Yes	Yes
Kariyarra	Kariyarra Aboriginal Corporation	No	Yes
Ngarluma/Yindjibarndi	Yindjibarndi Aboriginal Corporation, Ngarluma Aboriginal Corporation	No	Yes
Thalanyji	Buurabalayji Thalanyji Aboriginal Corporation RNTBC	No	Yes
Yaburara and Mardudhunera People	Wirrawandi Aboriginal Corporation	No	Yes
Claim			
None identified within the EMBA.			
ILUA			
Ningaloo Conservation Estate	Nganhurra Thanardi Garrbu Aboriginal Corporation	Yes	Yes
Anketell Port, Infrastructure Corridor and Industrial Estates Agreement	Ngarluma Aboriginal Corporation	No	Yes
Ashburton Salt Project (Body Corporate Agreement)	Yamatji Marlpa Aboriginal Corporation	No	Yes
Cape Preston Project Deed (YM Mardie ILUA)	Wirrawandi Aboriginal Corporation	No	Yes
Cape Preston West Export Facility	Wirrawandi Aboriginal Corporation	No	Yes
FMG - Kariyarra Land Access ILUA	Kariyarra Aboriginal Corporation	No	Yes
Kariyarra and State ILUA	Kariyarra Aboriginal Corporation	No	Yes
Kuruma Marthudunera and Yaburara and Coastal Mardudhunera	Wirrawandi Aboriginal Corporation, Robe River Kuruma Aboriginal Corporation	No	Yes
Macedon ILUA	Buurabalayji Thalanyji Aboriginal Corporation RNTBC	No	Yes
RTIO Kuruma Marthudunera People ILUA	Robe River Kuruma Aboriginal Corporation	No	Yes

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 108 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Claim / Determination / ILUA	Registered Native Title Body Corporate (RNTBC)	Overlap with EMBA	Coastally adjacent to the EMBA
RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement)	Ngarluma Aboriginal Corporation	No	Yes

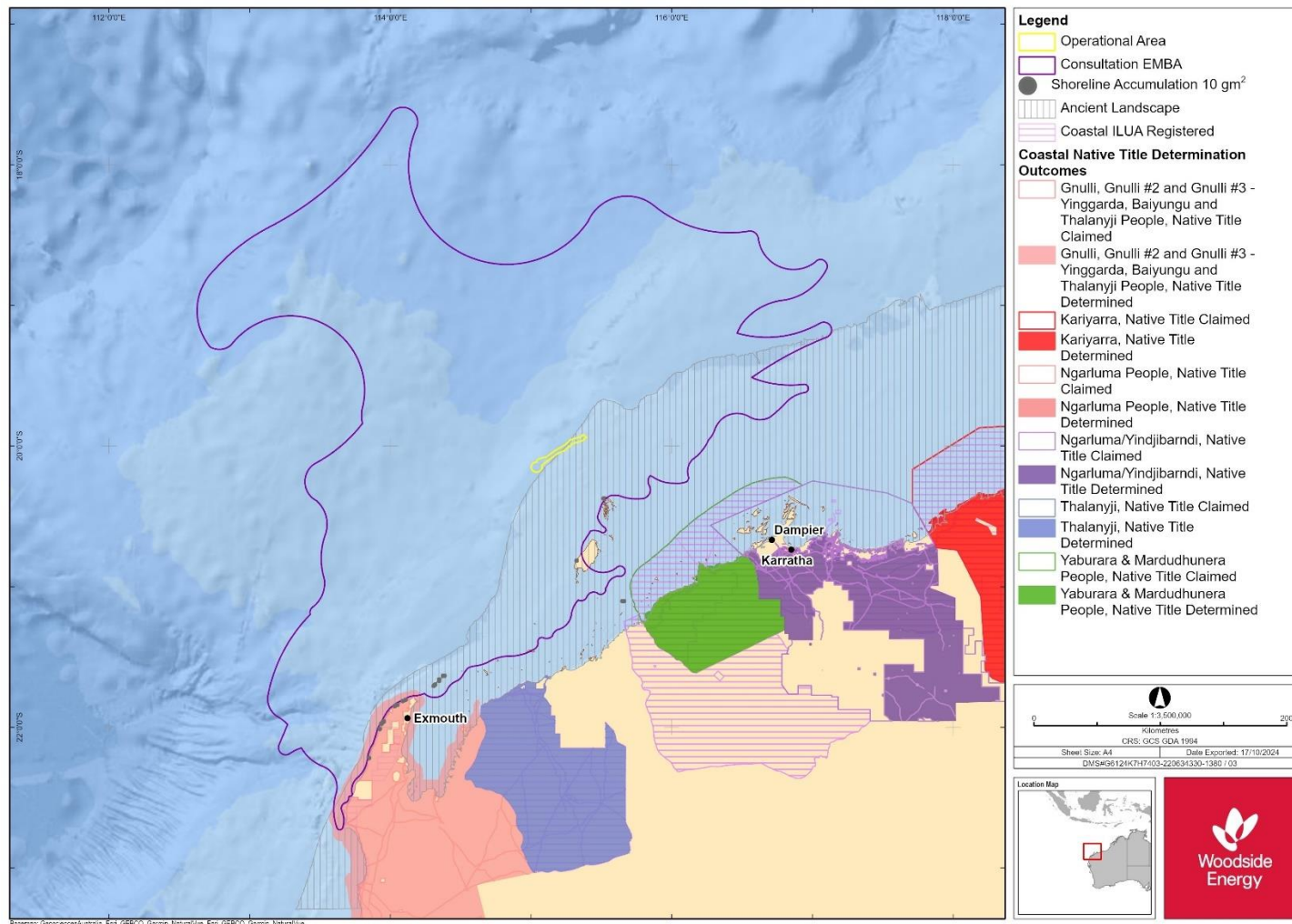


Figure 4-12: Native Title Claims, Determinations and ILUAs which overlap or are coadjacent to the EMBA

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 110 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

4.9.1.3 Marine Parks

Woodside undertakes an assessment of cultural values within Marine Park Management Plans where the Operational Area or EMBA overlaps a Marine Park.

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 Traditional Custodians or representative bodies referenced to contact regarding potential cultural features and heritage values. For completeness, Woodside considers these cultural features and heritage values identified in the management plans, where EP relevant Traditional Custodians or representative bodies are represented. These values are outlined in Table 4-18.

The Operational Area overlaps the Montebello AMP. The EMBA overlaps with features of the Gascoyne, Montebello and Ningaloo AMPs managed under the North-west Marine Parks Network Management Plan 2018 (Director of National Parks, 2018). The EMBA overlaps a further 5 State Marine Parks and 2 National 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 (Section 5.3). Consultation with these groups may identify heritage values and cultural features beyond those addressed in the marine park management plans. Identifiable representative bodies for the marine parks overlapped by the EMBA are specified in Table 4-18 below.

Management plans for the AMPs note shipwrecks within the AMPs and overlap with World, National and Commonwealth heritage lists. These are addressed in Section 4.8.1 above.

The Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005–2015: Management Plan Number 52 (Marine Parks and Reserves Authority and Department of Conservation and Land Management, 2005) (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 activity 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.

Table 4-18: Summary of Commonwealth, State Marine Park and National Park Management Plans intersecting the EMBA

Marine Park Management Plan	Operational Area Overlap	EMBA Overlap	Specified Bodies
Commonwealth Marine Park Management Plan			
Gascoyne AMP	No	Yes	Yamatji Marlpa Aboriginal Corporation
Montebello AMP	Yes	Yes	Yamatji Marlpa Aboriginal Corporation
Ningaloo AMP	No	Yes	Nganhurra Thanardi Garrbu Aboriginal Corporation Yamatji Marlpa Aboriginal Corporation
State Marine Park Management Plan			
Barrow Island Marine Management Area	No	Yes	No identifiable body specified

Marine Park Management Plan	Operational Area Overlap	EMBA Overlap	Specified Bodies
Muiron Islands Marine Management Area	No	Yes	No identifiable body specified.
Montebello Islands MP	No	Yes	No identifiable body specified.
Barrow Island MP	No	Yes	No identifiable body specified.
Ningaloo MP	No	Yes	Nganhurra Thanardi Garrbu Aboriginal Corporation
National Park Management Plan			
Murujuga National Park	No	Yes	Murujuga Aboriginal Corporation
Cape Range National Park	No	Yes	Yamatji Marlpa Aboriginal Corporation

4.9.1.4 General Cultural Values of Marine Ecosystems

Woodside recognises the potential for marine ecosystems to include cultural features as well as environmental values. ‘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). The link between environmental protection and cultural heritage protection is illustrated in the Australian Government’s Indigenous Protected Areas (IPAs) Program. The IPAs program provides for areas of land and sea managed by Indigenous groups as protected areas for biodiversity conservation (DCCEEW 2024).

There are no IPAs overlapping the Operational Area or EMBA.

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 to 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 (Barber and Jackson 2011) or travel between coastal islands (Paterson, et al. 2019). Indigenous groups who may have interests and connection in Sea Country are identified in Section 4.9.2.1.

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.

Further information of general cultural values of marine ecosystems is provided in the Master Existing Environment.

4.9.2 Sea Country Values

Sea Country values of marine ecosystems are further described in Appendix C. An impact to marine ecosystems has the potential to impact cultural values where the impact is detectable within Sea Country. Potential impacts to these cultural values are assessed in Section 6.

Woodside initiates consultation on cultural values of Sea Country where Traditional Custodians or representative institutions are identified, or self-identify, as relevant persons. Cultural features or heritage values related to marine species within the Operational Area or EMBA raised by Traditional Custodians in the course of preparing the EP. Values identified in publicly available literature are summarised in the following sections.

4.9.2.1 Desktop Assessment of Sea Country Values

Publicly available sources were assessed for any records of previously identified Sea Country values or cultural features that may overlap with the Operational Area or EMBA. Where cultural features or Sea Country values were identified these are summarised in Table 4-19 according to the First Nations groups (where identified or inferable) who hold these values.

Table 4-19 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, Indigenous 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)	Possible (unspecified)	Possible (unspecified)
			Possible (unspecified)	Possible (unspecified)

First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
	<p>Feature: heritage sites in the Ningaloo region include shell middens, artefact scatters, skeletal material/burial sites, camps, meeting places, hunting places and water sources.</p> <p>Feature: resources including gajalbu (emu), bundgurdi (kangaroo), bardurra (bush turkey), majun (marine turtles), turtle eggs, bilygurumarda (osprey), fish, shellfish and plants.</p> <p>Feature: mudflats, mangroves and sand dunes provide a critical breeding ground for marine and terrestrial wildlife.</p> <p>Value: the Ningaloo region contains cultural heritage dating back at least 32,000 years, including ceremonial thalu sites.</p> <p>Value: connection to Country is important to the Traditional Owners' spirituality and religion.</p> <p>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".</p> <p>This document also includes information that is marked that cannot be copied, reproduced or used without consent.</p>	DBCA (2020)	<p>No</p> <p>Possible (turtles, fish)</p> <p>No (other resources)</p> <p>No</p> <p>No</p> <p>Possible (unspecified)</p>	<p>Possible (Shoreline accumulation areas)</p> <p>Possible (turtles, turtle eggs, fish, shellfish)</p> <p>No (other resources)</p> <p>Possible (mangroves)</p> <p>Possible (unspecified, but likely refers to onshore areas outside the EMBA)</p> <p>Possible (unspecified, but likely due to location of EMBA)</p>
	Feature: resources including mangrove crabs, gastropods, shellfish, dugong, turtle.	Morse (1993)	Possible (all but mangrove crabs)	Possible (all)

First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
Kariyarra	Value: traditional knowledge recalls that a salt water serpent lives in the sea and brings fish to shore.	Zaunmayr (2016)	Possible (unspecified)	Possible (unspecified)
Thalanyji	Feature: (1) resources including fish, shellfish, crabs, crustaceans, sea urchins, turtle, dugong and flora and fauna associated with mangrove communities. Feature: (2) archaeological sites on Barrow Island. Value: (3) connection to Country.	Commonwealth of Australia (2002)	(1) Possible (fish, turtle, dugong, invertebrates) (2) No (3) Possible (unspecified)	(1) Possible (fish, turtle, dugong, invertebrates) (2) Possible (based on shoreline accumulation) (3) Possible (unspecified)
	Feature: resources include turtles, eggs, fish, shellfish and plants.	DBCA <i>et al.</i> (2002)	Possible (fish, turtle)	Possible (fish, turtle, eggs, shellfish)
	Value: connection to Country. Value: transfer of knowledge. Value: access to Country.	DBCA (2022)	Possible all (unspecified)	Possible all (unspecified)
	Value: access to Barrow and possibly Montebello Islands	Hook <i>et al.</i> (2004)	No	Possible
	Feature: artefact scatters are located in coastal sand dunes. Feature: burials are located in coastal sand dunes.	Hook (2020)	No No	Possible (shoreline accumulation areas) Possible (shoreline accumulation areas)
	Feature: archaeological sites are located on Barrow Island.	Ditchfield <i>et al.</i> (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 <i>et al.</i> (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.	DBCA (2022)	No	No (ceremonial use) Possible (submerged thalu sites e.g., petroglyphs)
	Feature: ceremonies. Value: connection to Country. Value: transfer of knowledge. Value: access to Country.		No Possible Possible Possible	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 (all features and values) (unspecified)	Possible (all features and values) (unspecified)
	Feature: archaeological sites in submerged landscapes.	Crabtree et al. (2021)	Possible	Possible
	Value: Sea Country has customary law defining ownership and management rights and responsibilities.	Muller (2008)	Possible (unspecified)	Possible (unspecified)

First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
	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 <i>et al</i> (2023)	Possible (all values) (unspecified)	Possible (all values) (unspecified)
	Feature: archaeological sites indicate that islands were occupied prior to sea level rise.	DBCA (2020)	No	Possible (submerged)
	Value: Sea Country includes values, places, resources, stories and cultural obligations. Value: activities relating to resources included: <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 No (activities)	Possible Possible (activities and fauna present)

First Nations Group	Features and Values	Source	Potential for overlap	
			Operational Area	EMBA
	Value: people have kinship relationships with every plant and animal. 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.	Juluwarlu Aboriginal Corporation (2004)	Likely to occur No	Likely to occur No
	Feature: tangible and intangible heritage. Feature: archaeological evidence of varied occupation and adaptation. Value: a distinct way of life centred around the use of limited water and coastal resources.	Macfarlane and McConnell (2017)	Possible (unspecified) Possible (submerged) No	Possible (unspecified) Possible (submerged) Possible (unspecified)

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 118 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

4.9.2.2 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 Aboriginal 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.

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). Woodside also understands that, at its lowest level during Indigenous occupation, sea level was between 125 m (O'Leary, Paumard and Ward 2020, Veth, et al. 2019, Williams, et al. 2018) and 130 m below current levels (Benjamin, O'Leary, et al. 2020, UWA 2021, Benjamin, O'Leary, et al. 2023).

Recent archaeological discoveries demonstrate that the now submerged landscape was occupied and inhabited, and can retain archaeological material from this time (Benjamin, O'Leary, et al. 2023, Benjamin, O'Leary, et al. 2020, Ward, et al. 2022).

In recognition of this, Woodside considers the Ancient Landscape between the mainland and the Ancient Coastline KEF (see Section 4.7.1) as an area where potential Indigenous archaeological material may exist on the seabed, as this covers the full extent of this possible Indigenous occupation. Known Indigenous heritage 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 1999. However, these Acts only extend protection to Indigenous heritage places specified by declaration or otherwise included on a statutory list. Woodside understands that there is no known Indigenous archaeology and no areas subject to declarations or prescriptions under these Acts within the Operational Area.

Based on the Department of Planning, Lands and Heritage (DPLH) Aboriginal Heritage Inquiry system (DPLH 2024) no Aboriginal Cultural Heritage (ACH) Register or lodgement was identified in the Operational Area (Appendix J). Within the EMBA, two registered and 20 lodged ACH were identified (Appendix J). It is noted that only two of the lodged ACH identified (i.e. 885 and 891) have potential coastal and/or marine interface that intersect with the geographic extent of the EMBA; however, the predicted shoreline exposure above threshold concentrations is not expected to occur in either of these areas. It is also noted that the DPLH include a buffer around these sites to protect privacy regarding the location. As such, the identified heritage sites may not be present within the EMBA.

At the time of writing the EP, no sites of significance within the Operational Areas or EMBA were identified by Traditional Custodians.

4.9.2.3 Feedback Received via Consultation to Inform Existing Environment Description

First Nations cultural values are communally held. This is reflected in Vision 3 of Dhawura Ngilan vision "Aboriginal and Torres Strait Islander heritage is managed consistently across jurisdictions according to community ownership" (HCOANZ 2020). Dhawura Ngilan also specifically notes that Aboriginal and Torres Strait Islander heritage has been impacted by colonisation and its intangible knowledge systems, which are held in songlines and language, are endangered; this knowledge is held by Elders and the community, and by recordings held by both Custodians and research and collecting institutions (HCOANZ 2020). Through consultation with relevant persons, RNTBC have identified or raised topics relating to environmental values of cultural interest. These include a broad interest in the marine fauna, including whales and turtles (Appendix F).

During consultation, BTAC advised it has a cultural obligation to care for the environmental values of Sea Country (Appendix F). In the course of consultation specific to another Woodside EP, BTAC raised the importance of archaeological sites on nearshore islands. Given the EMBA for this activity extends to nearshore areas coastally adjacent to BTAC native title lands, these values may be relevant in the event of an unplanned hydrocarbon spill.

Woodside has committed to ongoing engagement to further understand these values. 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.

As a result of feedback received during consultation on this and other EPs in the region, it is feasible that additional cultural and broader interests in the environment exist. For completeness in describing the Existing Environment, feedback received by relevant persons and organisations on cultural features and heritage values are summarised below in Table 4-20.

Table 4-20 Summary of Sea Country values received via consultation

Relevant First Nations Group / Individuals	Context	Description of Value / Feature / Interest	Potential for Overlap	
			Operational Area	EMBA
Buurabalayji Thalanyji Aboriginal Corporation	Raised during the course of consultation for another EP	Value: Connection to Sea Country 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	Possible	Possible
Kariyarra Aboriginal Corporation	Raised during the course of consultation for another EP	Value: Turtles	Possible	Possible
		Value: Access to Sea Country (1) Accessing Sea Country for fishing, trapping, crabbing catching turtle, hunting dugong, using stingray barbs for spears and collecting shellfish. (2) Visiting offshore islands at low tide	No (all)	Possible (all)
		Value: Marine species resources Resource species of cultural interest to Kariyarra people include marine mammals, fish, molluscs including bivalves, gastropods and cephalopods.	Possible	Possible
		Value: The existence of intangible cultural heritage including the Yinta (associated with Sea Country). 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.	Possible	Possible
		Interest: Coastal Landforms (Cultural interest)	No	Possible

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 121 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Relevant First Nations Group / Individuals	Context	Description of Value / Feature / Interest	Potential for Overlap	
			Operational Area	EMBA
		Interest: Coastal Native Vegetation (Cultural interest)	No	Possible
		Feature: Cultural interest in cultural heritage sites associated with the coast and the ocean.	Possible	Possible
		Value: Traditional fishing and gathering rights in the ocean	Possible	Possible
		Value: Cultural interest in intangible cultural heritage associated with the coast and the ocean. (1) Presence of mythic snakes	Possible	Possible
		Value: Intergenerational Knowledge <i>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. Impacts to resource collection would be limited to temporary exclusion in areas where there are hydrocarbons present, including shoreline accumulation. Relevant cultural authorities will be engaged in the event of a spill that may affect them...</i>	Possible	Possible
		Value: Cultural obligations to care for Country, including Sea Country. Value: Secret Habitat Totems associated with Sea Country	Possible	Possible

Relevant First Nations Group / Individuals	Context	Description of Value / Feature / Interest	Potential for Overlap	
			Operational Area	EMBA
		Interest: Assertion of sea rights in native title claim area Interpreted as general connection to country, assertion of rights to access country and cultural obligation to care for environmental values of Sea Country (1) Having duties to look after and protect all KACs Sea Country.	No (based on NT determined area)	Possible
Murujuga Aboriginal Corporation	Raised during the course of consultation for another EP	Value: Mermaid Sound (1) The ecosystem health of Mermaid Sound	No	Possible
		Value: Whales (1) Whales and other species of totemic importance need to be protected, including their populations, biodiversity, and migration patterns. (2) A whale Thalu is an increase at the totemic site that brings whales into the beach.	Possible (all)	Possible (all)
		Value: Dolphins There are cultural ceremonies associated with communicating with dolphins.	Possible	Possible
		Value: Dugongs Dugongs are a food source associated with seagrasses near Gidley Island.	Possible	Possible
		Value: Fish Specific mentions of fish included There are Thalu ceremonies associated with increasing fish stocks.	Possible	Possible
		Value: Sea Snakes Sea snakes were specifically mentioned as culturally important species.	Possible	Possible
		Value: Turtles (1) Flatback, Green, Hawksbill, Loggerhead and Leatherback turtles; Songline	Possible (1,2)	Possible (all)

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Relevant First Nations Group / Individuals	Context	Description of Value / Feature / Interest	Potential for Overlap	
			Operational Area	EMBA
		<p>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>(2) Flatback, Green, Hawksbill, Loggerhead and Leatherback turtles: They are culturally important species that moves through Mermaid Sound. Turtles are most often seen in shallower areas and where there are seagrasses.</p> <p>(3) Most beaches are nesting sites for turtles, including those on Gidley and Legendre Islands... which also identifies Rosemary Island as the most important Hawksbill turtle nesting site in Western Australia.</p>	No (3)	
		<p>Feature: 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>Locations identified during consultation include Withnell Bay; Conzinc Bay; south west of Legendre Island.</p>	No	Possible
		<p>Feature: Seagrass</p> <p>(1) Seagrasses provide protection for animals.</p> <p>(2) Locations identified during consultation include Conzinc Island; between Angel and Gidley Islands.</p>	No	Possible
		<p>Feature: Mangroves</p> <p>(1) 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	Possible

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Relevant First Nations Group / Individuals	Context	Description of Value / Feature / Interest	Potential for Overlap	
			Operational Area	EMBA
		Feature: Macroalgal communities Are important primary production sites, habitats, and food sources (not explicitly identified by elders).	No	Possible
		Feature: Subtidal soft-bottom communities Support invertebrate diversity (not explicitly identified by elders).	No	Possible
		Feature: Intertidal sand and mudflat communities Important primary production sites, support invertebrate diversity and provide food for shorebirds (not explicitly identified by elders).	No	Possible
		Feature: Rocky shores Habitats for intertidal organisms and provide food for shorebirds (not explicitly identified by elders).	No	Possible
		Feature: Other areas of Mermaid Sound of importance (including Conzinc Bay) (1) Fish traps: 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.	No	Possible
		Value: Squid (1) Squidding (harvesting of squid from the ocean) around Conzinc Bay	No (based on specific location)	Possible
		Value: Appropriate cultural authority for Murujuga.	No	Possible
		Interest: Management of onshore heritage sites	No	No
		Interest: Submerged Heritage Engage with researchers on options to identify potential submerged heritage.	Possible	Possible
		Value: Songlines	Possible	Possible

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Relevant First Nations Group / Individuals	Context	Description of Value / Feature / Interest	Potential for Overlap	
			Operational Area	EMBA
		The potential impact on Jinna (Songlines) due to the lack of broader-scale bathymetric information for the submerged landscape		
Nganhurra Thanardi Garrbu Aboriginal Corporation representing Baiyungu and Thalanyji people	Raised during the course of consultation for another EP	Value: Whales and whale sharks	Possible (both)	Possible (both)
		Feature: Marine parks	No	Possible
Ngarluma Aboriginal Corporation (NAC)	Raised during the course of consultation for another EP	Interest: Management of onshore heritage sites	No	No
		Interest: Submerged Heritage Engage with researchers on options to identify potential submerged heritage.	Possible	Possible
Robe River Kuruma Aboriginal Corporation	Raised during the course of consultation for another EP	Feature: Coastline	No	Possible
		Feature: Underwater heritage	Possible	Possible
Wirrawandi Aboriginal Corporation	Raised during the course of consultation for another EP	Value: Whales (General interest around management of impacts to whales)	Possible	Possible
		Value: Turtles (General interest around management) Wirrawandi asked whether turtle monitoring programs are still in place	Possible	Possible
		Feature: Rock art Wirrawandi asked whether air emissions from activities impacts rock art & what Woodside does to minimise impacts to rock art. Wirrawandi also asked for more community information on rock art.	No	Possible
		Interest: Submerged heritage (1) Wirrawandi asked where sites of underwater heritage have been recently found (2) Wirrawandi asked about impacts to the seabed from planned activities, and what is considered in relation to submerged cultural heritage, particularly given the recent finding of artefacts.	Possible	Possible

Relevant First Nations Group / Individuals	Context	Description of Value / Feature / Interest	Potential for Overlap	
			Operational Area	EMBA
Yindjibarndi Aboriginal Corporation	Consultation for this EP	No values raised	-	-
Yinggarda Aboriginal Corporation	Raised during the course of consultation for another EP	Value: Coastal Fishing Local communities enjoy fishing along the coast, including for (1) Shark Bay Mullet that is an important resource.	No	Possible
		Value: Ecosystem Health Plants, animals and the environment are inexorably linked to their culture	Possible	Possible
		Value: Dugongs	Possible	Possible
		Feature: Seagrass Important food source for dugongs (Shark Bay)	No	Possible
		Value: Whales (1) potential impact to migration patterns of whales; (2) and potential collisions with vessels	Possible	Possible
Self-identified first nation representative groups				
Ngarluma Yindjibarndi Foundation Ltd	Consultation for this EP	No values raised	-	-

4.9.3 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 of the Environment Regulations.

The cultural features and heritage values identified in Section 4.9.2.1 and Section 4.9.2.3 confirms whether there is any potential for these to exist within the Operational Area 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.

A summary of cultural features and heritage values identified through both consultation and desktop assessment is provided in Table 4-21.

Where cultural features are physical elements of a place, these can generally be assessed for impacts; where a feature is avoided, impacts from planned activities are not predicted. Heritage values relate less to what is significant and more to why something is significant; potential interactions between heritage values and the activities carried out in the Operational Area can only be reliably informed by consultation with Traditional Custodians where they are willing to share the necessary knowledge.

Table 4-21 Summary of Cultural Features and Values

Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	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.	✓	✓	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	Possible (submerged)	Possible (submerged)
Fish traps	Stone arrangements constructed in intertidal areas which fill with fish at high tide and trap them at low tide.	✓	✓	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.	✓	✓	No	Possible
Rivers, waterholes, tidal channels and seeps	Water sources on the Ancient Landscape which may be culturally significant or archeologically prospective.	✓	✓	No	Possible
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	✓	No	Possible
Intangible values					
Songlines	Publicly available literature talks to Songlines associated with ancestral beings that travelled Sea Country.	✓	✓	Possible (unspecified)	Possible (unspecified)
Creation/ Dreaming sites, sacred sites and ancestral beings	Publicly available literature talks to creation/dreaming and ancestral beings, including water serpents, connected to or originating from the sea generally.	✓	✓	Possible (unspecified)	Possible (unspecified)

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Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	Desktop Literature Assessment	Operational Area	EMBA
Ceremonial sites	Places where ceremony (e.g. thalu ceremonies) are performed. All identified ceremonial sites are located onshore.	✓	✓	No	Possible (unspecified)
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.	✓	✓	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.	✓	✓	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.	✓	✓	Possible (unspecified)	Possible (unspecified)
Access to Country	Limitations on Traditional Custodians accessing or enjoying areas of Sea Country.	✓	✓	No	No (No limitations on access beyond the Operational Areas)
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.	✓	✓	Possible	Possible
Resource collection	Fishing, hunting, gathering of marine species including marine mammals, marine reptiles, fish and invertebrates.	✓	✓	No	Possible
Marine ecosystems and species					

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 130 of 445

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Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	Desktop Literature Assessment	Operational Area	EMBA
Water quality	Interest only, raised as a natural environment interest	✓	✓	Possible	Possible
Marine species	Generally raised in consultation and literature as an interest	✓	✓	Possible	Possible
Marine mammals: Whales	Generally raised in consultation and identified in publicly available literature Thalu species of totemic importance Linked to Songlines and Dreaming stories Humpback whales in particular	✓	✓	Possible	Possible
Marine mammals: Dolphins	Cultural ceremonies associated with dolphins Culturally important species	✓	✓	Possible	Possible
Marine mammals: Dugongs	Culturally important species Used as a resource	✓	✓	No	Possible
Marine reptiles: Marine turtles	Culturally important species and migration There are Thalu ceremonies associated with turtles Turtles and turtle eggs as a resource	✓	✓	Possible	Possible
Fish: Fish, whale sharks, 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	✓	✓	Possible	Possible
Cephalopods: Squid and Octopus	Thalu species of totemic importance Resource	✓	✓	Possible	Possible

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 131 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	Desktop Literature Assessment	Operational Area	EMBA
Intertidal communities: Bivalves, gastropods, echinoderms (sea urchins), crustaceans	Resource.	✓	✓	No	Possible
Seabirds	Culturally important species Birds (including shags, seagulls and osprey) and bird eggs as a resource	✓	✓	Possible	Possible
Benthic habitats: Macroalgal communities	Interest only, raised as a natural environment interest.	✓	✓	No	Possible
Shoreline habitats: Mangroves	Critical breeding ground for marine and terrestrial wildlife. Mangroves would have provided shelter, crabbing, digging for shellfish, could be turtle nurseries. Mangrove seeds as resource	✓	✓	No	Possible
Shoreline habitats: Intertidal sand/ mudflat communities	Interest only, raised as a natural environment interest.	✓	✓	No	Possible
Shorelines	Interest only, raised as a natural environment interest.	✓	✓	No	Possible
Marine Park/ coastal reserves	Interest and responsibility	✓	✓	No	Possible

4.9.3.1 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 EPBC Act 1999 (Cth). Historic places may also be protected under the *Heritage Act 2018* (WA).

Historic sites of significance and heritage value are found along adjacent foreshores of the NWMR. There are no known sites of Historic cultural heritage significance within the Operational Area.

4.9.3.2 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.

A search of the Australasian Underwater Cultural Heritage (UCH) Database (DCCEEW n.d.), which records all known Maritime Cultural Heritage (shipwrecks, aircraft, relics and other underwater cultural heritage) in Australian waters indicated that there are no UCH within the Operational Area. Within the EMBA only historic (>75 years old) shipwrecks and other shipwreck sites were identified (see Table 4-22). No sunken aircraft, or other types or artefacts, were identified within the EMBA.

Table 4-22: Known Shipwrecks Near to the Operational Area

Vessel Name (ID Number)	Year Wrecked	Wreck Location	Distance from the Operational Area According to ANSD Database
Marietta (4457) Barrow Island	1905	Barrow Island	1.5 km
Wild Wave (China) (5113)	1873	Monte Bello Island	
Vianen (5062)	1628	Barrow Island Area	
Curlew (3925)	1911	At Onslow, Monte Bellos Group	
Tanami (4899)	1622	Trial Rocks	30 km
Trial (4938)	1622	Trial Rocks	31 km

4.9.3.3 World, National and Commonwealth Heritage Listed Places

No listed heritage places overlap the Operational Area. World, National and Commonwealth heritage places within the EMBA are identified in Table 4-23. Section 11.2 of the Master Existing Environment describes the values and sensitivities of these places.

Table 4-23: World, National and Commonwealth Heritage Listed Places within the EMBA

Listed Place	Distance and Direction from Operational Area to Listed Place (km)
World Heritage Places (WHP)	
The Ningaloo Coast	~168 km southwest of the Operational Area
National Heritage Places (NHP)	
The Ningaloo Coast	~168 km southwest of the Operational Area
Commonwealth Heritage Places (CHP)	
Ningaloo Marine Area - Commonwealth Waters	~185 km southwest of the Operational Area

4.9.4 Commercial Fisheries

Five State and no Commonwealth management areas with fishing effort were identified within the Operational Area. Fish Cube and ABARES Annual Fishery Status Reports Map data were used, together with feedback from consultation (**Section 5**), to analyse the potential for interaction with commercial fisheries within the Operational Area for the Petroleum Activities Program (Department of Primary Industries and Regional Development [DPIRD], 2019-2023; Australian Bureau of Agricultural and Resource Economics and Sciences [ABARES], 2018-2022).

Table 4-24 provides an assessment of the potential interaction and Section 11.5.1 of the Master Existing Environment provides further detail on the fisheries that have been identified. Table 4-24 shows fisheries identified as having a potential interaction with the Petroleum Activities Program.

Table 4-24: Commonwealth and State Commercial Fisheries management areas overlapping the Operational Area and EMBA and potential for interaction during the Petroleum Activities Program

Fishery Name	Overlap with Operational Area	Overlap with EMBA	Description
			<p>Potential for interaction with the management area during activity</p> <p>✕ no spatial overlap</p> <p>✓ spatial overlap</p> <p>Blue shading indicates possibility of interaction</p>
Commonwealth Managed Fisheries			
North-West Slope Trawl Fishery	✕	✓	<p>The North-West Slope Trawl Fishery management area is located ~2 km north of the Operational Area and overlaps the EMBA. The fishery operates off north-western Australia from 114°E to 125°E roughly between the 200 m isobath and the outer boundary of the Australian Fishing Zone (Butler, et al. 2023). 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. (Butler, et al. 2023).</p> <p>Woodside considers that interactions with the fishery may occur in the EMBA and in close proximity to the Operational Area, particularly near its northern boundary.</p>
Southern Bluefin Tuna Fishery	✓	✓	<p>The Southern Bluefin Tuna Fishery management area overlaps the Operational Area and 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 (Butler, et al. 2023).</p> <p>Woodside considers that interactions with the fishery may not occur in the Operational Area or EMBA.</p>
Western Deepwater Trawl Fishery	✕	✓	<p>The Western Deepwater Trawl management area is located ~105 km west of the Operational Area and overlaps the EMBA. The fishery operates off the Western Australian coast, in the Gascoyne Region ranging between the North West Cape and Shark Bay. The fishery uses demersal trawling methods, in waters seaward of a line approximating the 200 m isobath (Butler, et al. 2023). Fishing effort has been relatively low since 2005-2006, with 1 to 3 vessels active in the fishery since 2004-2005, and 2 active vessels recorded in 2021-2022 (Butler, et al. 2023).</p> <p>Woodside considers that interactions with the fishery may occur in the EMBA</p>
Western Skipjack Fishery	✓	✓	<p>The Western Skipjack Tuna Fishery management area overlaps the Operational Area and EMBA. The Western Skipjack Tuna Fishery spans the Australian Fishing Zone west of Victoria and the Torres Strait. The Fishery is currently not active, and no fishing effort has occurred since 2009 (Butler, et al. 2023).</p> <p>Woodside considers that interactions with the fishery may not occur in the Operational Area or EMBA.</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 135 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery Name	Overlap with Operational Area	Overlap with EMBA	Description
			<p>Potential for interaction with the management area during activity</p> <p>✖ no spatial overlap</p> <p>✓ spatial overlap</p> <p>Blue shading indicates possibility of interaction</p>
Western Tuna and Billfish Fishery	✓	✓	<p>The Western Tuna and Billfish Fishery management area overlaps the Operational Area and EMBA. However, the majority of Australian catch has concentrated off south-west of Western Australia with (Butler, et al. 2023).</p> <p>Woodside considers that interactions with the fishery may not occur in the Operational Area or EMBA.</p>
State Managed Fisheries			
Abalone Managed Fishery	✓	✓	<p>The Abalone Fishery management area overlaps the Operational Area and EMBA. The fishery operates in shallow coastal waters off the south-west and south coasts of WA (Newman, et al. 2023). The fishery method is shore-based and hand caught with spatial limitations. Based on FishCube data for the fishery provided at 60 nm graticular reporting block, there are no fishing effort recorded within the Operational Area or EMBA (DPIRD 2023).</p> <p>Woodside considers that interactions with the fishery may not occur in the Operational Area or EMBA.</p>
Exmouth Gulf Prawn Managed Fishery	✖	✓	<p>The Exmouth Gulf Prawn Fishery management area is located ~160 km southwest of the Operational Area and overlaps the EMBA. The fishery operates in the Exmouth Gulf, targeting species generally <50 m water depth. The fishery is limited to the spatial extent within the Exmouth Gulf and Muiron Islands.</p> <p>Woodside considers that interactions with the fishery may occur in the EMBA.</p>
Mackerel Managed Fishery (Area 2)	✓	✓	<p>The Mackerel Managed Fishery management area overlaps the Operational Area and the EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, <three vessels were identified with activity within the vicinity of the Operational Area (DPIRD 2023).</p> <p>Catch for the Fishery was 198 t for the Spanish mackerel and 14 t for the grey mackerel in 2022, an increase from 2021 catch effort (8.9 t). Over the past 10 years a reduced catch of Spanish mackerel, the main commercial catch species, is presented. The commercial catch of grey mackerel has been consistently below 20 t since 2006. The commercial landings of other tropical large pelagic species such as Amberjack (<i>Seriola dumerili</i>), and Cobia (<i>Rachycentron canadum</i>) were stable, with all remaining species <10 t in 2022. The fishery is managed through designated areas, and extends from coastal waters to the EEZ, in waters northwards of Cape Leeuwin to the NT border.</p> <p>Woodside considers that interactions with the fishery may occur in the Operational Area and EMBA.</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 136 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery Name	Overlap with Operational Area	Overlap with EMBA	Description
			<p>Potential for interaction with the management area during activity</p> <p>✖ no spatial overlap</p> <p>✓ spatial overlap</p> <p>Blue shading indicates possibility of interaction</p>
Marine Aquarium Fish Managed Fishery	✓	✓	<p>The Marine Aquarium Managed Fishery management area overlaps the Operational Area and the EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was identified in the 2019-2023 seasons within the EMBA. The Marine Aquarium Fishery is a diver-based fishery and therefore restricted to relatively shallow (i.e. outside of the Operational Area).</p> <p>Woodside considers that interactions with the fishery may occur in the Operational Area and EMBA.</p>
Nickol Bay Prawn Managed Fishery	✖	✓	<p>The Nickol Bay Prawn Managed Fishery management area is located ~142 km east of the Operational Area and overlaps the EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was not identified within the EMBA (DPIRD 2023).</p> <p>Woodside considers that interactions with the fishery may occur in the EMBA.</p>
North Coast Shark Fishery	✖	✓	<p>The North Coast Shark Fishery management area overlaps the EMBA. Based on FishCube data for the fishery vessel activity was not identified within the Operational Area or EMBA (DPIRD 2023). Historically, no fishing has occurred since 2008/09 (Newman, et al. 2023).</p> <p>Woodside considers that interactions with the fishery may not occur in the Operational Area or the EMBA.</p>
Onslow Prawn Limited Entry Fishery	✓	✓	<p>The Onslow Prawn Managed Fishery management area overlaps the Operational Area and the EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was not identified within the Operational Area; however, it was identified within the EMBA (DPIRD 2023).</p> <p>Woodside considers that interactions with the fishery may occur in the Operational Area and EMBA.</p>
Pearl Oyster Managed Fishery (Zone 1)	✓	✓	<p>The Pearl Oyster Managed Fishery management area overlaps the Operational Area and EMBA. The 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, Murphey and Brown 2023).</p> <p>Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was not identified within the Operational Area or EMBA (DPIRD 2023).</p> <p>Woodside considers that interactions with the fishery may not occur in the Operational Area and EMBA.</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 137 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery Name	Overlap with Operational Area	Overlap with EMBA	Description
			<p>Potential for interaction with the management area during activity</p> <p>✖ no spatial overlap</p> <p>✓ spatial overlap</p> <p>Blue shading indicates possibility of interaction</p>
Pilbara Crab Managed Fishery	✓	✓	<p>The Mackerel Managed Fishery management area overlaps the Operational Area and the EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, <three vessels were identified with activity within the vicinity of the Operational Area (DPIRD 2023).</p> <p>Catch for the Pilbara Crab Managed Fishery was 11.2 t in 2022, an increase from 2021 catch effort (8.9 t). 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. In 2022 the blue swimmer crab catch accounted for ~2% of the State commercial catch. The blue swimmer crab stock status is considered sustainable – adequate.</p> <p>The fishery operates via hourglass trap methods in water depths up to 50 m and is concentrated around Dampier. Blue swimmer crabs are targeted by the Pilbara Crab Managed Fishery, primarily within inshore waters around Nickol Bay.</p> <p>Woodside considers that interactions with the fishery may occur in the EMBA.</p>
Pilbara Line Managed Fishery	✓	✓	<p>The Pilbara Trap Managed Fishery management area overlaps the Operational Area and EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, up to six vessels were identified with potential activity in the vicinity of the Operational Area (DPIRD 2023).</p> <p>The Pilbara Line Managed Fishery boat licences are permitted to operate anywhere within "Pilbara waters", bounded by a line commencing at the intersection of 21° 56'S latitude and the high-water mark on the western side 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.</p> <p>The Pilbara Line Managed Fishery caught 104 t in 2022 a decrease from 2021 catches effort (124 t). Of the total commercial catch in the Pilbara in 2022 (2,485 t), only 4% was taken by the line sector.</p> <p>The fishery uses demersal long line methods and operates mainly in deeper waters of the western Pilbara.</p> <p>Woodside considers that interactions with the fishery may occur in the Operational Area and EMBA.</p>
Pilbara Trap Limited Entry Fishery	✓	✓	<p>The Pilbara Trap Managed Fishery management area overlaps the Operational Area and EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, up to three vessels were identified with activity within the vicinity of the Operational Area (DPIRD 2023).</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 138 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery Name	Overlap with Operational Area	Overlap with EMBA	Description
			<p>Potential for interaction with the management area during activity</p> <p>✖ no spatial overlap</p> <p>✓ spatial overlap</p> <p>Blue shading indicates possibility of interaction</p>
			<p>The Pilbara Trap Managed Fishery caught 597 t in 2022 a decrease from 2021 catch effort (662 t). Of the total commercial catch in the Pilbara in 2022 (2,485 t), 72% were landed by the trawl sector, with 24% taken by the trap sector, and 4% taken by the line sector.</p> <p>The catch is made up of around 45-50 different fish species. The main species landed by the fisheries in the Pilbara subregion are blue spotted emperor, red emperor, and rankin cod. The Pilbara Demersal Scale Fishery of red emperor was within the acceptable catch range; however, the total catch of the trap fishery exceeded the acceptable catch range in 2022.</p> <p>The fishery uses demersal trap methods, in waters depths of ~30 m isobath to 200 m isobath.</p> <p>Woodside considers that interactions with the fishery may occur in the Operational Area and EMBA.</p>
Pilbara Fish Trawl (Interim) Managed Fishery	✖	✓	<p>The Pilbara Fish Trawl (Interim) Managed Fishery (zone 1) management area overlaps the western part of the Operational Area and the EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was not identified within the Operational Area in the 2019-2023 seasons; however, it was identified within the vicinity of the EMBA.</p> <p>Accordingly, Woodside considers that interactions with the fishery may occur in the EMBA.</p>
Specimen Shell Managed Fishery	✓	✓	<p>The Specimen Shell Managed Fishery overlaps the Operational Area and the EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was not identified within the Operational Area; however, it was identified within the vicinity of the EMBA (DPIRD 2023). The fishery is largely diver-based, targeting specimen shells in water depths mostly <30 m.</p> <p>Woodside considers that interactions with the fishery may occur in the EMBA.</p>
The South-West Coast Salmon Fishery	✓	✓	<p>The South-West Coast Salmon Managed Fishery management area overlaps the Operational Area and EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was not identified within the Operational Area or EMBA (DPIRD 2023). Historically, no fishing has occurred north of the Perth Metropolitan Area.</p> <p>Woodside considers that interactions with the fishery may not occur in the Operational Area and EMBA.</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 139 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery Name	Overlap with Operational Area	Overlap with EMBA	Description
			<p>Potential for interaction with the management area during activity</p> <p>✖ no spatial overlap</p> <p>✓ spatial overlap</p> <p>Blue shading indicates possibility of interaction</p>
Western Australian Sea Cucumber Fishery	✖	✓	<p>The Western Australian Sea Cucumber Fishery management area overlaps the EMBA. Fishing occurs mostly in the northern half of the State, from Exmouth Gulf to the Northern Territory border. Access is managed under Ministerial Exemptions (Exemption). The fishery is largely diver-based, with smaller amount by wading (Newman, et al. 2023). Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was identified within the EMBA (DPIRD 2023).</p> <p>Woodside considers that interactions with the fishery may occur in the EMBA.</p>
West Coast Deep Sea Crustacean Managed Fishery	✓	✓	<p>The West Coast Deep Sea Crustacean Managed Fishery management area overlaps the Operational Area and EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was not identified within the Operational Area; however, it was identified within the vicinity of the EMBA (DPIRD 2023).</p> <p>Woodside considers that interactions with the fishery may occur in the EMBA.</p>
West Coast Rock Lobster Managed Fishery	✖	✓	<p>The Western Rock Lobster Fishery management area is located ~173 km southwest of the Operational Area and overlaps the EMBA. Based on FishCube data for the fishery provided at 10 nm graticular reporting block, vessel activity was not identified within the EMBA (DPIRD 2023). The fishery mainly operates from Cape Leeuwin in the South to Shark Bay in the North the west coast of WA between Shark Bay and Cape Leeuwin (Marine Stewardship Council n.d.).</p> <p>Woodside considers that interactions with the fishery may not occur in the Operational Area or EMBA.</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 140 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

There are no traditional or customary fisheries within the Operational Area, as these are typically restricted to shallow coastal waters and/or areas with structures such as reefs. Within the wider EMBA, Barrow Island, Montebello Islands and Ningaloo Reef have known history of fishing when areas were occupied (as from historical records) (DCLM 2005, DEC 2007).

Areas that are covered by registered native title claims are likely to practice Aboriginal fishing techniques at various sections of the Western Australia coastline. Under amendments made in 2012 to the *Conservation and Land Management Act 1984* (WA) Aboriginal people can hunt (except in marine sanctuary zones or marine nature reserves) dugong, turtle, or crocodiles in WA.

4.9.5 Pearling and Aquaculture

There are no pearling leases or aquaculture sites within the Operational Area, as these are typically restricted to shallow coastal waters. Within the EMBA, there are known pearling leases around Montebello Islands and aquaculture sites around Airlie and Thevenard Islands.

Aquaculture activities in the North Coast bioregion are 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 (Newman, et al. 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).

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 (Newman, et al. 2023). 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 (Newman, et al. 2023).

4.9.6 Tourism and Recreation

A survey report conducted for the 2020–2021 season by the WA DPIRD (Ryan, Lai and Smallwood 2022) identified that most boat-based recreational fishing effort occurred in nearshore habitat (46% and 54% for North Coast and Gascoyne Coast respectively), followed by inshore demersal habitats (32% and 39% for North Coast and Gascoyne Coast respectively). Most fishing effort was attributed to line fishing (87% and 91% for North-Coast and Gascoyne Coast respectively).

Tour operator fishing efforts recorded over a 10-year period (2013–2023) (DPIRD 2023) identified three vessels' operations within the Operational Area. Recreational fisheries in the wider EMBA are expected in shallow coastal waters.

The recreation and tourism industries in the Pilbara are of high social value with approximately 965,000 visitors over the last five years (Tourism Western Australia 2023). Tourism continued to grow in 2022, with over 1 million visitors (Tourism Western Australia 2023).

The Operational Area is located offshore of the North West tourism region which includes parts of the Gascoyne and Pilbara, region. Tourism is a key economic driver for the Pilbara with more than one million visitors to the region every year. Tourism visitation continued to grow in 2022, with the number of visitors to Karijini National Park in 2022 having doubled in comparison to 2020 (PDC 2022).

The main marine nature-based tourist activities in the Gascoyne region are concentrated around and within the Ningaloo World Heritage Area (~168 km southwest of the Operational Area). 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 (DBCA 2020).

4.9.7 Commercial Shipping

The Australian Maritime Safety Authority (AMSA) has established a network of marine fairways to reduce the risk of vessel collisions with offshore infrastructure. None of these fairways intersect with the Operational Area; the nearest fairway is approximately 32 km west of the Operational Area (Figure 4-13). Vessel tracking data suggest shipping is concentrated to the east of the Operational Area, which is likely associated with oil and gas activities.

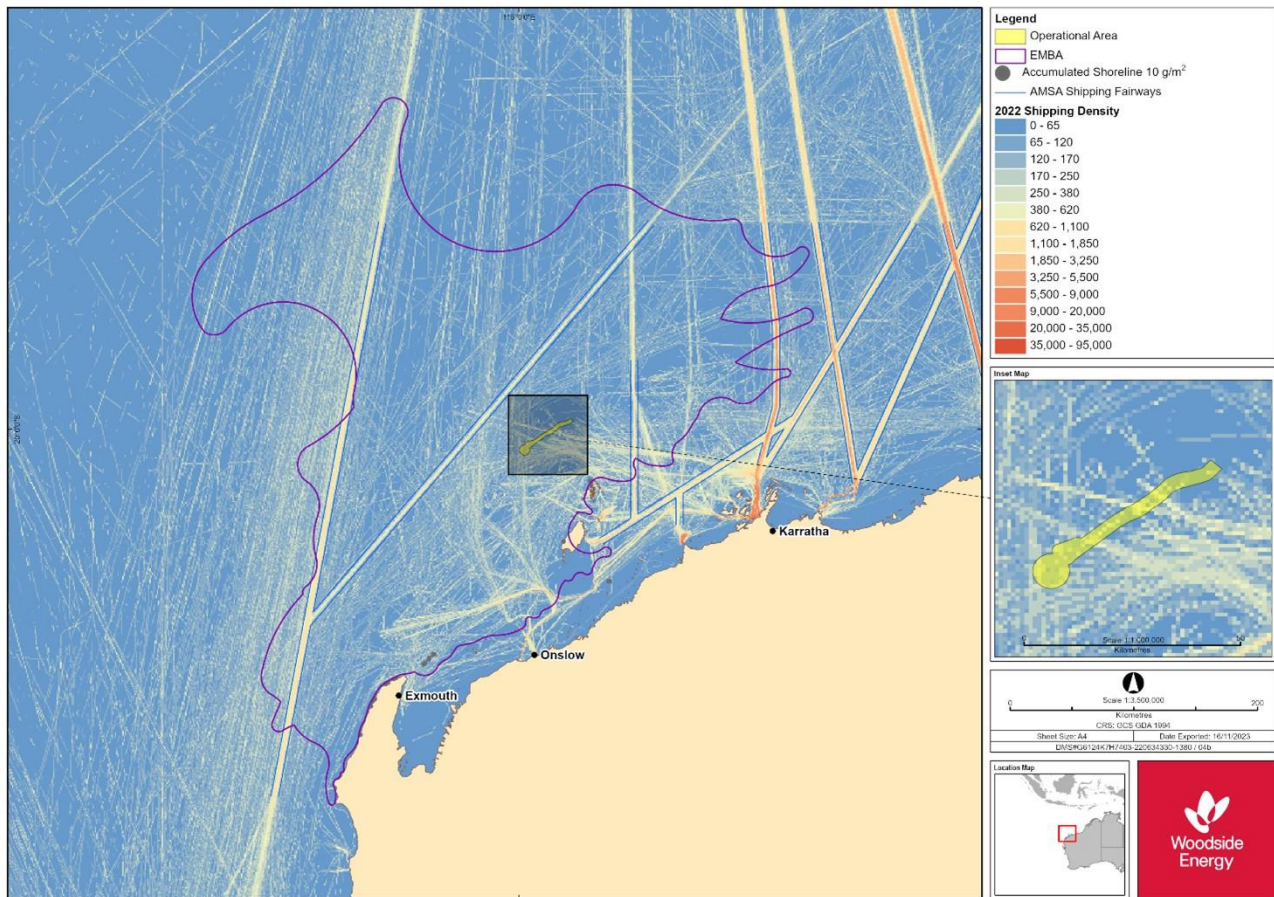


Figure 4-13: Vessel density map for the Operational Area and EMBA, derived from AMSA satellite tracking system data

4.9.8 Oil and Gas

The Operational Area is located within an area of established oil and gas operations in the broader NWMR. Table 4-25 and Figure 4-14 shows other oil and gas facilities within the region to the Operational Area.

Table 4-26 outlines the existing live infrastructure within the Operational Area and approximate distances from infrastructure associated with the Operational Area. Existing live infrastructure is also shown in Figure 4-14, and includes:

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 142 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

- sections of the Woodside Pluto subsea infrastructure which intersects the Operational Area, including the production flowlines, MEG pipeline and umbilical, as described in the Pluto Offshore Facility Operations Environment Plan.
- a section of the Woodside Scarborough Export Trunkline which intersects the Operational Area, as described in the Scarborough Offshore Facility and Trunkline (Operations) Environment Plan.
- the Wheatstone Platform and associated subsea infrastructure, as described in the *Start-Up and Operations Environment Plan: Wheatstone Project*⁷.

Table 4-25: Other Oil and Gas Facilities located within the proximity of the Operational Area

Facility Name and Operator	Distance and Direction from Operational Area (km)
Wheatstone Platform – Chevron	Within the southeast extent of the Operational Area
Pluto Platform – Woodside	~4 km south of the Operational Area
Goodwyn Platform – Woodside	~64 km northeast of the Operational Area
North Rankin Complex – Woodside	~86 km northeast of the Operational Area
John Brookes Platform – Santos	~30 km south of the Operational Area
Wonnich Platform – Santos (suspended)	~52 km south of the Operational Area

Table 4-26: Live Infrastructure within the Operational Area not covered by this EP

Component and Operator	Distance and Direction from Julimar Flowline (km)	Distance and Direction from BruA manifold (km)
Jansz-lo pipeline – Chevron	~16.9 km west of the Julimar flowline	
Wheatstone trunkline – Chevron	Parallel to Julimar flowline. Wheatstone pipeline is ~220 m at its closest point	~6.4 km northeast from BruA manifold
Pluto pipeline – Woodside	Crosses Julimar flowline	~9.3 km northeast from BruA manifold
Scarborough trunkline – Woodside	Crosses Julimar flowline	~7.5 km northeast from BruA manifold

The PAA overlaps the following titles for which Woodside is not a titleholder:

- WA-48-L: Chevron Australia Pty Ltd is the contact titleholder of production licence WA-48-L (Figure 4-14). While the IMMR activities will be undertaken within Woodside operated pipeline licences, the Operational Area includes a radius of 1,500m from the subsea infrastructure, and allows for the movement and positioning of vessels. This means that vessel surface activity may temporarily occur within this adjacent title.
- Communication between Woodside and Chevron is described in Section 7.9.

⁷ Publicly available on NOPSEMA website

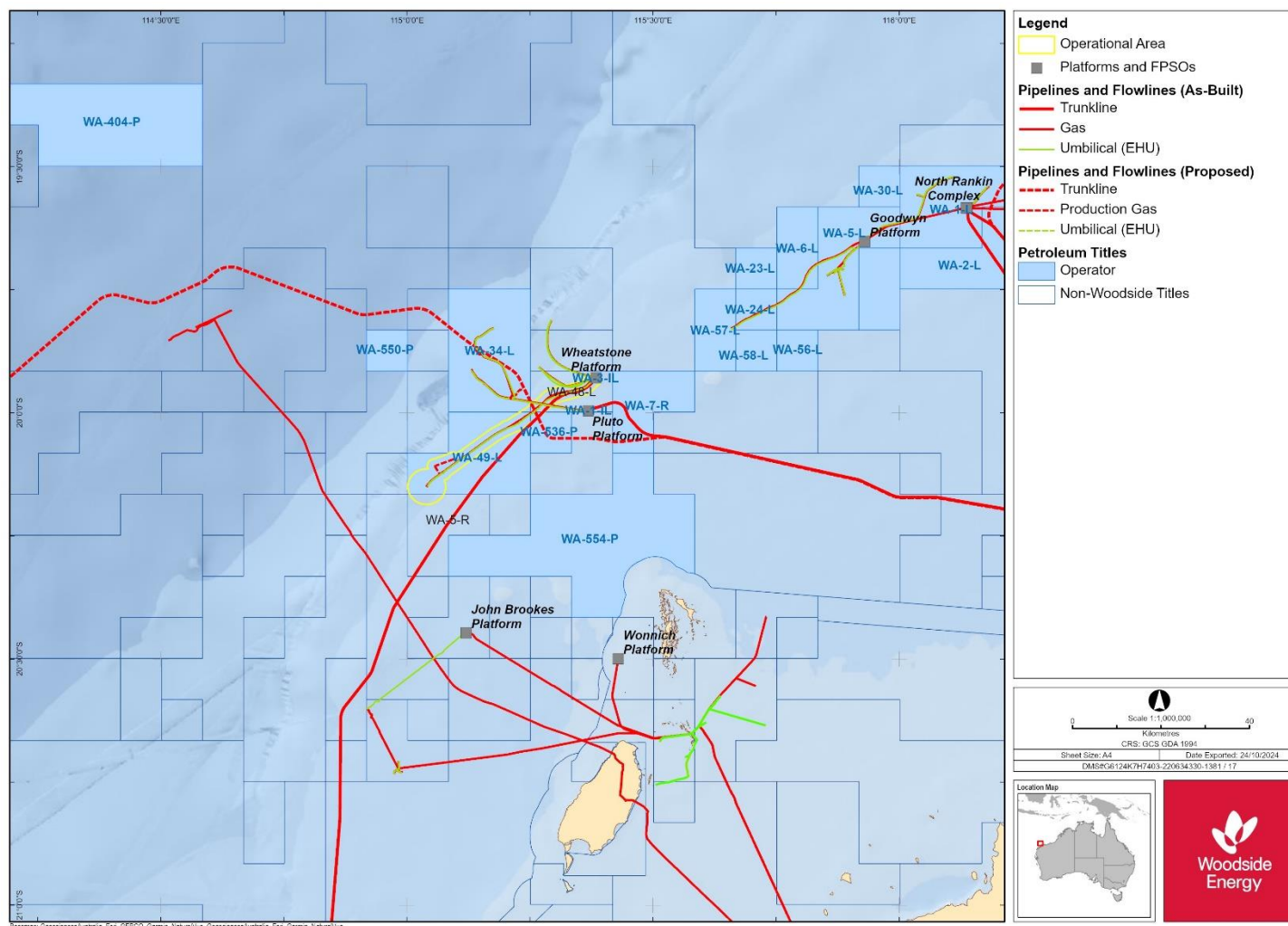


Figure 4-14: Oil and gas Infrastructure in proximity to the Operational Area

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 144 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

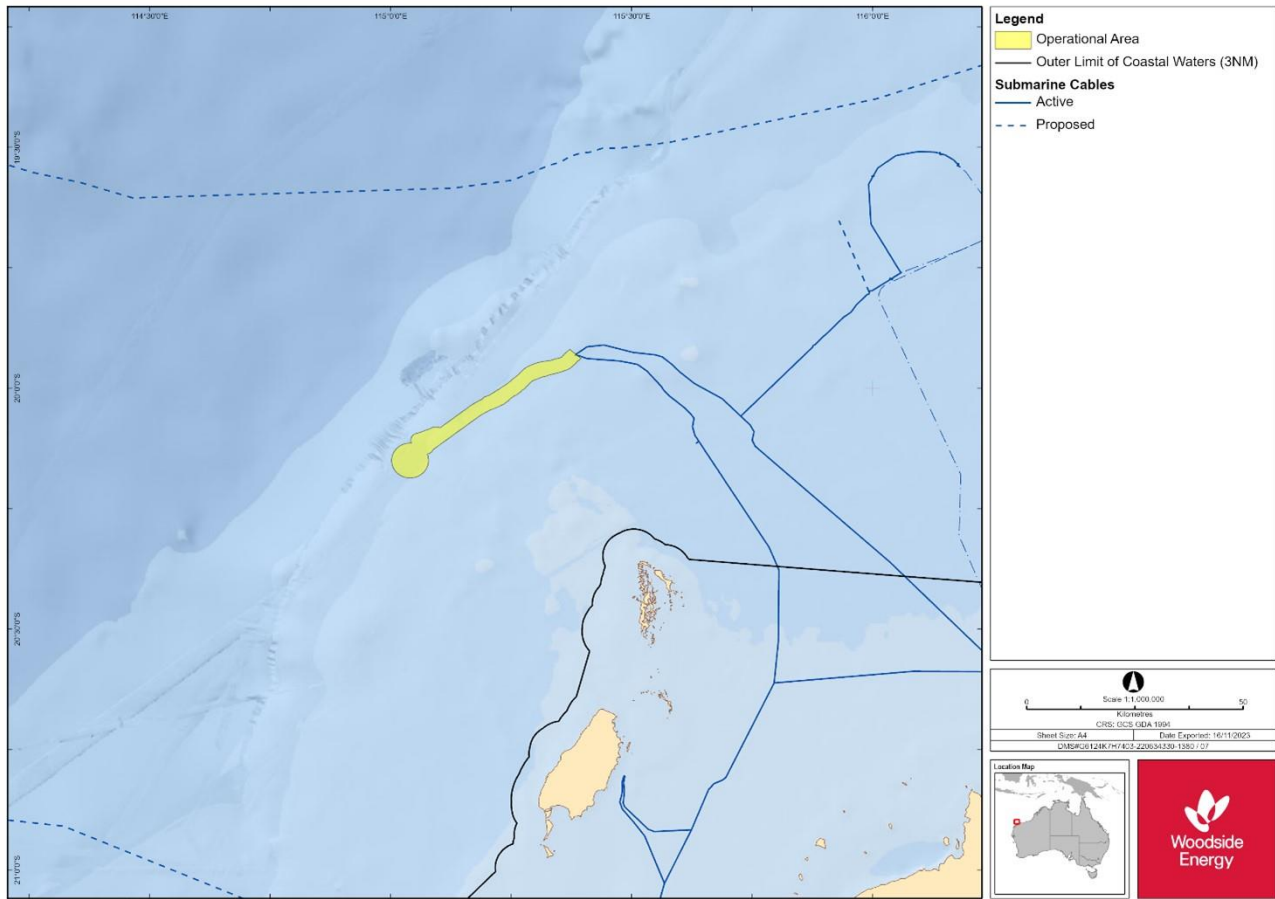


Figure 4-16: Submarine communication cables within the Operational Area

5. STAKEHOLDER 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 the Environment Regulations, unless otherwise stated).

Consultation is designed to identify relevant persons and provide 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 Area (Operational Area) 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).

Woodside's consultation methodology is divided into two parts:

- The first section (Section 5.2 to Section 5.5) provides an overview of Woodside's consultation methodology for its EPs, including how we apply Regulation 25(1) to identify relevant persons (Figure 5-1).
- The second section (Section 5.6 to Section 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's consultation record is at Appendix F and includes a summary of the following:

- assessment and identification of relevant persons
- consultation information provided to relevant persons, feedback received, Woodside's assessment of the merits of objections or claims 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 5.3.4)
- opportunities provided to persons or organisations to participate in consultation.

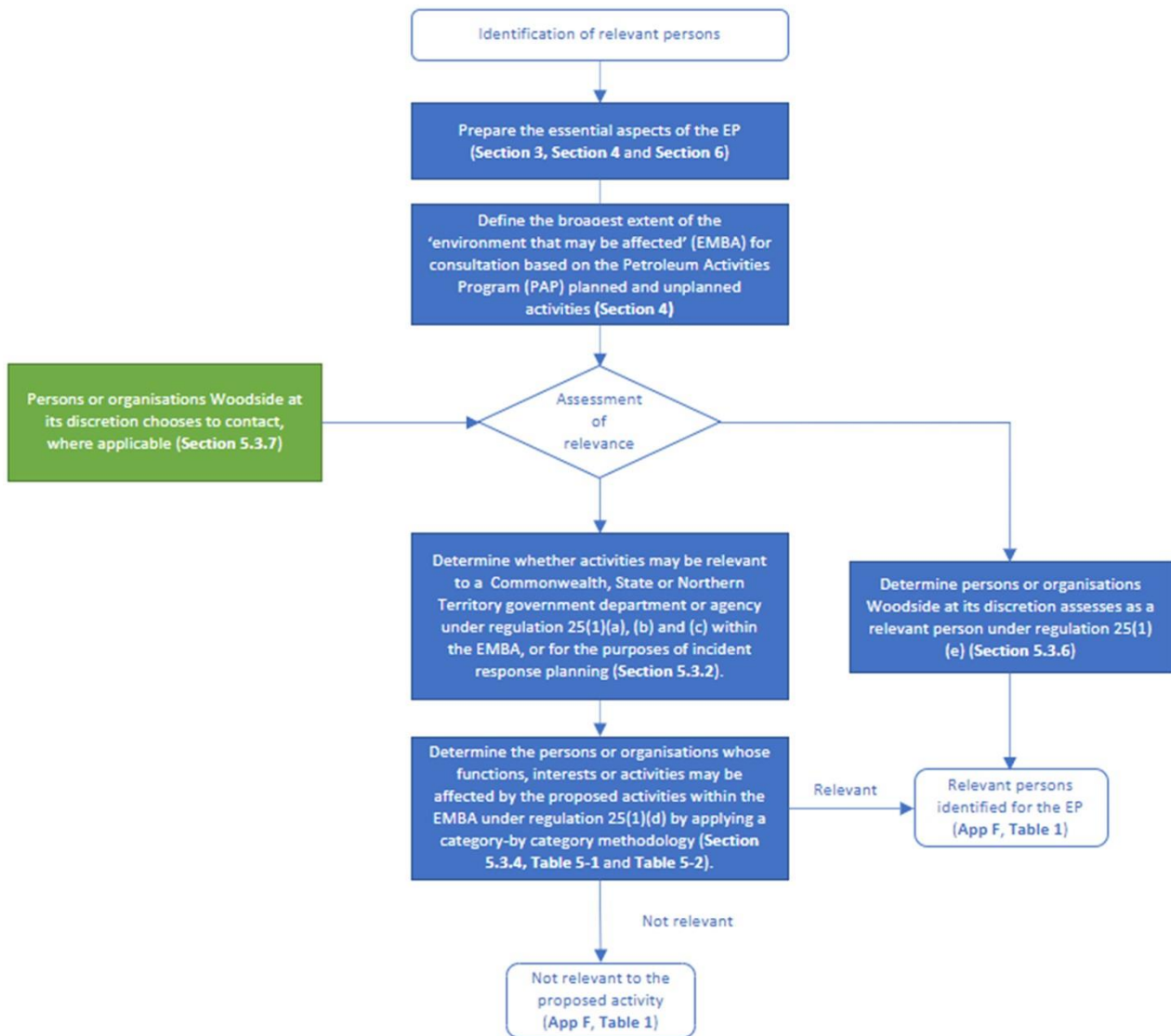


Figure 5-1: Overview of Woodside's methodology to identify relevant persons

5.2 Consultation – General Context

Woodside has a portfolio of quality oil and gas assets and more than 40 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 (PAP). 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) (Figure 5-1 and Section 5.3.4). 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 6.9).

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
- 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
- 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 7.14).

An overview of Woodside's consultation approach is outlined at Figure 5-2.

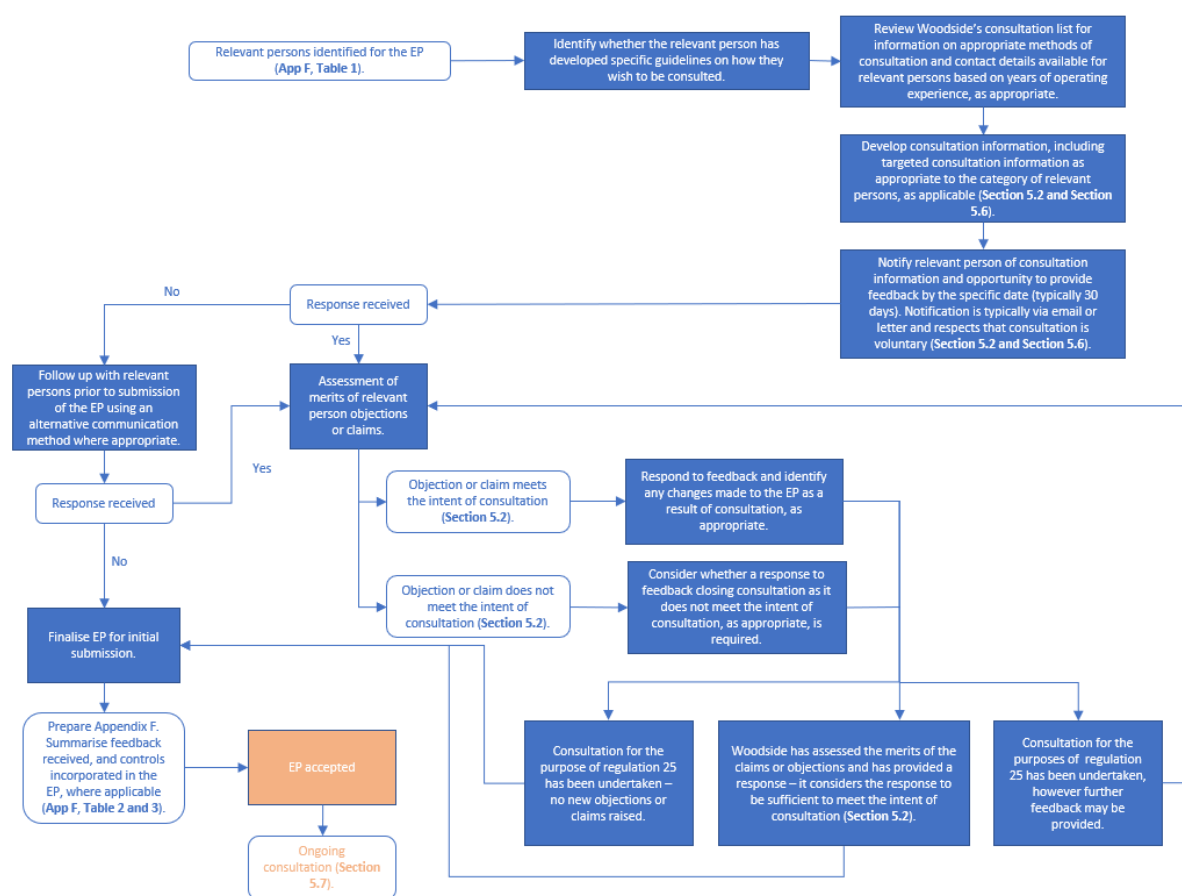


Figure 5-2: Overview of Woodside's consultation approach

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](#)
- *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 – January 2024](#)

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 151 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

- [PL9028 Managing gender-restricted information – December 2023](#)
 - [Consultation on offshore petroleum environment plans – Information for the community](#)
- Department of Energy, Mines, Industry Regulation and Safety (DEMIRS):
- [Guideline for the development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia \(November 2024\)](#)
 - [Guideline— Decommissioning of petroleum and geothermal energy property, equipment and infrastructure in Western Australian onshore areas and State coastal waters \(March 2024\)](#)
- 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, Fisheries and Forestry (DAFF):
- [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 follows:

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 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 Petroleum Activities Program 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 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, 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 Operational Area 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).

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 below and identification methodology applied as set out in **Table 5-2**.

The list of those persons or organisations assessed as relevant persons or organisations Woodside separately chose to contact is set out in Appendix F, 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, 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, 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>OPGGS 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 Body Corporates (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 Body (RATSIB) is a regional organisation appointed under the <i>Native Title Act 1993</i> with prescribed functions, set out in Part 11 of the <i>Native Title Act 1993</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.
Local government and elected Parliamentary representatives and recognised local community	Local government body formed under the <i>Local Government Act 1995 (WA)</i> and elected Parliamentary representatives which are responsible for representing the local community. Recognised local

Category	Explanation
reference/liaison groups or organisations	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.
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 EMBA 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 4.9.4). Woodside acknowledges WAFIC's consultation guidance⁸, 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 Section 7.15.5). 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 4.9.4). <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 4.9.4) 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 consults fisheries that are assessed as having a potential for interaction in the EMBA only in the event of an unplanned emergency scenario.

⁸ [Consultation Approach for Unplanned Events - WAFIC](#)

Category	Relevant person identification methodology
Recreational marine users and peak representative bodies	<ul style="list-style-type: none"> Commonwealth commercial fisheries that have been assessed as having a potential for interaction within the Operational Area or EMBA (see Section 4.9.4) 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>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.
Titleholders and Operators	<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.
Peak industry representative bodies	<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.

Category	Relevant person identification methodology
Traditional Custodians (individuals and/or groups/entity) and Nominated Representative Corporations	<ul style="list-style-type: none"> Review of Woodside's existing consultation list. 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>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 Prescribed Body Corporates (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 (ILUAs), 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>In Victoria, using the Victorian Aboriginal Heritage Council data to determine whether there are any Registered Aboriginal Parties</p>

Category	Relevant person identification methodology
	<p>(RAP) appointed under the <i>Aboriginal Heritage Act 2006</i> (Vic), that overlap or are adjacent to the EMBA.</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 EMBA's overlap. This decision is for the individual to make. The public notification, 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> <p>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.</p>
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> with prescribed functions set out in Part 11 of the <i>Native Title Act 1993</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. • 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>, 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 4.9.3). <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.

Category	Relevant person identification methodology
Local government and recognised local community reference/liaison groups or organisations	<p>Woodside assesses relevance for local government and recognised local community reference/liaison groups or organisations using the following steps in its methodology:</p> <ul style="list-style-type: none"> Review of 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 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>Assessment of relevance:</p> <ul style="list-style-type: none"> The local government 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.
Other non-government groups, organisations or individuals	<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 of Woodside's existing consultation list. Website search 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 and/or social media material specific to the proposed activity at the time of development of the EP. Organisation has a publicly available statement (or purpose) that clearly describes their collective functions, interests or activities. Review of current website and/or social media material to identify targeted information which demonstrates functions, interests or activities relevant to the potential risks and impacts associated with the EMBA. Review of an organisation's / individual's feedback to consider whether their functions, interests or activities within the EMBA may be affected by the activities to be carried out under the Environment Plan. Considering interests outside the EMBA would be considered too remote and contrary to the purpose of the Environment Plan.

Category	Relevant person identification methodology
	<p>Assessment of relevance:</p> <ul style="list-style-type: none"> Registered non-government groups or organisations with current targeted public 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 may be impacted will be assessed as relevant.
Research institutes and local conservation groups or organisations	<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 of Woodside's existing consultation list. Website search for research institutes that may operate within the EMBA. This assessment is both activity and location based. Website search 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 or updated guidance from the Regulator
- 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 organisations 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, Table 1 and Appendix F, 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, Table 1 and Appendix F, 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. 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 EMBA
- a description of the EMBA
- relevant exclusion zones
- a summary of relevant risks and mitigation and management control measures relevant to the proposed petroleum activity (PPA).

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 is affected. For example, Woodside considers that relevant

persons who may be impacted 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. Sufficient information may have been provided to a relevant person even where all documents requested by a relevant person have not been provided. Woodside 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 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, Table 1 as appropriate.

Woodside utilises a range of tools to provide sufficient information to relevant persons, which may include one or more of the following:

- 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
- subscription available on Woodside's website to receive notification of new Consultation Information Sheets for Woodside EPs
- emails
- letters
- phone calls
- face-to-face meetings (virtual or in person) with presentation slides or handouts as appropriate
- Let's Talk newsletter – digital 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

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 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 be limitations in how Woodside can consult with relevant persons.

Typical forms of communications for categories of relevant persons are set out below.

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.
Government departments / agencies – environment	
Government departments / agencies – industry	
Commercial fisheries and peak representative bodies	<p>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.</p> <p>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</i> and <i>Aquatic Resources Management Act 2016</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.</p> <p>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.</p>
Recreational marine users and peak representative bodies	
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 (<u>GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023</u>) 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 recognised local community reference/liaison groups or organisations	Local government: NOPSEMA's guideline (<u>GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023</u>) 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	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, Table 2.

Appendix F, 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 recognises that what constitutes 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.

Woodside recognises that information may need to be provided to relevant persons in an iterative manner during the consultation process. Woodside considers that genuine two-way engagement may be demonstrated via information on incorporation of controls, where applicable, being provided to the relevant person so that the relevant person understands how their input has been considered in the development of the EP.

Woodside's methodology allows relevant persons a reasonable period for consultation (Regulation 25(3)). A reasonable period for all relevant persons, including Traditional Custodians, to participate in consultation for this EP has been provided.

The consultation period under this EP has satisfied benchmark periods under other relevant legislative processes:

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 165 of 445

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- 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 21-30 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).

This period of consultation demonstrates 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...”*⁹

Woodside seeks feedback in order to support preparation of its EP. What constitutes 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 providing a reasonable period for consultation is as follows:

- advertising in selected local, state and national newspapers to give persons or organisations the opportunity to understand the activity and identify whether their functions, interests or activities may be affected
- providing consultation materials directly to identified 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
- 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 depending on the information requirements
- following up with relevant persons prior to EP submission. Where possible, Woodside will endeavour to use an alternative method of communication to contact the relevant person
- engaging in two-way dialogue with relevant persons or organisations where feedback is received.

Appendix F, 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 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

⁹ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [136].

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).¹⁰ Consultation is a “real world activity” and must be capable of reasonable discharge.¹¹ 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.¹²

When the Titleholder demonstrates that it has provided sufficient information and a reasonable period for consultation, then Regulation 25 consultation requirements are met.¹³ Meeting these obligations requires evaluative judgement to determine reasonable satisfaction of the consultation obligation and, as such, the Regulator uses its discretion to determine if 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 afforded.¹⁴

While a Titleholder is required to provide an opportunity to consult, the Titleholder is not required to obtain consent to engage in the activity 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.¹⁵ A reasonable opportunity may not be every opportunity requested and is limited to reasonable opportunities to consult.

Woodside has completed the steps required to discharge its consultation obligations. Woodside has provided sufficient information and a reasonable period of time to enable relevant persons to make an informed assessment of the possible consequences of the activity on their functions, interests or activities; and sufficient time to provide relevant feedback for Woodside to assess relevant persons' objections or claims. Woodside has also provided a reasonable opportunity for there to be genuine two-way dialogue on a person's claims or objections.

Woodside has discharged its duty under Regulation 25 and considers that is complete.

Appendix F, 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, Table 2 and Table 3 provide reasons why Woodside considers consultation under Regulation 25 has been met, in relation to that relevant person.

¹⁰ *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 [89], [98], [103]-[104] and [109].

¹¹ *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [89].

¹² *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [96] and [103].

¹³ Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 29.

¹⁴ 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].

¹⁵ *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].

5.5 Context of Consultation Approach with Traditional Custodians

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* (Section 5.5.2). 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 5.5.3 to 5.5.7).

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,¹⁶ 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.”¹⁷

*“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”¹⁸ (emphasis added).*

“there 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”¹⁹ (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 the requisite consultation is undertaken.²⁰ 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).

¹⁶ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [95], [98], [103]-[104] and [109].

¹⁷ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [98].

¹⁸ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [96].

¹⁹ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [104].

²⁰ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [47] and [48].

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. Woodside's 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 adjacent to the EMBA and help Woodside to identify Traditional Custodian persons and groups asserting Traditional Custodianship. The Judgment in the *Tipakalippa Appeal* endorses methods of consultation with groups of relevant persons that are appropriate and adapted to the characteristics of groups.²¹ 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'

²¹ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [95].[104].[153].

awareness of our activities, to self-identify (Section 5.5.4), and to provide feedback to inform the management of environmental impacts and risks.

Using these processes, Woodside communicates information about EPs by:

- advertising in relevant indigenous and non-indigenous newspapers. This 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
- creating carefully considered Summary Consultation Information Sheets with information developed by Woodside's First Nations Team to remove jargon and present relevant information in a simplified format.
- directing contact through nominated representative corporations
- utilising social media (i.e. Facebook/Instagram), texts, phone calls 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))
- carrying out ongoing consultation post Regulation 25 consultation where Woodside has a Program of Ongoing Engagement with Traditional Custodians. This program 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.
- basing members of its First Nations team 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 distributing information and providing notice to the community to support Traditional Custodian attendance and involvement at Woodside's information sessions and Community roadshows.
- ensuring that 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 their direction as to cultural protocols, structure of consultation and who to appropriately consult with (such as elders)
- holding meetings on Country at a place and time agreed with Traditional Custodians and offering and providing financial assistance for meeting expenses (as appropriate)
- providing information specifically designed to be easily understood, to reach all 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 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”²². The phrase “cultural features”, when applied to “people” as constituent parts of an ecosystem, is not directed to idiosyncratic views or beliefs of an individual²³. 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.

5.5.3 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).

Specific to Woodside’s approach for identifying relevant Traditional Custodians, Woodside’s First Nations Communities Policy and consultation approach 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 asks nominated representative corporations (such as PBCs) and Native Title Representative Bodies to identify individuals that should be consulted, and enables individuals to self-identify in response to national and local advertising, social media and community engagement opportunities (Section 5.5.4). 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 5.5.4 below, 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 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 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)*²⁴.

²² *Munkara v Santos NA Barossa Pty Ltd* (No 3) [2024] FCA 9 at [205]

²³ *Munkara v Santos NA Barossa Pty Ltd* (No 3) [2024] FCA 9 at [205]

²⁴ *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193, at [104]

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.

5.5.4 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 5.5.3). 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 Custodians 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 rely on the building and maintaining of respectful relationships. To date, most nominated representative corporations have requested the building of that relationship, where one is not already in place.
- While Woodside has, in some cases, approached individual directors and Elders outside of this process due to requirements imposed in EP consultation, this approach is considered inappropriate by modern Indigenous engagement standards, fundamentally undermining 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 engage in consultation through appropriate and adapted consultation methods.

5.5.5 Sufficient Information

Woodside recognises that the information 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 may vary and may depend on the degree to which a relevant person is potentially affected.

Woodside produces Consultation Information Sheets for each EP which is provided to relevant persons and organisations for the purpose of seeking feedback on the activity (Section 5.4). In response to feedback from Traditional Custodians on information provisions, Woodside has tailored effective consultation methods for its activities. These methods are specifically designed for Traditional Custodians, so that information is provided in a form that is readily accessible and appropriate. The targeted Summary Information Sheet developed and reviewed by Woodside's First Nations Team to ensure that content is appropriate to the intended recipients, which is then provided to relevant Traditional Custodian groups. Phone calls are made 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. Along with members of Woodside's First Nations engagement team, key project personnel and environmental experts are typically present to enable effective communication and prompt response to questions. Materials for these sessions incorporate 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.

5.5.6 Reasonable Period for Consultation

Woodside seeks to consult in order to support preparation of its EP. Woodside recognises that what constitutes 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 (Section 5.4.2).

5.5.7 Discharge of Regulation 25

Woodside's consideration and approach to discharging Regulation 25 for relevant persons is discussed in Section 5.4.3. In addition to this, Woodside has considered the application of Regulation 25 specific to First Nations based on the Tipakalippa Appeal.

In relation to Traditional Custodian relevant persons (and all relevant persons), Woodside has discharged its duty under Regulation 25 of the Environment Regulations. Woodside considers that consultation under Regulation 25 is complete (Section 5.5.7).

5.6 Providing Feedback and Assessment of Merit of Objections or Claims

There are a number of ways in which feedback can be provided. 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 stakeholders 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. 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 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 received, 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. Under Regulation 34(g), there is no requirement for a relevant person to agree or confirm that they have been adequately consulted. During consultation, relevant persons may seek to introduce other issues (such as agreements) not specific to EP consultation. Concepts of agreements associated with broader consultation nevertheless consultation to specific EPs can occur.

Feedback from relevant persons is reviewed and an assessment of the merits is made of information provided as well as objections or claims about the adverse impact of each activity to which the EP relates. 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 measures to put in place to minimise harm to relevant persons and where reasonable or practical to further manage impacts and risks to ALARP and acceptable levels.

Woodside considers feedback during consultation from relevant persons and other persons Woodside chose to contact (see Section 5.3.7). This information is summarised in Appendix F, Table 1 and Table 2 of the EP and includes a statement of Woodside's response, or proposed response, if any, to each objection and claim.

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

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 7.14), feedback and comments received from relevant persons continue to be assessed and responded to, as required, 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 7.3).

6. ENVIRONMENTAL IMPACT AND RISK ASSESSMENT, PERFORMANCE OUTCOMES, STANDARDS AND MEASUREMENTS CRITERIA

6.1 Overview

This section presents the impact and risk analysis and evaluation, EPOs, EPSs and MC for the Petroleum Activities Program, using the methodology described in Section 2 of this EP. Impacts and risks associated with the Petroleum Activities Program are summarised in Table 6-1 and Table 6-2, and evaluated in Sections 6.7 and 6.9. MEEs require a further level of analysis and are assessed separately in Section 6.9.

6.2 Impact and Risk Analysis and Evaluation

As required by Regulations 21(5) and 21(6) of the Environment Regulations, the analysis and evaluation demonstrate that the identified risks and impacts associated with the Petroleum Activities Program are reduced to ALARP, are of an acceptable level and consider all operations of the activity, including potential emergency conditions.

Impacts and risks identified during the ENVID (including Decision Type, current risk level, acceptability of risk 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 aspect²⁵ (e.g., emissions, physical presence, etc). For all hazardous events considered, the worst credible consequence was assumed.

The ENVID identified 7 impacts, and 10 risks associated with the Petroleum Activities Program. Planned activities and unplanned events are summarised in Table 6-1 and Table 6-2. The analysis and evaluation for the Petroleum Activities Program indicate 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 6.9.

²⁵ An environmental aspect is an element of the activity that can interact with the environment.

Table 6-1: Environmental impact analysis summary of planned and unplanned activities

Aspect	EP Section	Source of Impact	Key potential environmental impacts (refer to relevant EP section for details)	Controll ed impact classifi cation	Residual impact level (ALARP controls in place)	Acceptability of Impact
Physical presence: Interaction with other marine users	6.7.1	Presence of vessels and subsea infrastructure excluding or displacing other users from the Operational Area (commercial shipping, fishing, other oil and gas operations).	Potential isolated social impact resulting from interference with other sea users (e.g., commercial and recreational fishing, and shipping).	F	Social and Cultural – No lasting effect (<1 month). Localised impact not significant to areas/items of cultural significance.	Broadly acceptable
Physical presence: Disturbance to seabed	6.7.2	Presence of Julimar and Brunello subsea infrastructure.	Localised modification of seabed habitat (formation of artificial reef) within Operational Area.	F	Environment – No lasting effect (<1 month). Localised impact not significant to environmental receptors.	Broadly acceptable
		Subsea operations, IMMR activities including span rectification (concrete mattresses etc.) as well as installation of pig receivers/launchers at the subsea wells.	Potential minor, localised modification of seabed habitat within the Operational Area.			
		Disturbance to seabed from ROV operation (including localised sediment relocation from sediment mobilisation techniques and marine growth removal)	Potential minor, localised loss or damage to benthic habitats, including benthic communities and marine primary producers.			
		Placement and retrieval of seabed transponders and temporary installation aids.				

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 177 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Aspect	EP Section	Source of Impact	Key potential environmental impacts (refer to relevant EP section for details)	Controlled impact classification	Residual impact level (ALARP controls in place)	Acceptability of Impact
Routine acoustic emissions: Generation of noise during operations	6.7.3	Noise generated within the Operational Area from: <ul style="list-style-type: none"> support vessels helicopters IMMR activities Continuous sources including wellheads and pipelines. 	Potential slight, localised behavioural impacts to marine fauna around and within the Operational Area.	F	Environment – No lasting effect (<1 month). Localised impact not significant to environmental receptors	Broadly acceptable
Routine and non-routine discharges: Discharge of chemicals and hydrocarbons to the marine environment	6.7.4	Discharge of subsea control fluids during routine valve actuation during operations.	Potential short-term, reduction in water quality and ecosystem health as well as slight, short-term, localised toxic effects on marine biota.	E	Environment - Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	Broadly acceptable
		Discharge of chemicals remaining in subsea pipework and equipment or the use of chemicals for subsea IMMR activities.	Potential slight, short-term, localised reduction in water quality and ecosystem health as well as slight, short-term, localised toxic effects on marine biota.	F	Environment – No lasting effect (<1 month). Localised impact not significant to environmental receptors	
		Non-routine discharge of chemicals associated with the subsea pipework and equipment.	Potential slight, short-term, localised reduction in water quality and ecosystem health as well as slight, short-term, localised toxic effects on marine biota.	F	Environment – No lasting effect (<1 month). Localised impact not significant to environmental receptors	

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 178 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Aspect	EP Section	Source of Impact	Key potential environmental impacts (refer to relevant EP section for details)	Controlled impact classification	Residual impact level (ALARP controls in place)	Acceptability of Impact
		Discharge of flexible jumper and subsea installation fluids to the marine environment.	Potential short-term reduction in water quality and ecosystem health as well as slight, short-term, localised toxic effects on marine biota.	E	Environment - Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	
Routine and non-routine discharges: Support vessel operations	6.7.5	Routine and non-routine discharge of deck and bilge water, grey water, sewage and putrescible wastes from the activity vessels to the marine environment.	Potential slight short-term, localised decrease in water quality around subsea system within Operational Area with no lasting effect.	F	Environment – No lasting effect (<1 month). Localised impact not significant to environmental receptors	Broadly acceptable
Routine atmospheric and greenhouse gas emissions	6.7.6	Release of air pollutants and greenhouse gas (GHG) from support vessels and Helicopters.	Potential short-term localised decrease in air quality.	F	Environment – No lasting effect (<1 month). Localised impact not significant to environmental receptors	Broadly acceptable
Routine light emissions: External lighting from support vessels	6.7.7	Light emissions from support vessels, ROVs, inspection tools.	Potential slight, localised behavioural disturbance of species in close proximity to support vessels.	F	Environment – No lasting effect (<1 month). Localised impact not significant to environmental receptors	Broadly acceptable

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 179 of 445

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Table 6-2: Environmental impact and risk analysis summary table – unplanned events (including major environmental events)

Aspect	EP Section	Source of Risk	Key potential environmental impacts (refer to relevant EP section for details)	Risk rating				Acceptability of Impact
				Controlled impact classification	Residual impact level (ALARP controls in place)	Likelihood	Residual risk rating	
Unplanned hydrocarbon release: Loss of well containment (MEE-01)	6.8.3	Loss of well containment of reservoir fluids from a Julimar or Brunello well (e.g. Xmas Tree, well production tubing etc.) resulting in loss of hydrocarbons to the environment.	Potential significant impacts to the marine environment: <ul style="list-style-type: none"> • long-term impacts to sensitive nearshore areas of offshore islands and coastal shorelines • disruption to marine fauna, including protected species. • potential short-term interference with or displacement of other sea users. • potential impacts to Protected Places (Section 4.8) 	B	Environment – Major, long-term impact (10 to 50 years) on highly valued ecosystems, species, habitat or physical or biological attributes.	1	M	Acceptable if ALARP

Aspect	EP Section	Source of Risk	Key potential environmental impacts (refer to relevant EP section for details)	Risk rating				Acceptability of Impact
				Controlled impact classification	Residual impact level (ALARP controls in place)	Likelihood	Residual risk rating	
Unplanned hydrocarbon release: Vessel collision	6.9.1	Loss of hydrocarbons to marine environment due to a vessel collision (e.g. support vessels or other marine users).	Potential minor short-term impacts to the marine environment: <ul style="list-style-type: none"> long-term impacts to sensitive nearshore areas of offshore islands and coastal shorelines disruption to marine fauna, including protected species. potential short-term interference with or displacement of other sea users. potential impacts to Protected Places (Section 4.8) 	D	Minor, short-term impact (1-2 years) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	M	Broadly Acceptable
Unplanned hydrocarbon release: Loss of containment from subsea infrastructure	6.9.2	Release of hydrocarbons from failure of integrity of subsea infrastructure.	Potential minor short-term impacts to the marine environment: <ul style="list-style-type: none"> long-term impacts to sensitive nearshore areas of offshore islands and coastal shorelines 	D	Minor, short-term impact (1-2 years) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	2	M	Broadly acceptable

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 181 of 445

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Aspect	EP Section	Source of Risk	Key potential environmental impacts (refer to relevant EP section for details)	Risk rating				Acceptability of Impact
				Controlled impact classification	Residual impact level (ALARP controls in place)	Likelihood	Residual risk rating	
		Release of hydrocarbons from anchor drag or dropped object from vessels onto flowlines.	<ul style="list-style-type: none"> disruption to marine fauna, including protected species. potential short-term interference with or displacement of other sea users. potential impacts to Protected Places (Section 4.8) 					
		Unplanned discharge of minor fugitive hydrocarbons from subsea equipment.	Potential slight, short-term, localised reduction in water quality and ecosystem health as well as slight, short-term, localised toxic effects on marine biota.	F	Environment – No lasting effect (<1 month). Localised impact not significant to environmental receptors	4	M	Broadly Acceptable
Unplanned hydrocarbon or chemical release: Hydrocarbon or chemical during transfer, storage or use	6.9.3	Accidental discharge of hydrocarbons or chemicals from vessel activities, and equipment used in subsea IMMR activities.	Potential minor short-term impacts to the marine environment including disruption to marine fauna, including protected species, and/or temporary impacts to water quality.	E	Environment - Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	3	M	Broadly Acceptable
Unplanned discharge: Loss of hazardous or non-hazardous waste/equipment	6.9.4	Accidental loss of solid hazardous and non-hazardous waste to the marine environment.	Potential minor short-term impacts to the marine environment including disruption to marine fauna, including protected species, and/or temporary impacts to water quality.	F	Environment - No lasting effect (<1 month). Localised impact not significant to environmental receptor.	2	L	Broadly Acceptable

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 182 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Aspect	EP Section	Source of Risk	Key potential environmental impacts (refer to relevant EP section for details)	Risk rating				Acceptability of Impact
				Controlled impact classification	Residual impact level (ALARP controls in place)	Likelihood	Residual risk rating	
Physical presence: Vessel collision with marine fauna	6.9.5	Physical presence of vessels resulting in collision with marine fauna.	Potential injury or death of marine fauna (single animal), including protected species.	E	Environment - Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	1	L	Broadly Acceptable
Physical presence: Interaction with Live Infrastructure	6.9.6	Interaction with live infrastructure from dropped objects.	Potential interactions with other marine users as well as potential subsequent loss of containment.	E	Social and Cultural – Slight, short-term impact (<1 year) to a community or area/item of cultural significance.	1	L	Broadly Acceptable
Physical presence: Disturbance to seabed from dropped objects	6.9.7	Dropped objects resulting in the disturbance of benthic habitat.	Potential minor localised impact to benthic habitat as well as potential seabed infrastructure damage.	F	Environment - Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	1	L	Broadly Acceptable
Physical presence: Accidental Introduction of invasive marine species	6.9.8	Introduction and establishment of invasive marine species (IMS) in vessel ballast tanks or on vessels/submersible equipment.	Potential introduction of invasive marine species possibly resulting in an alteration of the localised environment.	E	Environment - Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	1	L	Broadly Acceptable

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 183 of 445

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6.3 Impacts and Risks Deemed Not Credible or Outside the Scope of this Environment Plan

During the ENVID process, risks and/or impacts can be identified as either being not credible or relevant to the Petroleum Activity or outside the scope of the EP.

6.3.1 Risk or Impacts Not Credible

All of the impacts or risks identified and discussed during the ENVID were found to be credible and therefore subject to full environmental assessment.

6.3.2 Potential Environment Risks Not Within the Scope of this Environment Plan

The ENVID identified the following environmental risks that were assessed as not being applicable within or outside the Operational Area 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.

6.3.2.1 GHG Emissions associated with Onshore Processing, Third Party Transport of Products, Regassification, Distribution and End Use

Julimar infrastructure is operated from, and hydrocarbons processed by, the Chevron operated offshore Wheatstone Platform and onshore Wheatstone LNG Plant. Therefore, emissions associated with the offshore platform, onshore processing, and third party transport of Julimar gas products, as well as distribution and end use, are addressed in, and managed in accordance with Chevron's *Wheatstone Project - Start-Up and Operations EP* accepted by NOPSEMA on 1/08/2022. Correspondence with Chevron that the GHG emissions from the new JDP3 wells are accounted for and controls implemented in accordance with the *Wheatstone Project Start-up and Operations EP* can be found in SI Report, reference 27.3 – 27.6 and summarised in Appendix F Section 4.7.

Woodside's consultation notes GHG emissions associated with new Julimar wells are described, risk assessed, managed to ALARP and are of an acceptable level by the in-force *Wheatstone Project Start-up and Operations EP*. GHG emissions associated with the Julimar operations are described generally in Sections 3.5.4 and 6.7.6.

6.4 Cumulative Impacts

Woodside has assessed the cumulative impacts of the Petroleum Activities Program in relation to other relevant petroleum activities. Other facilities located in proximity to the Operational Area were identified within Section 4.9.8. While there is spatial overlap with a number of pipelines, 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.

However, given the concentration of sources of environmental risks and impacts from the Petroleum Activities Program are localised, the potential for cumulative impacts is considered to be low. Where relevant, the cumulative impacts of activities associated with undertaking multiple concurrent or parallel activities associated with this Petroleum Activities Program have been assessed for cumulative impacts.

6.5 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 that address legislative and other controls to manage the environmental risks and impacts of the activity to ALARP and Acceptable levels.

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 in this EP 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 2.6.2 and Section 2.6.3, as part of the acceptability and ALARP justification process.

The EPOs, EPSs and MC are presented throughout this section and in Appendix D (Oil Spill Preparedness and Response). A breach of these EPOs or EPSs constitutes a ‘Recordable Incident’ under the Environment Regulations (refer to Section 7.15.5).

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 (Department of the Environment 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 2.8.2), 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 7.3) 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 Julimar should not interfere with other marine users, to a greater extent than is necessary for the exercise of right conferred by the titles granted.

6.6 Presentation

The analysis and evaluation (ALARP and acceptability), EPOs, EPSs and MC are presented in tabular form throughout this section, as shown in the sample below. Italicised text in this example table denotes the purpose of each part of the table, with reference to the relevant sections of the Regulations and/or this EP.

Context		
Description of the context for the impact/risk. Regulation 21(1), 21(2) and 21(3)		
<i>Description of the Activity – Regulation 21(1)</i>	<i>Description of the Environment – Regulations 21(2)(3)</i>	<i>Consultation – Regulation 25</i>
Impact and Risk Evaluation Summary		
Summary of ENVID outcomes		
Source of Impact/Risk Regulation 21(1)	Environmental Value Potentially Impacted Regulations 21(2)(3)	Evaluation Section 2

	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Summary of source of risk/ impact													
Description of Source of Impact or Risk													
Description of the identified risk/impact including sources or threats that may lead to the impact/risk or identified event. Regulation 21(1).													
Impact or Consequence Assessment													
Environmental Value(s) Potentially Impacted													
Discussion and assessment of the potential impacts to the identified environment value/s in accordance with Regulation 21 (5)(6).													
Description of potential impacts to environmental values aligned to Woodside Matrix consequence descriptors													

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)²⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
ALARP/Hierarchy of Control Tools Used - Section 2.6.2				
Summary of control considered to ensure the impacts and risks are continuously reduced to ALARP. Regulation 13(5)(c).	Technical/logistical feasibility of the control. Cost/sacrifice required to implement the control (qualitative measure).	Qualitative commentary of impact/risk that could be averted/ environmental benefit gained 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 No. provided.
ALARP Statement:				
Made on the basis of the environmental impact/risk assessment outcomes, use of the relevant tools appropriate to the decision type (Section 2.6.1) and a proportionality assessment in accordance with Regulation 34(b).				

²⁶ Qualitative measure

Demonstration of Acceptability

Acceptability Statement:

Made on the basis of applying the process described in Section 2.8 in accordance with Regulation 34(c)

EPOs, PS and MC			
Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
<p>EPO No.</p> <p><i>S: Specific performance that addresses the legislative and other controls that manage the activity, and against which performance by Woodside in protecting the environment will be measured.</i></p> <p><i>M: Performance against the outcome will be measured through implementation of the controls via the MC.</i></p> <p><i>A: Achievability/feasibility of the outcome demonstrated via discussion of feasibility of controls in ALARP demonstration. Controls are directly linked to the outcome.</i></p> <p><i>R: The outcome will be relevant to the source of risk/impact and the potentially impacted environmental value²⁷</i></p> <p><i>T: The outcome will state the timeframe during which the outcome will apply or by which it will be achieved.</i></p>	<p>C No.</p> <p><i>Identified control adopted to ensure that the impacts and risks are continuously reduced to ALARP.</i></p> <p><i>Regulation 21(5) (c).</i></p>	<p>PS No.</p> <p><i>Statement of the performance required of a control measure.</i></p> <p><i>Regulation 21(7)(a).</i></p>	<p>MC No.</p> <p><i>Measurement criteria for determining whether the outcomes and standards have been met.</i></p> <p><i>Regulation 21(7)(c).</i></p>

²⁷ Where impact/consequence descriptors are capitalised and presented within EPOs in Section 6 performance level corresponds with those aligned with the Woodside Risk Matrix (refer Section 2.6).

6.7 Planned Activities (Routine and Non-routine)

6.7.1 Physical Presence: Interaction with Other Marine Users

Context													
Field Inventory – Section 3.5.1 Support Vessel Operations – Section 3.6			Socio-economic– Section 4.9 Cultural Values and Heritage – Section 4.9.1				Consultation – Section 5						
Impact Evaluation Summary													
Source of Impact	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Presence of vessels and subsea infrastructure excluding or displacing other users from the Operational Area (commercial fishing, commercial shipping, tourism and recreation, and other oil and gas operations).						X	A	F	-	-	LCS GP	Broadly Acceptable	EPO 1
Description of Source of Impact													
<p>There is a 250 m Petroleum Safety Zone (PSZ) around the production wells and crossover manifolds, which vessels are prohibited from entering unless authorised by Woodside. The PSZ is a critical safety control intended to reduce the likelihood of interactions between vessels and the facility, which increases safety for both vessels and the facility. Implementation of the PSZ excludes other users from a small area (approximately 0.79 km²).</p> <p>Vessels are present in the Operational Area intermittently throughout the Petroleum Activities Program, including during JDP3 commissioning, and IMMR activities during operations, all of which are to be undertaken by a subsea support vessel (see Section 3.6). The duration and location of these activities varies depending on the activity being undertaken, and is described in detail in Sections 3.5.2, and 3.9 and will typically result in a support vessel being in the field for one to two weeks but maybe be present for up to six weeks.</p> <p>Additionally, vessels associated with the Wheatstone operations, Pluto operations and other oil and gas activities, may be present in the Operational Area during the course of the Petroleum Activities Program. Vessels associated with these activities may include IMMR vessels and supply vessels.</p>													
Impact Assessment													
Environmental Value(s) Potentially Impacted													
Exclusion and Displacement of Other Users													
Interaction with other marine users due to the physical presence of in the Petroleum Activities Program may result in localised changes to the functions, interests or activities of other users.													
Commercial Fishing													
The Operational Area overlaps the fisheries management areas of three Commonwealth and 11 State managed commercial fisheries. As presented in Table 4-24, however, based on catch data none of the Commonwealth and only													

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five of the State fisheries were assessed as having the potential to interact with the Petroleum Activities. The overlap of the Operational Area with commercial fishing activity may temporarily exclude fishers from the area resulting in a potential displacement and potential loss of gear (particularly in relation to deployed traps). The potential impact to commercial fisheries in the Operational Area is considered to be localised displacement/avoidance by commercial fishing vessels within the immediate vicinity. In observance of good seamanship, all support vessels will avoid any close and/or disruptive engagement with any commercial fishing activity. As such, the potential impact is considered to be localised with no lasting effect.

The presence of permanent subsea infrastructure, over the 25-year field life could present a hazard to bottom trawl fisheries due to the risk of equipment entanglement and subsequent equipment damage/loss. As illustrated in Table 4-24, the only trawl fishery that may interact with the Petroleum Activities within the Operational Area is the Pilbara Trap Limited Entry Fishery, with up to three vessels operating within the vicinity of the Operational Area (DPIRD 2023), however, since the Julimar Development commenced operations in 2016, this fishery has not raised any objections of claims during ongoing consultation, suggesting that impacts to trawl fisheries are not at risk of interference.

Commercial Shipping

The presence of activity vessels could potentially cause temporary disruption to commercial shipping. To reduce the likelihood of interactions between commercial vessels and offshore facilities, AMSA has introduced a series of shipping fairways within which commercial vessels are advised to navigate. The fairways are not mandatory however AMSA strongly recommends that commercial vessels remain within the fairways when transiting the region. The use of shipping fairways is considered to be good seafaring practice; Australian Ship Reporting System data from AMSA indicates that cargo ships and tankers routinely navigate within the established fairways. Notably, no recognised shipping fairways overlap the Operational Area (Figure 4-13); the nearest fairway lies about 32 km west of the Operational Area.

The AHO has been notified of the location of subsea infrastructure (see Table 3-2) for marking on nautical charts. Water depths of subsea infrastructure range between about 71 and 200 m.

Tourism and Recreation

Tourism and recreation activity in the Operational Area is expected to be infrequent. Recreational and charter fishing from vessels are the only tourism and recreation activities identified as potentially occurring in the Operational Area. Tour operator fishing efforts recorded over a 10-year period (2013–2023) (DPIRD, 2023) identified <three vessels' operations within the Operational Area. In the event that a charter boat was fishing within the Operational Area, displacement as a result of the Petroleum Activities Program would be minimal. Therefore, the potential impact, including over the life of field, is considered to be localised with no lasting effect.

Oil and Gas Operations

The Wheatstone Platform and associated subsea infrastructure are located at the northern end of the Operational Area. Uncontrolled access in the vicinity of this facility could increase the potential for interference with the facility and supporting vessels. Vessel based activities for the Julimar Development are managed via the Wheatstone Platform Operator Permit to Work (PTW) process, which limits the potential for any non-compatible cumulative activities. In this way, the potential cumulative impact to other marine users, due to the Petroleum Activities Program in conjunction with other oil and gas operations, is considered to be localised with no lasting effect.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)²⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Vessels to adhere to the navigation safety requirements including the Navigation Act 2012 and any	F: Yes CS: Minimal cost. Standard practice.	The act regulates ship related activities and invokes certain requirements of MARPOL. Vessels (relevant to class) will	Control based on legislative requirement – must be adopted.	Yes C 1.1

²⁸ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)²⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
subsequent Marine Orders.		adhere to requirements.		
Implementation of a PSZ extending 250 m, measured from each point of each production wells and crossover manifold.	F: Yes. CS: Minimal cost. Standard practice.	The implementation of PSZ aligned with the Wheatstone Start up and Operations EP and reduces the likelihood of interactions with third parties and the production wells and crossover manifolds.	Control based on legislative requirement – must be adopted	Yes C1.2
Good Practice				
Notify Australian Hydrographic Service (AHO) of location of permanent infrastructure to enable update of maritime charts, thereby reducing the likelihood of unplanned interactions within the Operational Area	F: Yes. CS: Minimal cost. Standard practice.	Notifying AHO of location of permanent infrastructure to enable update of maritime charts, thereby reducing the likelihood of unplanned interactions with subsea infrastructure.	Benefits outweigh cost/sacrifice.	Yes C1.3
Consultation undertaken in support of the Petroleum Activities Program, so that marine users are informed and aware, thereby reducing the likelihood of unplanned interactions with subsea infrastructure.	F: Yes CS: Minimal cost. Standard practice.	Consultation ensures marine users are informed and aware, thereby reducing the risk of unplanned interactions with subsea infrastructure.	Benefits outweigh cost/sacrifice.	Yes C 1.4
Notify AHO of activities and movements, where support vessels will be in the Operational Area >3 weeks, no less than four working weeks prior to commencement date.	F: Yes. CS: Minimal cost. Standard practice.	Notification of AHO will enable them to issue a Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) thereby reducing the likelihood of unplanned interactions with other vessels.	Benefits outweigh cost sacrifice.	Yes C 1.5
Vessel based activities, within 500 m of the Wheatstone Platform, completed under Wheatstone Platform Operator's PTW system (<i>Permit to Work</i>	F: Yes. CS: Minimal cost. Standard practice.	Ensures that activities are properly planned, risk assessed, controlled, co-ordinated, and safely executed to not adversely impact others.	Benefits outweigh cost/sacrifice.	Yes C 1.6

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ²⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Manual), see Section 7.2.1.1.1				
Notify AMSA JRCC, where support vessels will be in the Operational Area >3 weeks no less than 24 to 48 hours before the scheduled vessel activity commencement date.	F: Yes. CS: Minimal cost. Standard practice.	Notification to AMSA JRCC allows for population of marine notices.	Benefits outweigh cost/sacrifice.	Yes C 1.7
SIMOPS will be developed if more than one Woodside contracted vessel is operating in the Operational Area at any one time.	F: Yes CS: Minimal cost. Standard Practice.	SIMOPS plans between Woodside contracted vessels in the Operational Area will reduce the likelihood of interactions.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.8
Notify DoD of vessel activities >3 weeks in the Operational Area no less than five weeks before vessel activities commence.	F: Yes CS: Minimal cost. Standard practice.	Ensures that activities are properly planned, risk assessed, controlled, co-ordinated, and safely executed to not adversely impact others.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.9
Notify relevant government departments, fishing industry representative bodies and licence holders of vessel activities >3 weeks in the Operational Area prior to commencement and upon completion of activities.	F: Yes CS: Minimal cost Standard practice.	Ensures that activities are properly planned, risk assessed, controlled, co-ordinated, and safely executed to not adversely impact others.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.10
Notify DNP if the EP is approved and at least 10 days prior to all activities occurring within the marine park (excluding transiting) and at the conclusion of that activity.	F: Yes CS: Minimal cost Standard practice.	Ensures that activities are properly planned, risk assessed, controlled, co-ordinated, and safely executed to not adversely impact others.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.11
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	Not considered – control not feasible.	Not considered – control not feasible.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ²⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	exact timings for all activities are not confirmed. CS: Not considered – control not feasible,			
Professional Judgement – Substitute				
None identified				
Professional Judgement – Engineered Solution				
Over-trawl protection on flowlines.	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 Operational Area 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
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 potential impacts of the physical presence of the subsea infrastructure and support vessels on other users. 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, physical presence of the support vessels represents a negligible impact that is unlikely to result in a potential impact greater than an isolated social impact to commercial fishing, recreational fishing and shipping, and other oil and gas titleholders. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet requirements of Australian Marine Orders, and expectations of AMSA and AHO provided in consultation with relevant persons. 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 physical presence of the Julimar Development subsea infrastructure, and support vessels to a level that is broadly acceptable.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 1 Impacts to relevant marine users from the Petroleum Activities Program planned activities will be limited through the provision of appropriate information/notification	C 1.1 Vessels to adhere to the navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders.	PS 1.1 Vessels compliant with Navigation Act and Marine Order 21 (Safety of navigation and emergency procedures) 2012.	MC 1.1.1 Marine assurance inspection records demonstrate compliance with standard maritime safety procedures.
	C 1.2 Implementation of a PSZ extending 250 m, measured from each point of each production well and crossover manifold.	PS 1.2 PSZ maintained and monitored for incursions where practicable.	MC 1.2.1 Records of adverse interactions in the PSZ are recorded.
	C 1.3 Notify AHO of location of permanent infrastructure to enable update of maritime charts, thereby reducing the likelihood of unplanned interactions within the Operational Area.	PS 1.3 Woodside to notify AHO of location of new permanent infrastructure.	MC 1.3.1 Records demonstrate that AHO has been notified of new permanent infrastructure.
	C 1.4 Undertaking consultation program to advise relevant persons of the Petroleum Activities Program and provide opportunity to raise objections or claims.	PS 1.4 Implement a consultation process that conforms to the requirements of the Environment Regulations	MC 1.4.1 Records demonstrate a consultation program that conforms to the requirements of the Environment Regulations has been undertaken (refer to Section 5).
	C 1.5 Notify AHO of activities and movements, where support vessels will be in the Operational Area >3 weeks, no less than four working weeks prior to commencement date.	PS 1.5 Woodside to notify AHO of activities where vessels will be in the Operational Area >3 weeks, to allow generation of navigation warnings (Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) (including AUSCIASST warnings where relevant)).	MC 1.5.1 Records demonstrate that AHO notifications complete.
	C 1.6 Wheatstone Platform operator's PTW system (<i>Permit to Work Manual</i>).	PS 1.6 Vessel based activities within 500 m of the Platform are completed under the Wheatstone Platform operator's PTW system (<i>Permit to Work Manual</i>).	MC 1.6.1 Records demonstrate PTW documentation completed.
	C 1.7	PS 1.7	MC 1.7.1

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	<p>Notify AMSA JRCC, where support vessels will be in the Operational Area >3 weeks no less than 24 to 48 hours before the scheduled vessel activity commencement date.</p>	<p>Vessel notification to AMSA JRCC to prevent activities interfering with other marine users for awareness should emergency response be required.</p> <p>AMSA 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 activities start.</p>	<p>Records demonstrate notification provided to AMSA JRCC within required timeframes (start of activities).</p>
	<p>C 1.8</p> <p>SIMOPS will be developed if more than one Woodside contracted vessel is operating in the Operational Area at any one time.</p>	<p>PS 1.8</p> <p>SIMOPS outline operating procedures when more than one Woodside contracted vessel is operating in the Operational Area.</p>	<p>MC 1.8.1</p> <p>Records demonstrate SIMOPS were developed for circumstances where more than one Woodside vessel was operating in the Operational Area.</p>
	<p>C 1.9</p> <p>Notify DoD of vessel activities >3 weeks in the Operational Area no less than five weeks before vessel activities commence.</p>	<p>PS 1.9</p> <p>Woodside will provide DoD activity notification no less than five weeks prior to commencement activities.</p>	<p>MC 1.9.1</p> <p>Consultation records demonstrate that DoD have been notified prior to commencement of vessel activities >3 weeks.</p>
	<p>C 1.10</p> <p>Notify relevant government departments, fishing industry representative bodies and licence holders of vessel activities >3 weeks in the Operational Area prior to commencement and upon completion of activities.</p>	<p>PS 1.10</p> <p>AFMA, DCCEEW, CFA, DAFF – Fisheries, Recfishwest, Longreach Capital, DPIRD, WAFIC and relevant Fishery Licence Holders will be notified no less than ten days before activity commences and following completion of activities.</p>	<p>MC 1.10.1</p> <p>Consultation records demonstrate that listed relevant persons have been notified prior to commencement and following completion of activities.</p>
	<p>C 1.11</p> <p>Notify DNP if the EP is approved and at least 10 days prior to all activities occurring within the Montebello marine park (excluding transiting) and at the conclusion of that activity.</p>	<p>PS 1.11.1</p> <p>DNP is notified of EP approval.</p>	<p>MC 1.11.1</p> <p>Consultation records demonstrate that marineparks@awe.gov.au have been notified of EP approval.</p>
		<p>PS 1.11.2</p> <p>DNP is notified no less than ten days before activity commences and</p>	<p>MC 1.11.2</p> <p>Consultation records demonstrate that DNP have been notified prior to commencement and</p>

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		following completion of activities.	following completion of activities.
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6.7.2 Physical Presence: Disturbance to Seabed

Context													
Field Inventory – Section 3.5.1 Support Vessel Operations – Section 3.6			Physical Environment – Section 4.3 Habitats and Biological Communities – Section 4.4 Socio-economic – Section 4.9				Consultation – Section 5						
Impact Evaluation Summary													
Source of Impact	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
	X	X		X		X	A	F	-	-	LCS GP PJ	Broadly Acceptable	EPO 2 EPO 3
	Presence of Julimar and Brunello subsea infrastructure												
	Subsea operations, IMMR activities including span rectification (concrete mattresses etc.) as well as installation of pig receivers/launchers at the subsea wells												
Disturbance to seabed from ROV operation (including localised sediment relocation from sediment mobilisation techniques and marine growth removal)													
Placement and retrieval of seabed transponders and temporary installation aids	X	X		X		X							
Description of Source of Impact													
Operations Seabed disturbance associated with the Petroleum Activities Program can occur during operations and associated activities including: <ul style="list-style-type: none">Physical presence of the subsea infrastructure (operational and redundant).Scour, spans, and flowline movement inherent in design.Vessel based subsea IMMR activities. Subsea infrastructure has been installed throughout the Operational Area (Section 3.5.1) and impacts to the seabed during installation of this equipment has been subject to separate EPs. The seabed disturbance from ongoing presence of installed infrastructure is outlined below (also see Section 3.5.1). Subsea Operations													

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The presence of subsea infrastructure may result in localised scouring, within the Operational Area, 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 movement may occur as per design and within integrity margins along the flowline corridor and is influenced by prevailing metocean conditions. Lateral movement which is larger than expected may necessitate IMMR activities. Refer to Subsea equipment loss of containment (Section 6.9.2) which includes controls to limit scour and flowline movement within integrity requirement.

IMMR Activities

To maintain the integrity of subsea infrastructure, Woodside may be required to undertake routine subsea IMMR activities, as described in Section 3.9. Activities that constitute IMMR may impact the benthic environment in the vicinity of the activity. IMMR activities identified as impacting the benthic environment 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, pipeline protection and stabilisation – minor, localised modification of benthic habitat within footprint of Operational Area subject to rectification/protection/stabilisation
- flowline, jumper and umbilical replacement – minor, localised modification of benthic habitat in the vicinity of the flowline/ 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
- pig launcher/receiver installation and retrieval - minor, localised modification of benthic habitat and sediment resuspension in the vicinity of the receiver.

The seabed area predicted to be impacted varies depending on the nature and scale of the IMMR activity. No impact is expected beyond the Operational Area. Span rectification is the IMMR activity with the greatest potential to modify the seabed, due to the alteration of the existing soft sediment habitat to (artificial) hard substrate. Woodside's operational experience on the North West Shelf indicates that these activities (e.g., span rectification, pipeline protection and stabilisation) are typically restricted to relatively short (tens of metres) linear sections of pipeline with up to approximately 100 m² of seabed impacted.

Impact Assessment

Environmental Value(s) Potentially Impacted

IMMR activities can be categorised into two potential impacts:

- direct physical disturbance of benthic habitat
- indirect disturbance to benthic habitats from sedimentation.

Subsea infrastructure provides hard substrate which may be colonised by sessile benthic invertebrates, such as sponges or soft corals. These may subsequently result in habitat creation for demersal fish populations.

Water Quality

Seabed disturbance may include localised and temporary decline in water quality due to increased suspended sediments; increased sediment deposition caused by IMMR activities, however, sediment loads are not expected to be significant due to the relatively small footprint and duration of each activity and event (described above, and in Section 3). Similarly, removal of marine growth from subsea infrastructure to maintain structural integrity on an as-required basis would cause localised temporary decrease in water quality and suspended sediment from water jetting activities.

Ecosystem/Habitats

The Operational Area predominantly consists of soft sediment benthic communities, with the exception of a small portion in the vicinity of the Wheatstone platform (see Section 4.3.1).

Soft Sediment Benthic Communities

The benthic habitat within the Operational Area is predominantly soft sediment with sparsely associated epifauna (RPS Group, 2011), which is broadly represented throughout the Northwest Province. Benthic communities of the soft sediment seabed are characterised by burrowing infauna, such as polychaetes, with biota such as sessile filter

feeders occurring on areas of hard substrate (such as existing subsea infrastructure). Each discrete IMMR activity near the seabed is likely to cause a brief disturbance which may result in suspended sediment. This sediment will subsequently be deposited down current as particles resettle. Such localised and short-term events may affect small areas of the seabed and, consequently, impact the associated biota (typically sparsely distributed infauna and sessile epifauna). Given the expected nature and scale of resuspension resulting from these disturbances, impacts such as smothering or burial are not expected. Rather, impacts are likely to be restricted to increased ingestion of inedible sediments by filter feeders. Biota in the region are well adapted to periodic turbidity events caused by cyclones and tidal movements. As such, impacts from turbidity caused by these disturbances are not expected to have any lasting effect on benthic biota. The estimated overall extent of such direct seabed disturbance is extremely small in relation to the extent of the soft sediment habitats, which are broadly represented within the Operational Area and the wider Northwest Province. Operational experience indicates disturbance to soft sediment habitats around subsea infrastructure associated with the Petroleum Activities Program is localised with no lasting effect.

Hard Substrate Benthic Communities

Areas of cemented sediments occur about 3 km along the north-eastern end of the Operational Area in proximity to the Wheatstone Platform (Figure 4-4) and support benthic invertebrate communities of sessile filter feeding biota, including large sea fans, sponges, soft corals, sea whips and ascidians (Neptune Geomatics, 2010a; RPS Group, 2010, 2011), likely providing habitat for demersal fish populations. The filter feeding community associated with these hard substrates is considered of higher ecological value than the surrounding soft sediment habitat but encompasses a relatively small proportion of the Operational Area. Activities near the seafloor may result in slight and temporary impacts to filter feeders from localised burial (sedimentation) and minimal direct permanent loss of filter feeder habitat as a result of seabed disturbance during IMMR activities (see impacts discussed in 'Soft Sediment Benthic Fauna Communities' above). Although impacts to filter feeding communities resulting from project activities may result in permanent loss, this is expected to be restricted to a small portion of filter feeder habitat. Loss of a small portion of filter feeder habitat due to this Petroleum Activities Program may temporarily impact demersal fish populations associated with the cemented sediment outcrops, however, the ecological integrity of filter feeder communities within the region is expected to be maintained. Impacts are, therefore, expected to be localised with no lasting effect.

Ancient Coastline at the 125 m Depth Contour KEF

The Operational Area overlaps about 0.2% (or 28 km²) of the 16,190 km² Ancient Coastline KEF. It is noted that the Ancient Coastline at 125 m KEF is associated with areas of seabed outcroppings but the only evidence of such seabed habitat is that found in the north-eastern end of the Operational Area in proximity to the Wheatstone platform (See Hard Substrate Benthic Communities above) with the majority of the Operational Area seabed habitat composed of unconsolidated, soft sediment, such habitats are widely distributed in the NWMR (Section 4.3). The Operational Area represents a buffer around the subsea infrastructure to facilitate vessel operations; however, the potential for seabed disturbance is much more localised (i.e. within tens of metres of the subsea infrastructure). Therefore, potential impacts to this KEF are expected to be localised with no lasting effect.

Montebello Australian Marine Park

A small proportion (0.07% or 2.7 km²) of the Operational Area overlaps the Montebello AMP Multiple Use Zone. The AMP includes values associated with the shallow shelf environments. No regionally significant benthic habitats or fauna, or shelf/slope or pinnacle and terrace habitats associated with this AMP were recorded during seabed surveys of a portion of the Operational Area (Advisian, 2019).

A total of 0.29 km² of the Julimar/Brunello pipeline/flowlines is present within the AMP boundary. Minimal, direct loss of seabed habitat in the AMP may be possible if IMMR activities occurs within the AMP boundary. Indirect impacts may occur as a result of sedimentation. These direct and indirect impacts are discussed in relation to soft sediment benthic fauna communities above.

Further, cumulative impacts are not predicted to occur as it is expected that any Pluto or Wheatstone subsea infrastructure IMMR activities will be spatially and temporally separated (See Section 3.5). The predicted impacts of these other activities will be similar to those described above, with localised seabed impacts in the vicinity of the subsea infrastructure.

Artificial Habitat

The presence of subsea infrastructure 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 presence of subsea infrastructure has led to the development of ecological communities which would not have existed otherwise. For example, pipeline infrastructure has been shown to support more diverse fish assemblages and benthic biota (Bond 2018, McLean 2017). These communities are relatively diverse compared to the open water and soft sediment habitats in the broader Operational Area.

The provision of artificial habitat associated with the subsea infrastructure has either no adverse environmental impact or a low level of positive environmental impact through increasing biological diversity.

Values and SensitivitiesCultural Heritage

As described in Section 4.7.1 and above, the Operational Area overlaps the Ancient Coastline at 125 m depth contour KEF and therefore there is the potential that Cultural features may exist and these may potentially be impacted during seabed disturbance resulting from operations and associated activities.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)²⁹	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
A ROV survey will be undertaken post maintenance or repair activity to confirm temporary equipment has been removed and to record location of new subsea infrastructure.	F: Yes CS: Minimal cost ROV as left survey is standard practice.	In accordance with OPGGS Act Section 572 all equipment is removed when no longer in use.	Legislative requirement	Yes C 2.1
Location of subsea infrastructure and temporary equipment brought into the Operational Area is tracked and recorded.	F: Yes CS: Minimal cost. Standard practice.	In accordance with OPGGS Act Section 572 the location of equipment is tracked to enable future removal.	Legislative requirement	Yes C 2.2
Monitoring and maintenance of redundant infrastructure is undertaken in accordance with the IMMR process.	F: Yes CS: Minimal cost. Standard practice.	Monitoring and maintenance of redundant subsea infrastructure undertaken to enable cost efficient and safe removal and meet Section 572(2) and (3) of the OPGGS Act.	Legislative requirement	Yes C 2.3
Remove redundant infrastructure as soon as it's no longer used, nor to be used.	F: Yes. CS: Removal of property throughout the operational life where it is incorporated within or located close to live infrastructure introduces additional complexities and HSE risk that can be avoided if removed during EOFL decommissioning.	While subsea equipment is in-situ, risks and impacts to the seabed are considered to be low, so only a minor reduction in sediment /habitat disturbance from less infrastructure in the Operational Area would be achieved.	Cost of standalone retrieval work scopes are considered disproportionate to the benefit gained when considering the risks of retrieval during current operations versus risk of extending duration in-situ. Wet stored subsea infrastructure is also RBI assessed and managed while preserved to ensure	No

²⁹ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ²⁹	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
			integrity and retrieval options are maintained for potential full removal.	
Good Practice				
Supplementary impact assessment undertaken for all IMMR activities within 500 m of identified sensitive benthic habitat	F: Yes CS: Minimal cost. Standard practice.	By limiting the size of disturbance potential impacts to benthic habitats are reduced.	Benefits outweigh cost/sacrifice.	Yes C 2.4
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 7.10.	F: Yes. CS: Cost of implementation.	Allows management of Unexpected Finds in accordance with legislative requirements, (including <i>Underwater Cultural Heritage Guidance for Offshore Developments</i> and the Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters –Guidance on the application of the <i>UCH Act</i>), expert advice and community expectations.	Benefits outweigh cost/sacrifice.	Yes C 3.1
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.	F: Yes. CS: Minimal costs associated with reporting process.	Meets legislative requirements and community expectations	Benefits outweigh cost/sacrifice.	Yes C 3.2
Relevant vessel crew and ROV operators will be advised in an induction of the potential to encounter UCH and requirement to follow the Unexpected Finds Procedure (Section 7.10)	F: Yes CS: Minimal cost.	Workforce are suitably aware of legal and process requirements for managing cultural features and heritage values.	Benefits outweigh cost/sacrifice.	Yes C 3.3
Professional Judgement – Eliminate				

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)²⁹	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
All vessels will not anchor under routine conditions.	F: Yes. CS: Minimal. LCVs or support vessels undertaking activities typically do not anchor.	By not anchoring, the potential impacts to benthic habitat are reduced.	Benefits outweigh cost/sacrifice.	Yes C 2.5
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 an integral part of IMMR activities. 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
Professional Judgement – Substitute				
None identified				
Professional Judgement – Engineered Solution				
Subsea infrastructure designed to prevent scour in accordance with the Basis of Design.	F: Yes. Infrastructure with potential for scour (erosion) was identified during design and incorporated where required. Scour is not anticipated around pipelines or flowlines and is monitored. CS: Cost is justified based on maintenance of integrity of infrastructure via stabilising.	Minimises the potential to impact the seabed.	Business as usual. Infrastructure designed to minimise scour and maintain integrity.	Implemented during design and construction. No Control.
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.	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 to Section 6.9.2

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ²⁹	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	CS: Minimal cost. Standard practice.			
ALARP Statement: On the basis of the assessment outcomes, use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.6.1) and Woodside's criteria for demonstrating ALARP (Section 2.8.1), Woodside considers the adopted controls appropriate to manage potential impacts and risks associated with seabed disturbance subsea IMMR activities. As no reasonably practicable additional/alternative controls were identified that would further reduce the impacts without disproportionate sacrifice, the impacts and risks are considered ALARP.				

Demonstration of Acceptability			
Acceptability Statement: The impact assessment has determined that, given the adopted controls, seabed disturbance from subsea activities represents no lasting effect that is unlikely to result in a potential impact to benthic habitats. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of tie-back activities and subsea IMMR activities to a level that is broadly acceptable.			
EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 2 Seabed disturbance to be limited to planned activities and impacts described as part of the Petroleum Activities Program and not to occur outside the Operational Area.	C 2.1 A ROV survey will be undertaken post maintenance or repair activity to confirm temporary equipment has been removed and to record location of new subsea infrastructure.	PS 2.1 Temporary equipment is removed.	MC 2.1.1 As left survey confirms temporary equipment is removed.
	C 2.2 Location of subsea infrastructure and temporary equipment brought into the Operational Area is tracked and recorded.	PS 2.2 Location of equipment, including infrastructure made redundant by the installation of a replacement, is recorded and updated in an inventory.	MC 2.2.1 Records confirm location of replacement equipment and remaining redundant equipment. and removal status.
	C 2.3 Monitoring and maintenance of redundant infrastructure is undertaken in accordance with the IMMR process.	PS 2.3 IMMR/RBI process is applied to redundant equipment.	MC 2.3.1 Records demonstrate that the IMMR/RBI process has been applied to redundant infrastructure.
			MC 2.3.2 Inspections and maintenance activities have been completed in accordance with the IMMR/RBI process.

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	C 2.4 Supplementary impact assessment undertaken for all IMMR activities within 500 m of identified sensitive benthic habitat (ENV001, ENV002 and ENV003).	PS 2.4 Assessment outcomes for IMMR activities within (ENV001, ENV002 and ENV003) demonstrate impacts to benthic habitats are negligible.	MC 2.4.1 Records demonstrate outcome of additional impact assessment are negligible.
	C 2.5 Vessels will not anchor under routine conditions.	PS 2.5 Vessels will not anchor unless an emergency or Woodside authorisation provided	MC 2.5.1 Records demonstrate that all support vessels are equipped with DP system.
	C 2.6 Monitoring and maintenance of subsea infrastructure to manage scour and flowline movement to within integrity envelope.	PS 2.6 Integrity will be managed in accordance with SCE Management Procedure (Section 7.3.4) and SCE technical Performance Standard(s) to prevent environment risk related damage to SCEs for: • P09 – Pipeline Systems to maintain the minimum required mechanical integrity to prevent loss of containment due to scour/flowline movement.	MC 2.6.1 Records demonstrate implementation of SCE technical Performance Standard(s) and Management of Hardware Controls in the Operate Phase Procedure (Section 7.3.4) in order to achieve the functional objective of the control. Records may include implementation and maintain/assure and manage-change information summarised in (Section 7.3.4).
EPO 3 No adverse impact to unexpected finds of Underwater Cultural Heritage ³⁰ without a permit ³¹ .	C 3.1 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 7.10	PS 3.1 In the event that an Underwater Cultural Heritage site or feature is identified, implement an Unexpected Finds Procedure set out in Section 7.10 .	MC 3.1.1 No non-compliance with the Unexpected Finds Procedure.
	C 3.2 Report any potential UCH finds to relevant stakeholders and authorities in accordance with the	PS 3.2 Report any finds of potential UCH in accordance with the Unexpected Finds Procedure	MC 3.2.1 Records of potential UCH finds reported to relevant authorities and persons.

³⁰ 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.

³¹ Permit for Entry into a Protected Zone or to Impact Underwater Cultural Heritage would be acquired under the UCH Act.

	Unexpected Finds Procedure, <i>Underwater Cultural Heritage Act 2018</i> and the <i>ATSIHP Act</i> .	(Section 7.10) including to: <ul style="list-style-type: none"> • WA Museum as requested during EP consultation • Australasian Underwater Cultural Heritage Database via DCCEEW. 	
	C 3.3 Relevant 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 (C 3.1).	PS 3.3 Relevant vessel crew (including ROV operators) are made aware of the requirements of the Unexpected Finds Procedure through an induction.	MC 3.3.1 Records demonstrate vessel crew and ROV operators are made aware of potential to encounter UCH.

6.7.3 Routine Acoustic Emissions: Generation of Noise during Operations

Context													
Subsea Operations Support Vessels – Section 3.6 Helicopter Operations – Section 3.7 Subsea IMMR Activities – Section 3.9				Protected Species – Section 4.6 Socio-economic– Section 4.9				Consultation – Section 5					
Impact Evaluation Summary													
Source of Impact	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Noise generated within the Operational Area from: • support vessels • helicopters • IMMR activities • continuous sources, including wellheads and pipelines					X	X	A	F	-	-	LCS GP	Broadly Acceptable	EPO 4
Description of Source of Impact													
<p>Support vessels, subsea operations including IMMR activities as well as helicopter operations will generate noise both in the air and underwater, due to normal operation of machinery and propeller movement. Typical noise levels for these sources are provided in Table 6-3 below. This noise will contribute to and can exceed ambient noise levels which range from around 90 dB re 1 µPa sound pressure level (SPL) under very calm, low wind conditions, to 120 dB re 1 µPa SPL under windy conditions (McCauley, 2005).</p> <p>Continuous (Non-Impulsive) Sources</p> <p><u>Wellheads, Pipelines and Subsea infrastructure</u></p> <p>Wellhead noise is expected to originate primarily from choke valves. However, depending rates of flow, source levels have been reported to vary described below. Considering the variability in the reported source levels noise from McPherson et al. (2015) were scaled to 161.5 dB re 1 µPa²m² (JASCO Applied Sciences (Australia) Pty Ltd 2024)). 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 levels in the vicinity of the wellheads would be expected to be of the order of 130 dB re 1 µPa SPL 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. Woodside has undertaken acoustic measurements on the noise generated by the operation of choke valves associated with the analogous subsea development to the Julimar Development (Angel facility) (McPherson 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 to 155 dB re 1 µPa (SPL) , with higher production rates (85% and 74% choke positions) resulting in lower noise</p>													

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levels (141 to 144 dB re 1 μ Pa SPL). Noise from 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 flowlines, no 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.

Overall, as the SPLs for continuously operating subsea infrastructure are below the threshold shifts and behavioural response onsets for most marine fauna, the impacts are qualitatively considered where relevant.

Support Vessels and Operation of Dynamic Positioning Systems

Support vessels used for JDP3 commissioning and IMMR activities will be DP capable vessels (see Section 3.6). The sound levels and frequencies generated by vessels varies with the size of the vessel, speed, engine type and the activity being undertaken. 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 1993).

Vessels in the 50 to 100 m size class (e.g., supply ships, crew boats, research vessels) produce broadband source levels in the 165 to 180 dB re 1 μ Pa (SPL) range (Gotz 2009). In comparison, underwater sound levels generated by large ships can produce levels exceeding 190 dB re 1 μ Pa (Gotz 2009), and small vessels up to the 20 m size class typically produce sound at source levels of 151 to 156 dB re 1 μ Pa (Richardson 1995). McCauley (1998) measured underwater broadband noise equivalent to about 182 dB re 1 μ Pa at 1 m (SPL) from a support vessel holding station in the Timor Sea; it is expected that similar noise levels will be generated by support vessels used for this Petroleum Activity.

Helicopter Transfers

Helicopter activities may occur in the Operational Area, including landing and take-off on support vessel helidecks. Sound emitted from helicopter operations is typically below 500 Hz (Richardson 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 μ Pa (SPL) and for Sikorsky-61 is 108 dB re 1 μ Pa (SPL) at 305 m (Simmonds 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 1995). Given this, and the typical characteristics of helicopter flights within the Operational Area (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.

Non-routine Impulsive Sources

Subsea IMMR Activities

Subsea IMMR activities may result in localised, temporary increased in underwater noise. Sources proposed (Table 6-3) have frequency outputs ranging from 2 kHz (SBP CHIRP) to 900 kHz (SSS).

MBES and SSS are low-energy, high-resolution geophysical survey instruments that may be required for IMMR every 1 to 6 years to identify buckling, movement, scour and seabed features. MBES have operating frequencies ranging from 12 kHz to 700 kHz (Jiménez-Arranz 2017) with peak pressure (PK) source levels between approximately 210 and 245 dB re 1 μ Pa at 1 m (Jiménez-Arranz 2017); Zykov, 2013; (MacGillivray 2014) MBES generate micro-pulses of high frequency sound in a highly focused beam directed towards the seabed, which attenuates rapidly underwater compared to lower frequency sound sources. Due to this directionality and short pulse duration, there is relatively low sound energy and very limited horizontal sound propagation. The high operating frequencies of many MBES are typically above the hearing range of the low frequency (LF) cetacean (7 Hz to 35 kHz; (Southall 2019)) Activities Area. The high operating frequencies of MBES are also above the hearing ranges of marine turtles (<2 kHz, (Finneran 2017)) and the majority of fish species (100 Hz to several kHz; (Ladich n.d.), (A. H. Popper 2014)). Additionally, sound sources generated closer to the seabed have a lower received noise level in the horizontal direction due to seafloor scattering and absorption. Similar to MBES, SSS produce micro-pulses of sound in a focussed swath directed at the seabed. SSS operating frequencies may range between 75 kHz and 900 kHz, with sound energy attenuating rapidly with horizontal distance from the main swath (Jiménez-Arranz 2017); Zykov, 2013). Representative source levels range between 200 and 235 dB re 1 μ Pa PK at 1 m (Jiménez-Arranz 2017); Zykov, 2013). The high operating frequencies of SSS places the dominant sound frequencies above the hearing range of most marine fauna species, including LF cetaceans, turtles and fish, although some of the lower frequency devices may be audible to HF

cetaceans (MacGillivray et al., 2013; Zykov, 2013). Sub-bottom profiling may also be undertaken every 1-6 years to identify features under the seabed. Most commercial SBPs are small, low-powered, high-resolution and shallow-penetrating systems, producing electrical pulses across a range of frequencies (Salgado-Kent 2016, Jiménez-Arranz 2017). The instruments proposed for the survey produce pulses of sound between approximately 2 kHz and 30 kHz with source levels between approximately 170 and 230 dB re 1 μ Pa PK at 1 m.

Positioning Equipment

An array of long baseline (LBL) and/or ultra-short baseline (USBL) transponders may be used for positioning during IMMR activities. Transponders typically emit pulses of medium frequency sound, generally within the range 21 to 31 kHz. The estimated SPL at source ranges from 180 to 202 dB re 1 μ Pa SPL at 1 m (Jiménez-Arranz 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, and when required for precise positioning they will emit one chirp every five seconds.

Summary of source levels

Table 6-3: Indicative source characteristics of continuous underwater noise associated with the Petroleum Activities Program as reported in (Jiménez-Arranz 2017), McCauley (2005), McCauley (2002), (JASCO Applied Sciences (Australia) Pty Ltd 2024) and Wood (2025).

Acoustic Noise Sources	Estimated SPL (dB re 1 μ Pa SPL) @1 m unless otherwise stated	Frequency Range (kHz)
Vessels (Continuous)		
Support vessels, ASV using DP	182	Broadband
IMMR Activity Noise (Pulsed)		
Multibeam Echo Sounder (MBES)	210–247	12 to 700 (deep) 150 to 700 (shallow)
Side Scan Sonar (SSS)	200–234	75 to 900
Sub-bottom Profiler (SBP) (Pinger)	161–205	2-20
Sub-bottom Profiler (SBP) (Chirp)	167–212	2-23
Ultrashort baseline/ acoustic array	Intermittent	187 to 196
Wellhead, Flowlines and Subsea Infrastructure (Continuous)		
Choke valve / Wellhead	155 – 161.5	Broadband

* Range provided was not measured at the noise source; therefore, this should be used as an indicative estimate only and cannot be used to estimate exposure thresholds closer to the source.

Cumulative noise emissions

During the Petroleum Activity, there could be times where noise emissions arise from concurrent activities within the Operational Area, both from the Petroleum Activity and non-associated activities. These include:

- routine operations of the subsea infrastructure and routine or non-routine IMMR activities
- routine operations of the nearby Wheatstone Infrastructure with routine or non-routine IMMR activities associated with the infrastructure within the Operational Area

Impact Assessment

Receptors

The Operational Area lies in waters about 71 to 244 m deep on the continental shelf. The fauna associated with this area is predominantly open-water pelagic fish species. Threatened and/or migratory fauna, particularly, the Flatback turtle, pygmy blue whale, foraging wedge-tailed shearwaters and migratory whale sharks are described as potentially transiting the wider area seasonally. The Operational Area overlaps with BIAs for these EPBC Act listed and the potential for noise impacts are discussed below for all except the shearwater, given noise impacts to avifauna are not

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credible as helicopters will only be utilised infrequently and there is no emergent land that could be used for roosting or nesting habitat in the Operational Area so any individuals are expected to only be transiting through the area and able to avoid the noise source.

The Operational Area overlaps small a portion of the Ancient Coastline at 125 m KEF. Fauna associated with the KEF seabed areas of hard substrate (such as outcropping) are assumed to include diverse and abundant demersal fish species as compared to the bare, soft sediment areas. As such demersal fish were evaluated for potential impacts of noise emissions. It is noted that the Ancient Coastline at 125 m KEF is associated with areas of seabed outcroppings but the only evidence of such seabed habitat was in the northeast area of the Operational Area in proximity to the Wheatstone platform with the majority of the Operational Area seabed habitat composed of unconsolidated, soft sediment (Section 4.3). Also of note, is that some demersal fish species are also likely to be associated with existing subsea infrastructure and probably similar in composition as that described for other subsea infrastructure on the NWS (McLean et al., 2017).

Potential Impacts of Noise

Elevated underwater noise can affect marine fauna, including cetaceans, fish, turtles, sharks and rays, in three main ways (Richardson 1995, Simmonds 2004).

- by causing direct physical effects on hearing or other organs. Hearing loss may be temporary (temporary threshold shift (TTS) referred to as auditory fatigue), or permanent threshold shift (PTS) (injury)
- by masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey)
- through disturbance leading to behavioural changes or displacement from important areas (e.g., BIAs). The occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation.

Sound Propagation

Increasing the distance from the noise source usually 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) depends upon several factors such as water column depth, pressure, temperature gradients, and salinity, as well as surface and bottom conditions.

Cetaceans

Species Sensitivity and 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, C. D. Erbe 2018, C. R. Erbe 2015). 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 (C. Erbe 2012, Rolland 2012). Frequency-specific hearing sensitivity differs among marine mammals, influencing how they are affected by noise exposure. For the purposes of predicting the effects of noise exposure on different groups of cetaceans, blue whales, humpback whales and other large mysticete (baleen) whales are categorised as Low Frequency (LF) cetaceans, while odontocetes (toothed whales and dolphins) are categorised as High Frequency or Very High Frequency cetaceans (Southall 2019).

The Operational Area overlaps with several threatened and/or migration cetaceans. Only the migration BIA for pygmy blue whales (Section 4.6.3) partially overlaps the northwestern part of the Operational Area.

As identified in Section 4.6.3.1 predictions indicate greatest numbers of pygmy blue whales in the NWMR during April through August (northern migration), and October to late December with a few detections early January (southern migration).

A recent satellite tracking data for pygmy blue whales have identified that the continental slope off the north-west Australian coast was predicted to be suitable habitat for migration and foraging (Ferreira, Jenner and Jenner 2024). This information is aligned with other recent studies in the north-west of Australia. The Operational Area intersects with these suitable habitats for migration and foraging

The thresholds that could result in behavioural response for cetaceans is expected to be 120 dB re 1 μ Pa (SPL) for continuous noise sources, and 160 dB re 1 μ Pa (SPL) for impulsive noise sources (Table 6-4). TTS and PTS for cetaceans as a result of impulsive and continuous noise (non-impulsive) are also presented in Table 6-4. These thresholds have been adopted by the United States National Oceanic and Atmospheric Administration (NOAA) (National Marine Fisheries Service 2014, National Marine Fisheries Service (US) 2018, National Oceanic and Atmospheric Administration (US) 2019, Southall 2019). Updates to the recommended thresholds in October 2024 (National Marine Fisheries Services 2024) are shown in Table 6-4, with slightly increased PTS and TTS thresholds across all cetacean hearing groups exposed to impulsive and continuous noise (non-impulsive), with the exception of slightly lower PTS and TTS thresholds for low-frequency cetaceans exposed to continuous noise (non-impulsive).

Adopted thresholds are based on best data available and published in peer-reviewed literature and represent conservative internationally accepted and applied impact evaluation thresholds (see Table 6-4).

Table 6-4: Thresholds for permanent threshold shift, temporary threshold shift and behavioural response onset for low frequency, high-frequency and very high frequency cetaceans for continuous and impulsive noise

Hearing group	Impulsive					Continuous		
	(Southall 2019), Updates from (National Marine Fisheries Services 2024) shown in parentheses				(National Oceanic and Atmospheric Administration (US) 2019)	(Southall 2019), Updates from (National Marine Fisheries Services 2024) shown in parentheses		(National Oceanic and Atmospheric Administration (US) 2019)
	PTS onset		TTS onset		Behavioural response	PTS onset	TTS onset	Behavioural response
	SEL _{24h}	PK	SEL _{24h}	PK	SPL	SEL _{24h}	SEL _{24h}	SPL
LF cetaceans	183	219(222)	168	213 (216)	160	199 (197)	179 (177)	120
HF cetaceans	185 (193)	230	170 (178)	224	160	198 (201)	178 (181)	120
VHF cetaceans	155 (159)	202	140 (144)	196	160	173 (181)	153 (161)	120

Source: (National Marine Fisheries Service 2014, National Marine Fisheries Service (US) 2018, National Marine Fisheries Services 2024, National Oceanic and Atmospheric Administration (US) 2019, Southall 2019).

SEL_{24h} expressed as dB re 1 $\mu\text{Pa}^2\text{s}$; Peak pressure (PK) and SPL expressed as dB re 1 μPa .

The Conservation Management Plan for the Blue Whale (BWCMP) (Commonwealth of Australia 2015), a recovery plan made under the EPBC Act, defines important areas for pygmy blue whales and these are also described with reference to BIAs in the National Conservation Values Atlas (NCVA), with particular emphasis placed on foraging areas and migration corridors. As noted above and in **Section 4.6.3**, the migratory corridor overlaps the northwestern part of the Operational Area with the nearest foraging BIA (Ningaloo possible foraging area) approximately 212 km to the south of the Operational Area. Action Area A.2.3 of the BWCMP states: "Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury and is not displaced from a foraging area". Furthermore, the Guidance on Key Terms within the *Blue Whale Conservation Management Plan* (Department of Agriculture, Water and the Environment 2021), underwater noise emissions from the petroleum activities program must not:

- result in injury³² (TTS or PTS) to any pygmy blue whale in BIAs, or
- displace a pygmy blue whale from a foraging BIA.

The following assessment of impacts to cetaceans includes consideration of the requirements of the BWCMP with respect to pygmy blue whales.

Predicted Underwater Noise Impacts to Cetaceans

Support Vessel Noise Impacts

Vessels holding station are considered to be the predominant noise source related to the Petroleum Activity McCauley (1998) measured underwater broadband noise equivalent to about 182 dB re 1 μPa SPL (SPL) at 1 m from a support vessel holding station in the Timor Sea. Similar noise levels are expected to be generated by similar sized support vessels used for the Petroleum Activity.

Updated PTS and TTS thresholds for LF cetaceans are 197 dB re 1 $\mu\text{Pa}^2\text{s}$ (SEL weighted) and 177 dB re 1 $\mu\text{Pa}^2\text{s}$ (SEL weighted), respectively for continuous noise sources (Table 6-4). Typical sound exposures generated by a

³² For the purpose of interpreting and applying Action Area A.2 of the Blue Whale CMP, injury is both permanent and temporary hearing impairment (Permanent Threshold Shift and Temporary Threshold Shift) and any other form of physical harm arising from anthropogenic sources of underwater noise (Department of Agriculture, Water and the Environment 2021).

support vessel using DP would not exceed these levels (except at extremely close ranges to the source), so PTS and TTS in LF cetaceans, such as large baleen whales, is not anticipated.

Potential impacts to cetaceans may instead include behavioural disturbance from vessels. The thresholds that could result in behavioural response for cetaceans is expected to be 120 dB re 1 μ Pa (SPL) for continuous noise sources such as vessels (Table 6-4). Acoustic modelling undertaken for a support vessel operating on DP predicted that sound from each sound source individually would exceed the 120 dB threshold up to a maximum distance of 670 m, while combined sound sources exceeded the threshold to a distance of 1.07 km (McPherson 2019). Therefore, 1 km is considered a very conservative estimate of the range at which underwater sound propagating from a single project vessel may cause a behavioural response in cetaceans.

Cetaceans are capable of moving away from potential noise sources, and there are no constraints to their movement within the Operational Area. LF cetaceans such as humpback whales and pygmy blue whales may be seasonally present in the Operational Area, though limited to individuals infrequently transiting through the area. Interactions between pygmy blue whales or humpback whales with vessels typically result in avoidance behaviour, with whales generally moving away from vessels (Bauer 1986, Stamation 2009).

IMMR Activities

Zykov (2013) conducted acoustic modelling for five low energy survey instruments off the coast of California, including MBES, SSS and sub-bottom profiler. All equipment types were modelled in the sandy bottom environment, similar to that of the Operational Area. Although the bathymetry, salinity, water temperature and sub-seafloor sediment type may differ, given the similarities in equipment type and seafloor habitat, the modelling is considered comparable for the nature and scale of the low energy IMMR survey equipment.

The high operating frequencies of MBES and SSS places the majority of sound frequencies above the auditory range of LF cetaceans. Dolphins and other HF cetaceans, which have peak hearing sensitivity up to 110 kHz, with potential for some limited hearing ability up to approximately 160 kHz (National Marine Fisheries Service (US) 2018, Southall 2019), may be able to detect a small amount of the sound energy from some instruments in the lower operating frequency ranges available for MBES and SSS (MacGillivray 2014, R. McCauley 2002, Zykov 2013).

The modelling by Zykov (2013) indicates that the sound emissions from MBES and SSS do not exceed PTS and TTS accumulated sound exposure criteria for LF cetaceans at any distance, and do not exceed criteria for HF cetaceans beyond 2 to 3 m horizontal distance from the source, which is not considered to be a credible exposure scenario for mobile marine fauna. Zykov (2013) also estimated the maximum distance at which the unweighted 160 dB re 1 μ Pa (SPL) behavioural disturbance threshold for impulsive sound was reached was 290 m for MBES and 690 m for SSS. Again, it is emphasised that many MBES and SSS instruments may operate at frequencies outside of the hearing range of cetaceans and so these would not be audible or result in behavioural disturbance. For instruments with frequencies that overlap with the hearing ranges of cetaceans, a significant proportion of the sound energy may still be outside of their hearing ranges; therefore, the perceived sound levels are reduced and the horizontal distances at which behavioural disturbances may occur are less than those inferred by the unweighted 160 dB re 1 μ Pa (SPL) behavioural disturbance threshold. For example, modelling of weighted SPLs by Zykov (2013) for MBES indicated that the 160 dB re 1 μ Pa (SPL) behavioural threshold was not exceeded for LF cetaceans at any distance and was limited to approximately 205 m horizontal distance for HF cetaceans. For SSS, the modelling of weighted SPLs indicated that the 160 dB re 1 μ Pa (SPL) behavioural threshold was exceeded at horizontal distances of 110 m for LF cetaceans and 611 m for HF cetaceans.

Acoustic modelling of sub-bottom profilers by Zykov (2013) and McPherson and Wood (2017), indicates limited horizontal sound propagation outside of the main directional field of sound. The modelling studies also indicate that PK and SEL_{24h} thresholds for PTS are not exceeded. The potential for TTS resulting from SEL_{24h} is limited to within a few metres from the moving sound source (Wood 2017, Zykov 2013) 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 metres in most instances, or up to a maximum of 50 m depending upon which SBP instrument is used, water depth and the seabed sediment characteristics (Zykov, 2013; McPherson and Wood, 2017).

Potential impacts to cetaceans from MBES, SSS and sub-bottom profiler may, therefore, include behavioural disturbance if in close proximity to the survey instruments, but ranges to disturbance are less than or equivalent to disturbance ranges for the IMMR vessel itself. PTS or TTS are not considered credible, given individuals would need to be directly next to the noise sources for prolonged duration.

Transponders used for positioning during IMMR activities have the potential to cause some temporary behavioural disturbance to cetaceans. The typical frequencies of 21 to 31 kHz produced by the transponders are most audible to HF cetaceans such as toothed whales and dolphins rather than LF cetaceans, and the source levels (180 to 202 dB re 1 μ Pa at 1 m SPL) rapidly attenuate within a very short distance from the source, such that PTS or TTS are not considered credible. 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.

Transmissions are not continuous but consist of short 'chirps' with a duration that ranges from 3 to 40 milliseconds. Transponders do not emit sound when on standby. When required for general positioning, they emit one chirp every five seconds (estimated to be required for 4 hrs at a time). When required for precise positioning, they emit one chirp every second (estimated to be required for 2 hrs at a time). Due to the short duration chirps, the temporary and intermittent use and the mid frequencies used by positioning equipment, the acoustic noise from the transponders is unlikely to have a substantive effect on the behavioural patterns of cetaceans.

In summary, potential impacts to blue whales, humpback whales and other cetaceans from predicted noise levels are expected to be limited to behavioural impacts within a localised area around vessels with no lasting effect.

Marine Turtles

Species Sensitivity and Exposure Thresholds

Noise interference is identified as a key threat to threatened marine turtles (Commonwealth of Australia 2017a). While marine turtles may occur in the Operational Area (Table 4-7), there are no known significant foraging habitat (i.e. no emergent islands, reef habitat or shallow shoals/banks). The Operational Area only overlaps with the internesting buffer BIA and habitat critical for the Flatback Turtle.

As identified in Section 4.6.2.1 Whittock, Pendoley and Hamann (2016) conducted a study to identify areas of suitable Flatback turtle internesting habitat. The habitat suitability modelling defined suitable Flatback turtle internesting habitat as water depths of 0–16 m within 5–10 km of the coast. The Operational Area is classified as unsuitable for internesting Flatback turtles based on these criteria. Furthermore, other studies (Dobbs 2007, Guinea, Sperling and Whiting 2006, Pendoley Environmental 2010, Thums, Waayers and Pattiaratchi 2017) have found that Flatback turtles remain in shallow water. Given that the Operational Area has water depths ranging from ~71 m to ~244 m, it is unlikely to support Flatback Turtles. However, transient turtles may occasionally occur in the Operational Area.

There is a paucity of data regarding responses of marine turtles to underwater noise. *The Recovery Plan for Marine Turtles* (Commonwealth of Australia 2017a) 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, turtles have been shown to respond to low frequency sound, with indications that they have the highest hearing sensitivity in the frequency range 100 to 700 Hz (Bartol 2003).

McCauley et al. (2000) observed the behavioural response of caged green and loggerhead turtles to impulsive sound (an approaching seismic airgun). For received levels above 166 dB re 1 μ Pa SPL, the turtles increased their swimming activity and above 175 dB re 1 μ Pa they began to behave erratically, which was interpreted as an agitated state. The 166 dB re 1 μ Pa SPL has been used as the threshold level for a behavioural disturbance response by the US NMFS (National Science Foundation 2011) and is applied to this impact assessment. No quantitative (numerical) thresholds have been developed for behavioural effects from continuous sources (e.g., vessel noise) on marine turtles. However, Popper et al. (2014) propose qualitative impact criteria for near-field, intermediate and far-field exposures (A. H. Popper 2014). Finneran et al. (2017) presents thresholds for turtle PTS and TTS for both impulsive and continuous sound exposures.

The thresholds listed in **Table 6-5** are considered appropriate for the assessment of effects from impulsive and continuous sound sources during the Petroleum Activities Program.

Table 6-5: Thresholds for permanent threshold shift, temporary threshold shift and behavioural response onset in marine turtles for continuous and impulsive noise

Hearing group	Impulsive			Continuous		
	PTS onset thresholds: SEL _{24h} (dB re 1 μ Pa ² .s)	TTS onset thresholds: SEL _{24h} (dB re 1 μ Pa ² .s)	Behavioural response (dB re 1 μ Pa)	PTS onset thresholds: SEL _{24h} (dB re 1 μ Pa ² .s)	TTS onset thresholds: SEL _{24h} (dB re 1 μ Pa ² .s)	Behavioural response (dB re 1 μ Pa)
Marine turtles	204	189	166* 175+	220	200	(N) High (I) Moderate (F) Low [#]

Source: PTS and TTS thresholds (Finneran 2017), * behavioural response threshold (impulsive) (NSF 2011), + behavioural disturbance threshold (impulsive) (McCauley, R. 2000), # behavioural response threshold (continuous) (A. H. Popper 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 (A. H. Popper 2014)).

Predicted Underwater Noise Impacts to Turtles

Support Vessel Noise Impacts

As noted above, vessels holding station are considered to be the predominant noise source related to the Operational Area, with source levels of approximately 182 dB re 1 μ Pa SPL at 1 m from a support vessel holding station considered to be representative of noise levels generated by vessels used for the Operational Area.

Although there are no quantitative sound exposure thresholds for impacts on marine turtles resulting from continuous noise sources, the relative risk for behavioural response is expected to be high within tens of metres of the source, medium within hundreds of metres and low within kilometres from the source (Table 6-5). PTS and TTS thresholds for turtles are 220 dB re 1 μ Pa² s (SEL weighted) and 200 dB re 1 μ Pa² s (SEL weighted), respectively (Table 6-5). Typical noise levels generated by a support vessel using DP would not exceed these levels (except at extremely close ranges to the source), while a behavioural response may be expected at extremely close ranges (within tens of metres) from the source and as such, prolonged exposure of transient marine turtles at close range is not considered a credible scenario.

As outlined above, marine turtles are not expected to be in the area. Marine turtles are also capable of moving away from potential noise sources, and there are no constraints to their movement within the Operational Area. Therefore, impacts to marine turtles from support vessels are expected to be of no lasting effect.

IMMR Activities

As outlined above for cetaceans, Zykov (2013) conducted noise modelling for low energy survey instruments, with the modelling for MBES, SSS and sub-bottom profiler considered comparable for the nature and scale of the low energy IMMR survey equipment. The operating frequencies of MBES (12 to 700 kHz) and SSS (75 to 900 kHz) are well above the hearing range of turtles (0.1 to 2 kHz) and so no disturbance is expected. It is possible that some of the lower frequency sound emitted by sub-bottom profilers (2 to 30 kHz) may be audible to turtles, but again, a large proportion of the sound energy may be at frequencies that are outside of their normal auditory range. Modelling of impulsive sub-bottom profiler sound emissions by Zykov (2013) and McPherson and Wood (2017) indicates that the 166 dB re 1 μ Pa (SPL) behavioural disturbance threshold for turtles may only be exceeded within metres or tens of metres of the survey instruments. Therefore, behavioural impacts would be highly localised. PTS or TTS is not considered to be credible given the rapid attenuation of sound close to the source and a large proportion of the sound energy is produced at frequencies outside the peak hearing frequency range of turtles.

Transponders used for positioning during IMMR activities typical operate at frequencies of 21 to 31 kHz which is well outside the peak hearing frequency range of turtles (0.1 to 2 kHz). Therefore, no impacts are considered credible.

In summary, potential impacts to turtles from predicted noise levels are expected to be limited to behavioural impacts within a localised area around vessels with no lasting effect.

Fish, Sharks and Rays

Species Sensitivity and Exposure Thresholds

Fishes are primarily sensitive to the particle motion component of sound at close range to a sound source, while the presence of the swim bladder results in a varying degree of sensitivity of some fishes to sound pressure (Popper AN 2019). Consequently, fishes are broadly categorised into three groups with respect to their hearing capabilities that are relevant to the types of fishes and sharks that may be present in the Operational Area (A. H. Popper 2014).

- Fishes with no swim bladder or other gas chamber (e.g., sharks, mackerels) – Sensitive only to particle motion, not sound pressure changes.
- Fishes with swim bladders, but without a direct connection between the swim bladder and the inner ear (e.g., demersal snappers and emperors) – Hearing primarily involves particle motion with some limited ability to indirectly detect changes in sound pressure.
- Fishes with a swim bladder or other gas volume connected directly to the inner ear (e.g., herrings, sardines, pilchards, shads) – These fishes are able to detect both sound pressure as well as particle motion.

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

Receptor	Mortality and potential mortal injury	Impairment			Behaviour
		Recoverable Injury	TTS	Masking	

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Fish: no swim bladder	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
Fish: swim bladder not involved in hearing	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
Fish: swim bladder involving hearing	(N) Low (I) Low (F) Low	170 dB SPL for 48-hours	158 dB SPL for 12-hours	(N) High (I) High (F) High	(N) High (I) Moderate (F) Low
Fish eggs and fish larvae	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low	(N) Moderate (I) Moderate (F) Low

Note: The sound units provided in the table above include relative risk (high, medium and low) is given for fish (all types) 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 (A. H. Popper 2014)).

Predicted Underwater Noise Impacts to Fish

Support Vessel Noise Impacts

Vessels holding station using DP are expected to produce sound equivalent to about 182 dB re 1 μ Pa SPL at 1 m. Modelling undertaken by McPherson et al. (2019) of sound produced by facility and vessel operations found that recoverable injury to some types of fish would only be possible if they remained within a distance of less than 10 m for 48 hours, and TTS if fishes remained within 10 m for at least 12 hours. Pelagic fish are highly mobile and the types of demersal fishes known to occur in the vicinity of the Julimar Development (e.g., snappers, emperors, cods and groupers) will exhibit some fidelity to the area but are still relatively free-swimming and are not constrained to such close ranges (i.e., 10 m). Therefore, free-swimming fish remaining in close range to sound sources for periods that subject themselves to TTS and injury is not considered to be a credible scenario.

There are no quantitative sound exposure thresholds for impacts on fish, sharks and rays resulting from continuous noise sources. The relative risk for behavioural response is expected to be high within tens of metres of the source, medium within hundreds of metres and low within kilometres from the source (Table 6-6). While some localised behavioural avoidance and masking in the vicinity of the loudest sound sources from the support vessels may occur in some fishes, no lasting effect is anticipated. Fish are also known to habituate to continuous noise sources, which is consistent with fish congregating around operating offshore oil and gas structures.

Considering the overlap of the whale shark foraging BIA with the Operational Area, it is likely there may be increased numbers of individuals during migratory periods. Currently, there are no quantitative sound exposure thresholds specific to whale sharks. It is expected that the potential effects of noise on whale sharks are the same as for other fish species, resulting in minor, localised and temporary behavioural change such as avoidance. Therefore, impacts to whale sharks from support vessels are expected to have no lasting effect. Other fauna associated with the Operational Area includes predominantly pelagic species of fish, with migratory species such as rays transiting through the Operational Area; these species may be similarly affected by noise from support vessels.

IMMR Activities

As outlined above, Zykov (2013) conducted noise modelling for low energy survey instruments, with the modelling for MBES, SSS and sub-bottom profiler considered comparable for the nature and scale of the low energy IMMR survey equipment. The operating frequencies of MBES (12 to 700 kHz) and SSS (75 to 900 kHz) are well above the peak hearing ranges of fish (100 Hz to several kHz) and so no disturbance is expected. It is possible that some of the lower frequency sound emitted by sub-bottom profilers (2 to 30 kHz) will be audible to fish, but again, a large proportion of the sound energy may be at frequencies that are outside of their normal auditory range. Therefore, behavioural impacts would be highly localised. PTS or TTS is not considered to be credible given the rapid attenuation of sound close to the source and a large proportion of the sound energy is produced at frequencies outside the peak hearing frequency range of fish.

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.

In summary, potential impacts to fish, sharks and rays from predicted noise levels are expected to be limited to behavioural impacts within a localised area around vessels with no lasting effect.

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Cultural Values and Heritage

Through consultation and review of available literature (Section 4.9.1), Woodside understands that marine fauna that may be affected by noise emissions, such as marine mammals and turtles, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (Delisle . 2018). Whale species are subject of First Nations' increase ceremonies/rituals which are performed to enhance or maintain populations. As these thalu ceremonies are performed to maintain and increase populations of marine species, it is considered that management applies at the species/population level and not to individuals. For example, it is anticipated 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.

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). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes 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, potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to ecologically significant proportions of the populations of the species, nor expected to result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)³³	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 ³⁴ : <ul style="list-style-type: none"> Support 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. 	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

³³ Qualitative measure

³⁴ For safety reasons, the distance requirements below are not applied for a vessel holding station or with limited manoeuvrability e.g. anchor handling, 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) ³³	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<ul style="list-style-type: none"> Support vessels will not approach closer than 50 m for a dolphin or and/or 100 m for a whale (with the exception of animals bow riding). If the cetacean shows signs of being disturbed, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. 				
Good Practice				
Support 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. Benefits outweigh cost/sacrifice. Good Practice.	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.	C.4.3
Variation of the timing of the Petroleum Activities Program to avoid whale migration and marine turtle breeding/nesting periods.	F: No. The Petroleum Activities Program occurs continuously, modifying the timing of the Petroleum Activities Program is not feasible. CS: Not considered, control not feasible.	Not considered, control not feasible.	Not considered, control not feasible.	No
Implement a shutdown zone around MBES, SSS and sub-bottom profiler for: <ul style="list-style-type: none"> whales 	F: Yes. However, as equipment is underwater, effective implementation of zones is challenging	Limited. The areas of disturbance for these devices are limited and injury/PTS/TTS is not expected to occur.	Acoustic MBES, SSS and sub-bottom profiler surveys are infrequently conducted (every 1 to 6 years) as part of the Petroleum Activities	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³³	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<ul style="list-style-type: none"> marine turtles whale sharks. 	from topside observation. CS: Moderate. Requires the provision of a dedicated suitably trained crew member to undertake Marine Fauna Observations.	In addition, it is noted that for many MBES and SSS, the frequency range of these devices are outside the estimated frequency hearing range of identified protected species (whales, turtles and whale sharks).	Program. The source levels and frequency range of these devices are mostly outside the estimated frequency hearing range of identified protected species (whales, turtles and whale sharks), so costs are considered disproportionate to benefits.	
Have a dedicated experienced and trained Marine Fauna Observer (MFO) onboard vessels to undertake marine fauna observations.	F: Yes, however additional cost for dedicated and experienced MFO to be present during support vessel activities. CS: Moderate, requires the provision of a dedicated experienced MFO to undertake Marine Fauna Observations and occupancy of bed-space on vessel(s) which may be limited or displace required crew.	Use of an 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
Manage IMMR vessel speed in the pygmy blue whale BIA and in migration / foraging seasons (Apr-Jul & Oct-Jan for PBW).	F: Yes, within the limits of navigational safety. CS: Time/cost associated with slower transit speed.	Given the Operational Area overlaps the pygmy blue whale migration BIA and introduction of vessel noise may present behavioural disturbance risk to migrating pygmy blue whales reducing vessel speed can result in reduced underwater noise emissions and overall reduction in potential behavioural disturbance.	Benefit outweighs cost/sacrifice.	Yes C 4.4
Professional Judgement – Eliminate				
Eliminate the use of DP on vessels during the Petroleum Activities Program.	F: No. Subsea support vessels are required to reliably hold station during the Petroleum Activities Program. Failure to do so may lead to loss of separation between	Not considered, control not feasible.	Not considered, control not feasible.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³³	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	vessels and infrastructure. This would result in unacceptable safety and environmental risk CS: Not considered, control not feasible.			
Professional Judgement – Substitute				
None identified.				
Professional Judgement – Engineered Solution				
Application of bubble curtains to reduce noise propagation.	F: No. Bubble curtain installation and operation in offshore open water not feasible due to technical operation constraints i.e., water depth/current.	Not considered, control not feasible.	Not considered, control not feasible.	No
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 potential impacts from routine acoustic emissions from vessels, helicopters and subsea infrastructure. 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, impacts from routine acoustic emissions from support vessels and subsea infrastructure represent a negligible impact /disturbance to marine fauna within the Operational Area. Further opportunities to reduce the impacts and risks have been investigated above. The impacts are consistent with good oil-field practice/industry best practice and are not inconsistent with management plans for key EPBC listed species (e.g. <i>The Conservation Management Plan for the Blue Whale</i>). 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 of acoustic emissions to a level that is broadly acceptable.

EPOs, PS and MC			
EPO	Controls	PS	MC
<p>EPO 4a 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 4b 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>C 4.1 EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, which include the following measures³⁵:</p> <ul style="list-style-type: none"> Support 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. Support 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, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. 	<p>PS 4.1 Vessels will comply with the EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.05 and 8.06) Interacting with cetaceans to manage the risk of fauna collision.</p>	<p>MC 4.1.1 Records demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans and Woodside Marine Charterers Instructions.</p>
	<p>C 4.2 Support vessels will not travel greater than 8 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>MC 4.1.2 Records demonstrate reporting cetacean ship strike incidents to the DCCEEW.</p>
		<p>PS 4.2 When within 250 m of a whale shark, vessels will not travel greater than 8 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>

³⁵ For safety reasons, the specified distances requirements are not applied for a vessel holding station or with limited manoeuvrability (e.g., loading, back-loading, close standby cover for overside working and emergency situations).

EPOs, PS and MC			
EPO	Controls	PS	MC
	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 When within 300 m of a turtle, vessels will not travel greater than 6 knots.	MC 4.3.1 Records demonstrate no breaches of speed requirements when within 300 m of a turtle.
	C 4.4 Manage IMMR vessel speed in the pygmy blue whale BIA and in migration / foraging seasons (Apr-Jul & Oct-Jan).	PS 4.4 IMMR vessel speeds in the 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) 	MC 4.4.1 Records demonstrate vessel speeds in the Operational Area overlapping the BIAs were ≤ 10 knots during periods identified

6.7.4 Routine and Non-Routine Discharges: Discharge of Chemicals and Hydrocarbons during Subsea Operations and Activities

Context													
Support Vessels – Section 3.6 Chemical Usage – Section 3.8 Chemical Usage During IMMR Activities – Section 3.9.5						Physical Environment – Section 4.3 Habitats and Biological Communities – Section 4.4			Consultation – Section 5				
Impact Evaluation Summary													
Source of Impact	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
		X		X	X		A	E	-	-	LCS GP PJ	Broadly Acceptable	EPO 5
		X		X	X			F					
	X		X	X									
Description of Source of Impact													
Hydrocarbons and chemicals may be discharged as a result of planned routine and non-routine operations and activities as described below. Operations and JDP3 start-up Operational discharges including: <ul style="list-style-type: none">discharge of subsea control fluids – Castrol Transaqua HT2 subsea control fluid is used to control valves remotely from the Wheatstone Platform. It is an open-loop system, designed to release control fluid from the control system during valve operations (e.g., up to about 6 L per valve actuation).non-routine subsea fluid discharges associated with subsea equipment as a result of subsea IMMR activities. IMMR activities, with nominal discharges, including hydrocarbon losses are described in Table 3-9, the largest being 400L release of acid associated with SCM change out.													
Impact Assessment													
Environmental Value(s) Potentially Impacted													

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Water Quality

Subsea control fluids are discharged in relatively small volumes (up to about 6 L per valve actuation) during valve operations at or near the seabed. Once released into a low-sensitivity receiving environment, subsea control fluids are expected to mix rapidly and dilute in the water column.

Hydrocarbon may be released during operation and IMMR activities that break containment of isolated subsea infrastructure. Hydrocarbons will become dispersed as bubbles in the water column, which will rise to the surface. The concentration of gas will not be sufficient to form an explosive atmosphere or result in asphyxiation. Water-soluble components of the gas, such as carbon dioxide and sulphur dioxide will dissolve in the seawater as the gas bubbles rise in the water column. These soluble gasses occur naturally and are present in relatively low amounts. No measurable impacts to water quality are expected to occur as a result of the gas release.

The condensate will be released with gas which will act to disperse the condensate within the water column as it rises to the sea surface. The resulting condensate droplets will rise slowly in the water column and may be transported away from the release location by currents. Upon reaching the sea surface, the condensate will almost entirely evaporate, with a relatively small portion remaining entrained in the water column. Condensate droplets are not expected to reach the surface in sufficient quantities to result in surface slicks above thicknesses that result in biological impacts, although a sheen may be visible. Any condensate reaching the surface will spread and weather rapidly, as described in Section 6.8.3. Soluble hydrocarbons will be distributed in the water column through natural water movement and the buoyancy of the condensate droplets and are expected to drop below concentrations recognised as causing biological impacts within tens to hundreds of metres of the release location.

Other chemicals, such as the dye used for non-routine leak detection, is non-toxic, and given the small volumes (< 10L) will rapidly disperse within the water column.

Sediment Quality

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 hydrocarbon releases, accumulation in sediments is not considered likely.

Ecosystem / Habitats

Sediments in the Operational Area are expected to be broadly consistent with those in the NWS Province, 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 and the consolidated sediment and limestone ridge in proximity to the Wheatstone Platform which are not in the vicinity of any valves (Figure 4-3).

Subsea control fluids and other chemicals that may be discharged (e.g. dye for leak testing) are non-toxic and do not have the potential to bioaccumulate. Impacts to ecosystems are not expected due to the localised nature of discharges and lack of potential for sediment quality impacts.

Receptors that may be impacted by a condensate release during IMMR activities are in-water receptors within the vicinity of the release location.

Only a very small portion of the planktonic community at a bioregional scale would credibly be impacted. Planktonic communities have high turnover rates, and recovery from any impacts would occur rapidly. Given the small volume of soluble hydrocarbons, the planktonic community in the upper part of the water column will not be impacted.

Large-scale oil spills in open water typically do not result in fish kills, and it is assumed that fishes in open water will actively avoid harmful concentrations of hydrocarbons. Given the relatively small volume of hydrocarbons released and the resulting localised impact, it is unlikely that displacement of pelagic fishes will occur.

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).

Values and Sensitivities

KEFs

The Operational Area overlaps about 0.2% (or 28 km²) of the 16,190 km² Ancient Coastline KEF at 125 m Depth Contour. No significant escarpments, species of conservation significance, emergent features or areas of high biological productivity characteristically associated with the Ancient Coastline KEF have been observed in the small portion of overlap with the Operational Area. Therefore, potential impacts to this regional-scale KEF are expected to be negligible.

AMPs

A small proportion (0.07% or 2.7 km²) of the Operational Area overlaps the Montebello AMP Multiple Use Zone. No sensitive benthic habitats or invertebrate or vertebrate fauna have been identified within the Operational Area in the small portion which overlaps the AMP during dedicated survey (Advisian, 2019). Therefore, no impacts to the marine park sensitivities are anticipated as a result of these localised discharges.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
None identified				
Good Practice				
Chemical 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 5.1
Subsea infrastructure flushed where practicable prior to disconnection to reduce volume/ concentration of hydrocarbons released to the environment.	F: Yes. The subsea infrastructure has been designed such that much of the hydrocarbon containing elements can be flushed back to the Wheatstone Platform. 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 release to the environment.	Benefit outweighs cost/sacrifice.	Yes C 5.2
Monitoring subsea control fluid use, investigate material discrepancies, and using control fluid with dye marker to support	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 5.3

³⁶ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
identification of potential integrity failures. Where fluid losses are unexplained relative to expected usage trends (dependent on operational demand for system activation), potential integrity issues are investigated.				
Implement <i>Woodside Engineering Operating Standard - Subsea Isolation</i> . Proven isolation in place for relevant IMMR activities.	F: Yes CS: Minimal cost. Standard practice.	Maintaining and testing the ability to isolate wells and pipelines so barriers are in place and verified limiting the volume released	Benefits outweigh cost/sacrifice.	Yes C 5.4
ROV inspection during leak test.	F: Yes. CS: Minimal cost. Standard practice.	A procedure for leak testing work that includes inspection (including by ROV) during testing to identify leakage and trigger activity to stop will reduce likelihood of impacts.	Benefits outweigh cost/sacrifice.	Yes C 5.5
Professional Judgement – Eliminate				
Do not conduct leak testing activities.	F: No. Leak testing activities are required to control the potential for corrosion of the flexible flowlines and to determine if any unacceptable restrictions and/or obstructions exist in the line. CS: Potential loss of production due to loss of integrity, possibly leading to a larger environmental incident.	This would eliminate any potential impacts from the leak testing activities but increases the likelihood of loss of integrity during operation and potentially greater environmental impacts.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No
Professional Judgement – Substitute				
Install closed-loop subsea valve control system.	F: Yes. Closed-loop valve control systems can be installed; however, they may not perform as quickly/reliably as open-loop systems.	The potential consequences of the discharges are ranked as slight, based on the volume frequency, location, and types of fluid discharged in an	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	No

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Page 223 of 445

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	CS: Significant. The design, procurement and retrofitting of a closed-loop system would result in considerable offshore logistics, exposure to safety hazards during installation, and significant financial burden through direct costs and lost production.	open-ocean environment, and avoiding the discharges would provide little or no environmental benefit.	considered to be grossly disproportionate to the environmental benefit.	
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 subsea 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 environmental risk associated with loss of containment events. CS: Minimal cost.	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 environmental risks from such a performance degradation, along with the minor impact from the release of control fluids, the cost of decreasing the frequency of valve actuations is considered to be grossly disproportionate to the environmental benefit.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>ALARP Statement:</p> <p>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 impacts of planned routine and non-routine hydrocarbon and chemical discharges. 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.</p>				

Demonstration of Acceptability
<p>Acceptability Statement:</p> <p>The impact assessment has determined that, given the adopted controls, planned routine and non-routine hydrocarbon and chemical discharge represents a localised short-term impact that is unlikely to result in a potential impact greater than slight short-term effects on water quality, marine sediment or ecosystem habitat. Further opportunities to reduce the impacts have been investigated above. Fluid discharges from the subsea system during operations, IMMR, are routine in the oil and gas industry. The adopted controls are considered good oil-field practice/industry best practice. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of planned routine and non-routine hydrocarbon and chemical discharges to a level that is broadly acceptable.</p>

EPOs, PS and MC			
EPO	Controls	PS	MC
<p>EPO 5</p> <p>Impacts from routine and non-routine discharges from subsea activities will be limited to planned activities and impacts described as part of the Petroleum Activities Program.</p>	<p>C 5.1</p> <p>Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints</p>	<p>PS 5.1</p> <p>Chemicals intended or likely to be discharged into the marine environment will be assessed and approved through the Woodside chemical assessment process (Section 7.2.3) so the impacts associated with use are ALARP and acceptable.</p>	<p>MC 5.1.1</p> <p>Records demonstrate the chemical selection, assessment and approval process for operational chemicals is followed.</p>
	<p>C 5.2</p> <p>Subsea infrastructure flushed where practicable prior to disconnection to reduce volume/ concentration of hydrocarbons released to the environment.</p>	<p>PS 5.2</p> <p>Producing subsea infrastructure containing hydrocarbons flushed to the Wheatstone Platform or vessel (where practicable) to a hydrocarbon concentration where further dilution provides disproportionate cost to environmental benefit.</p>	<p>MC 5.2.1</p> <p>Records demonstrate subsea infrastructure flushing (to Wheatstone Platform or vessel) where practicable</p>
	<p>C 5.3</p> <p>Monitoring subsea control fluid use, investigate material</p>	<p>PS 5.3</p> <p>Subsea control fluid discharges will be monitored reconciliation</p>	<p>MC 5.3.1</p> <p>Records show subsea control fluid discharges are monitored through subsea control fluid use</p>

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EPOs, PS and MC			
EPO	Controls	PS	MC
	discrepancies, and using control fluid with dye marker to support identification of potential integrity failures. Where fluid losses are unexplained relative to expected usage trends (dependent on operational demand for system activation), potential integrity issues are investigated	process whereby actual usages is considered against expected usage, to identify losses not associated with valve actuation.	and losses not associated with valve actuation have been investigated.
	C 5.4 Implement Woodside <i>Engineering Operating Standard - Subsea Isolation</i> . Proven isolation in place for relevant IMMR activities	PS 5.4 Proven isolation in place in compliance with Woodside <i>Engineering Operating Standard - Subsea Isolation</i> .	MC 5.4.1 Records demonstrate that there was a proven isolation in place as required.
	C 5.5 ROV inspection during leak test.	PS 5.5 ROV inspection during leak test to identify leakage and trigger activity to stop.	MC 5.5.1 Records demonstrate ROV inspection during leak test and record any instances of activity required to stop due to identified leak(s).

6.7.5 Routine and Non-Routine Discharges: Support Vessel Operations

Context													
Support Vessels – Section 3.6			Physical Environment – Section 4.3				Consultation – Section 5						
Impact Evaluation Summary													
Source of Impact	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Routine and non-routine discharge of deck and bilge water, grey water, sewage and putrescible wastes from the activity vessels to the marine environment		X					A	F	-	-	LCS	Broadly Acceptable	EPO 6
Description of Source of Impact													
<p>Support vessels may discharge sewage, grey water and putrescible wastes. while undertaking activities specified in Sections 3.5, Section 3.6 and Section 3.9: Discharges may include:</p> <ul style="list-style-type: none">• small volumes (up to 7.5 m³ per vessel per day³⁷) of treated sewage and putrescible wastes to the marine environment• routine/periodic discharge of relatively small volumes of bilge water. Bilge tanks receive fluids from many parts of the vessel and can contain water, oil, detergents, solvents, chemicals, particles and other liquids, solids or chemicals (while vessel is moving)• variable water discharge from activity vessel decks directly overboard or via deck drainage systems and may contain small quantities of oil, grease and detergents if present on deck. Water sources could include rainfall events and/or from deck activities such as cleaning/wash-down of equipment/decks• cooling water from machinery engines on the activity vessels and brine water produced during the desalination process of reverse osmosis to produce potable water on board. <p>Environmental risk relating to the disposal/discharges above regulated levels or incorrect disposal/discharge of waste would be unplanned (non-routine/accidental) and are addressed in Section 6.9.4.</p>													
Impact Assessment													
<p>The environmental impact associated with ocean disposal of sewage and other organic wastes (i.e. putrescible waste) is eutrophication. Eutrophication occurs when the addition of nutrients, such as nitrates and phosphates, causes adverse changes to the ecosystem, such as oxygen depletion and phytoplankton blooms. Other contaminants of concern occurring in these discharges may include ammonia, <i>E. coli</i>, faecal coliform, volatile and semi-volatile organic compounds, phenol, hydrogen sulphide, metals, surfactants and phthalates.</p>													

³⁷ Calculated using an average volume of 75 L/person/day and a maximum of 100 persons on board (POB) which is typical for type of vessels that will be used for the Petroleum Activity (see Section 3.6)

Woodside monitored sewage discharges at its Torosa-4 Appraisal Drilling campaign which demonstrated that a 10 m³ sewage discharge reduced to about 1% of its original concentration within 50 m of the discharge location. In addition to this, monitoring at distances of 50, 100 and 200 m downstream of the drill rig and at five different water depths confirmed that discharges were rapidly diluted and no elevations in water quality monitoring parameters (e.g. total nitrogen, total phosphorous and selected metals) were recorded above background levels at any station (Woodside Energy Limited 2011). This assessment is considered to be conservative as the monitoring was undertaken for a stationary discharge while discharges of bilge and sewage will only occur while the vessels are moving. Mixing and dispersion would be further facilitated in deep offshore waters, consistent with the location of the Operational Area, through regional wind and large-scale current patterns resulting in the rapid mixing of surface and near-surface waters where sewage discharges may occur.

Furthermore, open marine waters do not typically support areas of increased ecological sensitivity, due to the lack of nutrients in the upper water column and lack of light penetration at depth. Therefore, presence of other receptors such as fish, reptiles, birds and cetaceans in significant numbers, and in close proximity to the Operational Area, is unlikely. Research also suggests that zooplankton composition and distribution are not affected in areas associated with sewage dumping grounds (McIntyre and Johnston, 1975). Plankton communities are expected to rapidly recover from any such short-term, localised impact, as they are known to have naturally high levels of mortality and a rapid replacement rate.

Additional discharges outlined, which may include other non-organic contaminants (e.g. bilge water), rapidly dilute through the same mechanisms as above and are expected to be in very small quantities and concentrations as to not pose any significant risk to any relevant receptors. As such, no significant impacts from the planned (routine and nonroutine) discharges that are listed above are anticipated 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.

Vessel activity for the Petroleum Activities Program is intermittent and when within the Operational Area vessels are generally not in a single location for an extended period, and only discharge while moving. As a result, these routine and non-routine discharges are expected to be intermittent in nature for the duration of the Petroleum Activities Program. It is possible that protected marine fauna transiting the localised area may come into contact with these discharges (e.g. EIO pygmy blue whales, whale sharks and marine turtles) as they traverse the Operational Area during their seasonal migrations (Section 4.6). However, given the localised extent of impacts and rapid dilution from significant impacts to marine fauna are not expected.

Cumulative Impacts

Given the activities that may be conducted during the Petroleum Activities Program, there is the potential for cumulative impacts from discharges of sewage, putrescible waste, grey water, bilge water or drain water and other marine discharges including PW, due to: cumulative discharges from differing point sources (Wheatstone Platform and support vessels). Vessel activities for the Petroleum Activities Program are intermittent (see Section 3.5, Section 3.6 and Section 3.9) and when within the Operational Area, vessels are generally not in a single location for an extended period, and only discharge while moving. As a result, these routine and non-routine discharges are expected to be intermittent in nature for the duration of the Petroleum Activities Program. Therefore, cumulative impacts to water quality within the Operational Area are expected to be localised and short-term with no lasting effect.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Vessels complying with Marine Orders for safe vessel operations: <ul style="list-style-type: none"> Marine Order 91 – oil (as relevant to vessel class) requirements. 	F: Yes. CS: Minimal cost. Standard practice.	Marine Orders required under Australian Regulations; implementation is standard practice for commercial vessels as applicable to vessel size, type and class.	Controls based on legislative requirements – must be adopted.	Yes C 6.1

³⁸ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<ul style="list-style-type: none"> Marine Order 95 (Pollution prevention – garbage), Marine Order 96 – pollution prevention – sewage (as appropriate to vessel class) and <p>Marine Orders 91, 95 and 96 (pollution prevention) reduce the potential impact of marine wastewater discharges on water quality.</p>		Marine Orders 95, 96 and 91 reduce the potential impact of discharges on water quality.		
Good Practice				
None Identified				
Professional Judgement – Eliminate				
Storage, transport and treatment/ disposal onshore treatment of sewage, greywater, putrescible and bilge wastes.	<p>F: Not feasible. Would present additional safety and hygiene hazards resulting from the storage, loading and transport of the waste material.</p> <p>control not feasible.</p> <p>CS: Not considered – control not feasible.</p>	Not considered – control not feasible.	Not considered – control not feasible.	No
Capturing and treating all drainage.	<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 overfilling, resulting in potential spillage of hydrocarbons.</p> <p>CS: Eliminating the discharge by collecting all contaminated run-off and storing it is not practicable due to the size/weight and the unstaffed philosophy.</p>	Not considered – control not feasible.	Not considered – control not feasible.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Professional Judgement – Substitute				
None identified				
Professional Judgement – Engineered Solution				
None identified				
ALARP Statement: On the basis of the assessment outcomes, use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage potential impacts associated with routine and non-routine discharges from activity vessels. As no reasonably practicable additional/alternative controls were identified that would further reduce the impacts without disproportionate sacrifice, the impacts/risks are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement: The impact assessment has determined that, given the adopted controls, planned discharges (routine and non-routine) may result in result in a potential impact greater than localised impacts not significant to environmental receptors, and no lasting effect. BIAs within the Operational Area include the pygmy blue whale migration, flatback turtle internesting buffer, whale shark foraging, and wedge-tailed shearwater breeding BIA. However, these species are not expected to be impacted. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered standard industry practice and meet legislative requirements under Marine Orders 91, 95 and 96. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of these discharges to a level that is broadly acceptable.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 6 Impacts from routine and non-routine discharges of deck and bilge water, grey water, sewage and putrescible wastes from the activity vessels will be limited to planned impacts and activities described as part of the Petroleum Activities Program.	C 6.1 Vessels complying with Marine Orders for safe vessel operations: <ul style="list-style-type: none"> Marine Order 91 – oil (as relevant to vessel class) requirements. Marine Order 95 (Pollution prevention – garbage), Marine Order 96 – pollution prevention – sewage (as appropriate to vessel class) and Marine Orders 91, 95 and 96 (pollution prevention) reduce the potential impact of marine wastewater	PS 6.1 Vessel practices comply with Marine Orders as applicable to vessel size, type and class (Marine Order 95, Marine Order 96 and Marine Order 91).	MC 6.1.1 Records demonstrate vessels are compliant with Marine Orders 95, 96 and 91 (as appropriate to vessel class).

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EPOs, PS and MC			
<i>EPO</i>	<i>Controls</i>	<i>PS</i>	<i>MC</i>
	discharges on water quality.		

6.7.6 Routine Atmospheric and Greenhouse Gas Emissions: Fuel Combustion

Context													
Support Vessels – Section 3.6	Physical Environment – Section 4.3						Consultation – Section 5						
Impact Evaluation Summary													
Source of Impact	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour) and global atmospheric GHG concentration	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Helicopter and Vessel emissions (including incinerators)			X				A	F	-	-	LCS GP PJ	Broadly Acceptable	EPO 7
GHG emissions associated with third party transportation, regassification and combustion by end users.			X				See Section 6.3.2.1						
Description of Source of Impact													
<p>Atmospheric emissions associated with the Petroleum Activities Program can be classified into two categories:</p> <ul style="list-style-type: none">Atmospheric emissions (non-greenhouse gas emissions) are gases and particulates from an activity, or piece of machinery, which have a recognised adverse effect on human health and/or flora and fauna. 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), BTEX (benzene, toluene, ethylbenzene and xylenes), which are specific VOCs of interest.Greenhouse gas (GHG) emissions refer to gases that trap heat within the atmosphere through the absorption of longwave radiation reflected from the earth's surface. The main gases associated with this effect include carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). <p>Other greenhouse gases include perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF6). There are considered to be both direct and indirect GHG emissions.</p> <p>The GHG Protocol 2015 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 Wheatstone Platform and therefore, onshore processing and support vessel/helicopter operations are considered indirect emissions sources (as noted in SI Report, references 27.3 – 27.6 and summarised in Appendix F, reference 4.7.3.). As Julimar infrastructure is operated from and processed by the Chevron operated Wheatstone Platform there are no direct emissions (Scope 1 and 2). In the context of this EP, GHG emissions are classified as Indirect Emissions, as shown in Table 6-7. Applying definitions from the GHG Protocol Corporate Accounting and Reporting Standard, GHG emissions associated with the activity are considered indirect because they are not from sources that are owned or controlled by Woodside. Therefore while Woodside has influence over GHG emissions</p>													

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from the vessels via contractual arrangements and scope definition, Woodside does not have the authority to implement operational policies.

Greenhouse Gas and Atmospheric Emissions associated with Support Vessels and Helicopters

GHG and atmospheric emissions are generated by vessels and helicopters supporting Julimar. Vessel emissions include those from internal combustion engines and fugitives. Atmospheric and GHG emissions associated with 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 holding station using DP whilst undertaking subsea 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 GHG emissions for vessel and helicopter activities have been estimated to be:

- 2,448 tCO₂-e for JDP3 commissioning, based on diesel consumption of 900 m³ (5 wells at 20 days per well at 9m³ per day; once off).
- 342.7 tCO₂-e for IMMR vessels, based on diesel consumption of 126 m³ (average longest campaign of 14 days at 9m³ per day; annual).
- 685.4 tCO₂-e for IMMR vessels for a once-in-field-life repair contingency taking 4 weeks, based on diesel consumption of 252 m³ (average longest campaign of 28 days at 9m³ per day; once off).
- 200 tCO₂-e for helicopters, based on Jet A1 fuel consumption in 2023 (annual).

Indirect emissions relating to these sources are expected to be relatively constant throughout the EP period and until EOFL.

GHG Emissions associated with Product End-use

Indirect emissions associated with Julimar result from third party transport of products, regassification, distribution and combustion by end users. Indirect GHG emissions associated with Julimar operations were estimated using historical emissions intensity methods. Key influences impacting indirect GHG associated with Julimar include:

- Total production – indirect emissions are proportional to total production, which varies with shutdown activity, or gradual reservoir decline.
- Composition of produced gas – onshore emissions are proportional to reservoir CO₂.
- Split of saleable products– the proportion of hydrocarbons from Julimar sold as LNG, condensate, domestic gas and LPG 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.

Indirect emissions associated with annual production of Julimar, and from transport and customer combustion, are estimated to be approximately 0.55 MtCO₂-e per annum, totalling up to 4.35 MtCO₂-e at expected EOFL. This is based on operational data for production from Julimar.

End of field life (EOFL) is predicted to be 2035, subject to reservoir performance and life extension studies. As per Section 6.3.2.1 emissions from third party transport of products, regassification, distribution and end use are covered by Chevron, and managed in accordance with the Wheatstone Project - Start-Up and Operations (as noted in SI Report, references 27.3 – 27.6 and summarised in Appendix F, reference 4.7.3.).

Table 6-7: Indirect GHG emissions associated with Julimar offshore production

Source of Impact	Annual maximum estimated emissions (MtCO ₂ -e)	Total possible maximum emissions until EOFL ¹ (2024-2035) (MtCO ₂ -e)
Offshore Wheatstone Platform annual direct GHG emissions ²	0.088	0.97
Vessels and helicopters ³	0.00368	0.0091
Onshore hydrocarbon processing ¹	1.06	7.49
Third-party transport of products, regassification, distribution and end use ⁴	7.54	82.99

¹ End of field life (EOFL) is predicted to be 2035 subject to reservoir performance and life extension studies.

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2 Source: EcolInvent 3.5 database and National Greenhouse and Energy Reporting (Measurement) Determination 2008. EcolInvent 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 NGERs methodology. Transport and refining based on Oil-Climate Index factors for Australia Cossack. Combustion factors aligned with UN's 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Emissions factors used are the default values as product customer's destination and use of the products are unknown.

2 The emissions forecast from the offshore Platform and onshore hydrocarbon processing plant, are calculated using Woodside gas intensity estimation factors. They are informed by the inputs provided by the UPGs including Julimar Brunello and Wheatstone Iago. Therefore, the emissions are directly related to the quantity of feed gas provided by each of the UPGs to the facility. Production may vary depending on reservoir performance, and is subject to operation of the Wheatstone platform by Chevron. Estimates include commissioning and start-up activities of the JDP3 wells.

3 JDP3 commissioning and a contingency repair scope are once-off activities. Only annual IMMR and helicopter emissions have been calculated on an ongoing annual basis until EOFL.

4 Source: Estimated using EcolInvent 3.5 database and National Greenhouse and Energy Reporting (Measurement) Determination 2008. EcolInvent 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 NGERs methodology. Transport and refining based on Oil-Climate Index factors for Australia Cossack. Combustion factors aligned with UN's 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Emissions factors used are the default values as product customer's destination and use of the products are unknown.

Plateau production from the Julimar Brunello fields is maintained by the JDP3 wells, and the annual estimated maximum emissions forecast remains steady. JDP3 wells increase the period of time plateau production is maintained and extends EOFL. Annual estimates of the offshore Wheatstone platform direct GHG emissions for 2025 onwards is described in Section 6.2.3.2 of the Wheatstone Project Start-up and Operations EP (~0.40 Mtpa CO₂-e). Annual estimates of the onshore hydrocarbon processing of gas is described in Section 6.2.3.3 of the Wheatstone Project Start-up and Operations EP as 4.2 Mtpa CO₂-e. Annual transport, regasification and third-party end use of products is estimated 36.8 MtpaCO₂-e. As noted in Consultation (SI Report, reference 27.3 – 27.6 and summarised in Appendix F Section 4.7) an MOC has been conducted that describes, risk assesses, manages to ALARP and demonstrates these emissions are of an acceptable level within the Start-Up and Operations Environment Plan: Wheatstone Project. In accordance with Regulation 56(1) of the Environment Regulations, Woodside refers NOPSEMA to the information previously given to NOPSEMA in the accepted Wheatstone Start-Up and Operations EP which is available on the NOPSEMA website using the following link: <https://docs.nopsema.gov.au/A853704>. Production may vary and is subject to reservoir performance.

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 field. The precise shape and pace of the energy transition is uncertain. It is expected to vary across countries because they have different starting points, development requirements, resources and capabilities. However, the scale of the transition is clearer, as it will take many trillions of dollars, invested over decades. Today, Woodside has a portfolio of oil and gas assets. We are also diversifying our portfolio by investing in new energy products and lower carbon services that can avoid or reduce customer emissions. We see an ongoing role for gas from the Julimar development to support our customers' plans to secure their energy needs while they reduce their emissions.

Impact Assessment

Fuel combustion has the potential to result in localised, temporary reduction in air quality, generation of smoke and contribution to greenhouse gas emissions. Given the short duration and open ocean location of the activity vessels during the Petroleum Activities Program (which leads to the rapid dispersion of air pollutants), the potential impacts are expected to have no lasting effect, with no cumulative impacts when considered in the context of existing oil and gas operations in the region.

Atmospheric emissions from activity vessels are not expected to contribute in a material way to air quality in the nearest mainland sensitive airshed (town of Dampier about 160 km away), as part of the combined air pollutant emissions from other Petroleum Activities Programs such as Pluto or Wheatstone and other marine users (commercial vessels).

Greenhouse Gas Emissions – Habitat and Biological Communities, Protected Species, Key Ecological Features, Protected Places, Socioeconomic and Cultural Environment

This impact assessment considers the potential impacts of climate change on sensitive receptors, including MNES within Australian jurisdictions. Climate change impacts cannot be attributed to any one activity or one project, including the Julimar 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. They do not take into account the net impact of each project or activity. There is no direct link between greenhouse gas emissions from the Julimar Development project and climate change impacts.

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Page 234 of 445

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Climate change impacts upon Australian receptors cannot be linked to the Julimar development but are instead the result of the accumulation of net greenhouse gas emissions in the atmosphere. The accumulation of net greenhouse gas emissions in the atmosphere is, in turn, influenced by global energy demand and the composition of the global energy mix. Although the Julimar development cannot be linked to climate change impacts; the following contextual evaluation is provided.

GHG Emissions – Global and Australian Context

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 (Woodside, 2023a).

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-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 budget between different human activities requires additional judgements about for example technology, economics, consumer preferences and policy choices.

For further information related to Woodside's approach to climate change, please see Section 5.3 'Managing Physical Risk' and 6.3 'A Just Transition' of Woodside's Climate Transition Action Plan and 2023 Progress Report.

Additionally, an update on 2024 progress can be seen in Woodside's 2024 Climate Update and on our website.

The AR6 Working Group I (AR6-WGI) report states "climate change is a global phenomenon, but manifests differently in different regions" (IPCC 2021b). 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)
- 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)

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- vulnerability to detrimental effects of climate change will vary with socioeconomic conditions (high confidence) (Lawrence et al. 2022).

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".
- "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 20 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 “climate 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: climate 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 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 Wildlife Conservation Plan for Seabirds (CoA 2022) states that “consequences 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 ‘such 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 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 “the 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).

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.

Emissions associated with Julimar are not predicted to contribute materially or substantially to Australia’s total GHG emissions, and no specific link between indirect greenhouse gas emissions associated with the Julimar development and climate change impacts upon Australian receptors can be determined.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁹	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Contract vessels complying with Marine Order 97 (Marine pollution prevention – air pollution).	F: Yes. CS: Minimal cost. Standard practice.	Marine Order 97 is required under Australian Regulations; implementation is standard practice for commercial vessels as applicable to vessel size, type and class. Marine Order 97	Control based on legislative requirements – must be adopted.	Yes C 7.1

³⁹ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁹	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		reduces air pollution from vessels.		
Good Practice				
Contracting strategy and evaluation for hire of support vessels includes consideration of vessel emissions parameters and low carbon/alternate 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 7.2
Woodside supporting customers to reduce their GHG emissions.	F: Yes CS: Additional cost to implement a control that is already being completed under the Wheatstone Project Start-Up and Operations Environment Plan.	Little to no benefit given controls for these emissions are already being implemented under the Wheatstone Project Start-Up and Operations Environment Plan.	Disproportionate cost given controls are already being implemented.	No
Woodside will work with the natural gas value chain to reduce emissions in third party systems (e.g. regasification and distribution),	F: Yes CS: Minimal cost associated with collaboration and advocacy	Little to no benefit given controls for these emissions are already being implemented under the Wheatstone Project Start-Up and Operations Environment Plan.	Disproportionate cost given controls are already being implemented.	No
Professional Judgement – Eliminate				
None Identified				
Professional Judgement – Substitution				
None Identified				
Professional Judgement – Engineered Solution				
None identified				
ALARP Statement: <u>Atmospheric Emissions</u> On the basis of the environmental risk assessment outcomes and the use of the relevant tools appropriate to decision type A, Woodside considers the adopted controls appropriate to manage the impacts of vessel atmospheric emissions. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP. <u>GHG emissions</u> <u>Societal Values</u> Consultation was undertaken for this program to identify the views and concerns of relevant persons, as described in Section 5. No specific concerns around air emissions, resulting in changes to air quality and greenhouse gas emissions, were identified through this process.				

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ³⁹	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>Engagement with Chevron has also been undertaken to confirm that the emissions from third party transport of products, regassification, distribution and end use are covered by and managed in accordance with the Wheatstone Project - Start-Up and Operations as noted in SI Report, references 27.3 – 27.6 and summarised in Appendix F, reference 4.7.3.</p> <p>ALARP Statement:</p> <p>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), Woodside considers the adopted controls appropriate to manage GHG emissions from vessels and helicopters and indirect emissions sources that Woodside can practicably influence, including support vessels, during the five-year term of this EP. The adopted controls meet legislative requirements including:</p> <ul style="list-style-type: none"> Marine Order 97 for support vessels <p>Indirect GHG emissions from onshore and offshore processing at the Wheatstone Platform are managed and reported by Chevron. 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.</p>				

Demonstration of Acceptability
<p>Acceptability Statement</p> <p><u>Atmospheric Emissions</u></p> <p>The impact assessment has determined that, given the adopted control below, fuel combustion is unlikely to result in a potential impact greater than a temporary decrease in local air quality, with no lasting effect. Further opportunities to reduce impacts have been investigated above. The controls adopted are considered good practice and meet the legislative requirements within Marine Order 97. The potential impacts are considered broadly acceptable if the adopted control is implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of the described emissions to a level that is broadly acceptable.</p> <p><u>GHG Emissions</u></p> <p><u>Internal Context</u></p> <p>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:</p> <ul style="list-style-type: none"> Woodside Environment and Biodiversity Policy Woodside Risk Management Policy Woodside Climate Policy. <p>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.</p> <p><u>External Context</u></p> <p>Woodside recognises that our 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.</p> <p>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 extract⁴⁰:</p>

⁴⁰ Paris Agreement: https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

"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.⁴¹ 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.⁴² It also recognises that transitional fuels can play a role in facilitating the energy transition while ensuring energy security⁴³.

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 43% below 2005 levels by 2030 and to reach net zero emissions by 2050 (DISER, 2022a). Australia's emissions projections demonstrate that it is on track to reduce emissions by up to 43% below 2005 levels by 2030 (DCCEEW, 2022; DISER, 2022a).

Australia's Long-Term Emissions Reduction Plan (DISER, 2021) presents Australia's whole-of-economy plan to achieving net zero emissions by 2050 with priority technologies estimated to achieve 85% reduction and yet-to-be identified emerging technologies abating the remainder. The plan identified LNG as a critical transition fuel and expects growth in the sector with higher use in 2030 than it is today but acknowledging that growth will depend on the preferences of customers and the pace of international action (DISER, 2021).

Climate science has drawn a robust link between cumulative emissions of greenhouse gases 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.

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 that a stable energy transition will be one in which energy is affordable and reliable, as well as lower carbon. The Julimar development, together with the new wells from JDP3, will provide an incremental volume of hydrocarbons to Australian and international markets during its estimated remaining field life (to 2035). Woodside considers that this development is aligned with their goals for supporting the energy transition and is compatible with the Paris Agreement goal of 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.

Principles of Ecologically Sustainable Development

Giving consideration to economic development that safeguards the welfare of future generations, Julimar is considered to align with the following core objectives of ESD by:

⁴¹ 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)

⁴² 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))

⁴³ 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)

- Contributing 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.
- Providing gas to anticipated customers who's nationally determined contributions indicate an important role for LNG in supporting their decarbonisation plans under the Paris Agreement.

Other Requirements (Includes Laws, Policies, Standards and Conventions)

Legislation and other requirements considered relevant for this aspect, and a demonstration of how these requirements are met, are described below.

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.
<p>Conservation Management Plan for the Blue Whale 2015–2025</p> <p>Management action A3.1: 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>Conservation action: 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>Conservation action: 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 action area A3.1: 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 Management action A2.1: 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 Julimar are considered de minimis, with no link to climate change impacts on Australian or International receptors.</p> <p>Therefore, the EP 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 2015b), 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 Rhincodon typus Whale Shark</p> <p>No specific strategies or actions identified</p> <p>Recovery Plan for the White Shark (Carcharodon carcharias)</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: Greenhouse Gas Emissions

As per **Section 2.6.1**, 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

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Page 242 of 445

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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 the impacts have been investigated (refer ALARP demonstration discussion).

As per Section 6.3.2.1 indirect GHG emissions associated with the Julimar are managed to an acceptable level by Chevron 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 within the Wheatstone Project Start-Up and Operations Environment Plan. The adopted controls are considered good oil-field practice/industry best practice and are consistent with Woodside's internal requirements. The potential impacts are considered acceptable if ALARP is demonstrated. As described above, the predicted GHG emissions associated with Julimar are considered de minimis and as such, below the acceptable levels and will not materially or substantially contribute to Australia's net GHG emissions or net Global GHG emissions levels.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 7 Impacts of routine offshore atmospheric emissions will be limited to planned activities and impacts described as part of the Petroleum Activities Program.	C 7.1 Contract vessels complying with Marine Order 97 (Marine pollution prevention – air pollution)	PS 7.1 Vessels compliant with Marine Order 97 (Marine Pollution Prevention – Air Pollution) to restrict emissions to those necessary to perform the activity.	MC 7.1.1 Marine assurance inspection records demonstrate compliance with Marine Order 97
	C 7.2 Contracting strategy and evaluation for hire of support vessels includes consideration of vessel emissions parameters and low carbon/alternative fuels.	PS 7.2 Evaluation of tenders for support vessels considers emissions parameters.	MC 7.2.1 Records demonstrate that emissions were considered in tender evaluations.

6.7.7 Routine Light Emissions: External Lighting from Support Vessels

Context													
Support Vessels Operations – Section 3.6 Subsea IMMR Activities – Section 3.9			Habitats and Biological Communities – Section 4.4 Socio-economic– Section 4.9 Cultural Values and Heritage – Section 4.9.1				Consultation – Section 5						
Impact Evaluation Summary													
Source of Impact	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Light emissions from support vessels, ROVs, inspection tools.					X	X	A	F	-	-	LCS GP	Broadly Acceptable	EPO 8
Description of Source of Impact													
<p>Vessels used to support this Petroleum Activity will have external lighting to allow safe operations, and to meet mandatory navigational requirements for safe navigation and safe operations at night. 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.</p> <p>While the line of sight may extend tens of kilometres from the source, the light density (measured in Lux – which represents the intensity of light that arrives at or leaves a surface, as perceived by the human eye) rapidly decreases as distance increases from the source of the light. Monitoring indicated that light density (from navigational lighting) attenuated to below 1.00 Lux and 0.03 Lux at distances of 300 m and 1.4 km, respectively, from the source (a MODU) (Woodside, 2014f). Light densities of 1.00 and 0.03 Lux are comparable to natural light densities experienced during deep twilight and during a quarter moon. Navigational lighting required for support vessels is less than required for a MODU, given they are much smaller in size. Therefore, assuming light emissions from support vessels are below 1.00 Lux within 300 m from the source is conservative.</p> <p>IMMR activities</p> <p>In addition to lighting to allow safe operations, and to meet mandatory navigational requirements, during IMMR activities underwater lighting is generated for short periods while ROVs/AUVs are in use. Given the typical intensity of ROV/AUV lights and inspection tools and the attenuation of light in seawater, light from ROVs/AUVs and inspection tools will be localised to the vicinity of the ROV/AUV, operating in close proximity to subsea infrastructure. During</p>													

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IMMR activities, vessels generally move slowly over the subsea infrastructure and are in the Operational Area for short periods of time.

JDP3 Commissioning

A support vessel, as described in Section 3.6, will be required to support the commissioning of the JDP3 wells at the JULB Manifold location, which is located ~39 km from the Wheatstone platform. The commissioning is expected commence in 1 H-2026 and take approximately 20 days per well, with the support vessel remaining stationary over the BRUA manifold location during this time.

Cumulative Light Sources

Lighting may also arise from other facilities and associated activities not included in this EP. These include the nearby Wheatstone and Pluto platforms which may result in slightly elevated ambient light levels.

Impact Assessment

Lighting from support 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 vessel and environmental conditions.

Receptors that have important habitat present within a 20 km buffer of the Operational Area 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 (NLPW). 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 (DCCEEW 2023).

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.

Vessel operations will take place within the Operational Area located in an open water, offshore environment, about 46 km from the nearest emergent islands (Montebello Islands). A number of BIAs overlap the Operational Area and EPBC Act listed fauna may transit through the Operational Area (refer to Section 4.64.5).

Light pollution is identified as a key threat to species of marine turtles and seabirds identified as occurring within the Operational Area (Section 4.5). Relevant conservation actions outlined in recovery plans and Wildlife Conservation Management plans for these species are outlined in Section 6.10.

Marine Turtles

The National Light Pollution Guidelines for Wildlife (DCCEEW, 2023) specify a 20 km buffer around vessel activities when considering the assessment of potential impacts to turtle behaviour from both direct light and sky glow. Although the Flatback turtle interneresting BIA is within the Operational Area, given the distance of the nearest turtle nesting and interneresting areas (habitat critical to survival to marine turtles) is the Montebello Islands, about 46 km from the Operational Area at the nearest point, there is no potential for lighting impacts. This is with specific reference to turtle hatchling emergence.

Although individuals undertaking migration and potential foraging at the nearest suitable habitat at Glomar Shoal (1 km distance at its closest point from the Operational Area), marine turtles do not use light cues to guide these behaviours. Further, there is no evidence, published or anecdotal, to suggest that foraging or migrating turtles are impacted by light from offshore vessels. As such, light emissions from the vessels are unlikely to result in displacement of, or behavioural changes to individuals in these life stages (Environmental 2020)

Seabirds

Artificial 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 as a result of collision (Longcore and Rich, 2004; Gaston 2014). The Operational Area may be occasionally visited by seabirds and migratory shorebirds but there is no emergent land that could be used for roosting or nesting habitat in the Operational Area. The nearest suitable habitat is the Montebello Islands, 46 km to the south-west. One BIA for wedge-tailed shearwater breeding overlaps with the Operational Area, with the breeding period occurring from August to April (Section 4.6.4). Adult shearwaters are vulnerable to artificial lighting during 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

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fish drawn to the light, however, the species feeds predominantly during the day (I. A. Catry 2009). Migratory shorebirds may be present in (A. K. Delisle 2017) or fly through the region between July and December, and again between March and April as they complete migrations between Australia and offshore locations. The risk associated with seabirds or migratory shorebirds attracted to artificial lighting is considered to be low, impacts are expected to be limited to minor behavioural disturbance to isolated individuals, with no displacement from important habitat.

Fish (including sharks and rays)

Lighting from the presence of a vessel may result in the localised aggregation of fish below the vessel. These aggregations of fish are considered localised and temporary and any long-term changes to fish species composition or abundance is considered highly unlikely. This localised increase in fish extends to those comprising the whale shark's diet. However, given that a large proportion of the diet comprises krill and other planktonic larvae, it is unlikely that a light source will lead to a significant increase in whale shark abundance in the vicinity of the vessels. Similarly, any localised impacts to marine fish are not expected to impact on any commercial fishers in the area.

Cultural Values and Heritage

Through consultation and review of available literature (Section 4.9.1), Woodside understands that marine fauna that may be affected by light emissions, such as turtles and plankton, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country. For example, activities that impact turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (A. K. Delisle 2017)). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes result 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 above, potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to significant proportions of the populations of the species, nor expected to result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Cumulative Impacts

Given the:

- indicative timings of JDP3 commissioning activities listed above
 - likely duration and frequency of IMMR activities (see Table 3-7) and the duration of JDP3 commissioning activities
- there is a low likelihood of simultaneous operations and hence cumulative impact from light emissions.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)⁴⁴	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Implement a Seabird Management Plan that is consistent with the management measures provided in <i>National Light Pollution Guidelines for Wildlife</i> (2023) and includes:	F: Yes. CS: Minimal.	Potential for slight reduction in the likelihood of seabird attraction to vessels resulting in a reduced likelihood of bird strikes.	Legislative requirement	Yes C 8.1

⁴⁴ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁴	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<ul style="list-style-type: none"> standardisation and maintenance of record keeping and reporting of seabird interactions procedures on seabird intervention, care and management regulatory reporting requirements for seabirds (unintentional death of or injury to seabirds that constitute MNES) 				
Good Practice				
Minimise vessel 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 8.2
Lighting modifications (shielding, directional lighting) to minimise over water light spill and light emissions during peak flatback turtle hatchling season for vessels	F: Yes, lighting is able to be modified on the 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.	The cost/sacrifice outweighs benefit gained. Due to the minimum distance of the Operational Area from nearest Flatback turtle nesting and interesting area (46 km) the benefits of implementing this control are expected to be minimal.	No
Professional Judgement – Eliminate				
No external lighting during Petroleum Activities Program.	F: No. Light management is consistent with that required to provide a safe working environment on-board the support vessels. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Substitute external lighting with “marine	F: Yes. Replacement of external lighting	Given the potential impacts to turtles,	Grossly disproportionate.	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁴	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>fauna" light sources designed to minimise impacts to seabirds, shorebirds and marine turtles for all vessels working in close proximity to sensitive habitats.</p> <ul style="list-style-type: none"> • Use flashing/ intermittent lights instead of fixed beam. • Use motion sensors to turn lights on only when needed. • Use luminaires with spectral content appropriate for the species present. • Avoid high intensity light of any colour. 	<p>with marine fauna friendly lighting is technically feasible, although is not considered to be practicable.</p> <p>CS: Significant cost/sacrifice. The retrofitting of all external lighting on the facilities, etc, would result in considerable cost and time expenditure. Considerable logistical effort to source sufficient inventory of the range of light types onboard the facilities.</p>	<p>nesting seabirds and fledglings during this activity are insignificant, implementation of this control would not result in a reduction in consequence.</p> <p>Potential for minor reduction in impact to individual foraging seabirds that may transit the Operational Area, as outlined in the <i>National Light Pollution Guidelines for Wildlife</i> (2023).</p>	<p>Implementation of the control requires considerable cost/sacrifice for minimal environmental benefit.</p> <p>The cost/sacrifice outweighs the benefit gained.</p>	
<p>Variation of the timing of the Petroleum Activities Program to avoid IMMR activities during peak flatback turtle internesting periods (November to March).</p>	<p>F: Yes. It is possible to avoid peak turtle internesting periods, through scheduling.</p> <p>CS: Significant cost and schedule impacts due to delays in securing vessels for specific timeframes.</p>	<p>Implementation of this control would not result in a reduction in consequence due to the distance of the Operational Area from Flatback turtle nesting beaches and the small area impacted by vessel light glow.</p>	<p>The cost/sacrifice outweighs benefit gained.</p>	No
Professional Judgement – Substitute				
<p>Substitute external lighting with "turtle friendly" light sources, (e.g. lights containing short wavelength, violet/blue light, white LEDs).</p>	<p>F: Yes. Replacement of some/all external lighting with turtle friendly lighting is technically feasible.</p> <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</p>	<p>Substituting external lighting will reduce light emissions in turtles' visible spectrum. Impacts to hatchling dispersal resulting from vessel lighting are possible but will be limited by the distance of the Operational Area from the Flatback turtle nesting beaches and the temporary nature of vessel activities associated with the Petroleum Activities Program.</p> <p>Implementation of this control would not result</p>	<p>The cost/sacrifice outweighs benefit gained.</p>	No

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁴	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	function to the full extent intended.	in a reduction in consequence.		
Professional Judgement – Engineered Solution				
Support vessels to use block-out blinds / curtains on accommodation windows at night during peak turtle hatchling emergence period (November to March) and with the wedge-tailed shearwater fledgling exodus in Apr.	F: Yes. Installing block-out blinds / curtains is technically feasible. CS: Minimal cost/sacrifice. Accommodation modules on vessels usually have window treatments for crew comfort.	Reducing light emissions from the vessel at night can reduced light glow and the area over which light may impact turtle hatchling emergence and wedge-tailed shearwater fledgling exodus.	Benefits outweigh minimal cost/ sacrifice of implementation.	Yes C 8.3
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 potential impacts from routine light emissions from the support vessel activities to be ALARP. 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 light emissions from external lighting from the support vessels represent a localised impact /disturbance to marine fauna within the Operational Area. BIAs within the Operational Area for light sensitive species consist of Flatback turtle internesting and Wedge-tailed shearwater breeding BIA. 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 including the advice in the <i>National Light Pollution Guidelines for Wildlife</i> (2023). The Petroleum Activities Program is deemed consistent with the conservation advice and this guideline. Further opportunities to reduce the impacts have been investigated above. The potential impacts are consistent with good oil-field practice/industry best practice and are considered to be broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of light emissions to a level that is broadly acceptable.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 8a No impact to marine fauna greater than that caused by minimum required light emissions for safe work / navigation.	C 8.1 Implement the <i>Woodside Frontline Offshore Seabird Management Plan (SBMP)</i> on all support vessels during the Petroleum Activities Program	PS 8.1 Implementation of the Seabird Management Plan including: <ul style="list-style-type: none"> Minimise potential for light attraction. Standardise and maintain record keeping and 	MC 8.1.1 Records demonstrate Seabird Management Plan (SBMP) implemented through: <ul style="list-style-type: none"> Evidence of training or awareness of SBMP amongst relevant vessel crew;

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EPOs, PS and MC			
EPO	Controls	PS	MC
<p>EPO 8b 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 8c No disruption to the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of nocturnal seabirds.</p>		<p>reporting of seabird interactions.</p> <ul style="list-style-type: none"> • Provide procedures on seabird intervention, care and management. • Follow regulatory reporting requirements of seabird (unintentional death of or injury to seabirds that constitute MNES). 	<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 Petroleum Activities Program as required by the SBMP.
	<p>C 8.2 Minimise support vessel lighting to that required for navigational, safety and operational requirements, with the exception of emergency events.</p>	<p>PS 8.2 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 8.2.1 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 8.3 Support vessels to use block-out blinds / curtains on accommodation windows at night during peak turtle hatchling emergence period (November to March) and with the wedge-tailed shearwater fledgling exodus in April.</p>	<p>PS 8.3 Block out blinds available and used in accommodation quarters on IMMR vessels at night during peak turtle hatchling emergence period when within 20 km of a nesting beach or during shearwater fledgling exodus.</p>	<p>MC 8.3.1 Inspection records show block-out blinds / curtains on vessel windows have been closed at night-time, as required.</p>

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6.8 Unplanned Activities (Accidents, Incidents, Emergency Situations) – Major Environmental Event

For Woodside, an analysis is undertaken to identify, classify and analyse major environmental events (MEEs), as described in Section 2.7. This extra level of rigour is applied to determine sufficient controls for operational activities are in place for risks with potential Level B and above consequences as per Woodside's Risk Matrix. MEEs are evaluated against credible worst-case scenarios that may occur when all controls are absent or have failed. The risk considered in this section has therefore been identified as a MEE due to the potential for significant consequence. These sources of risk are subject to additional consideration in accordance with the process described in Section 2.6.4. Risks associated with the Petroleum Activities Program that have been classified as MEEs are summarised in Section 6.8.1 and include the Loss of Well Containment. The quantitative spill risk assessment methodology used to assess the potential consequence of credible spills is outlined in Section 6.8.2. Credible hydrocarbon spills that have not been classified as MEEs are assessed in Section 6.9. Risks that do not meet the MEE definition, although screened out of the MEE process, are still evaluated for ALARP and risk acceptability using the methodology described in Section 2.6.

6.8.1 MEE Overview

Section 2.7 outlines the process for additional analysis and evaluation of MEEs.

Section 6.8.3 presents the bowtie output for the MEE identified (Table 6-8).

Table 6-8: MEE Events for the Julimar Operations

No.	Hazard	Top Event
MEE-01	Unplanned Hydrocarbon Release	Loss of Well Containment











Section 6.8.3 includes a summary of the hazard description, hazard management, emergency response, ALARP summary and a list of SCE barriers identified on the bowtie. Each group of SCEs is listed under Technical Performance Standards, with consistent naming conventions used across Woodside's process safety management processes (e.g. pipeline integrity SCEs are captured as P09 – Pipeline Systems).

Section 6.8.3 presents the bowtie that illustrate the causes, outcomes and controls/barriers in place to manage potential common cause event (CCE) failure mechanisms for MEE controls associated with generic SCE equipment failure and also human error. Human Error is managed via the WMS and the Generic Human Error is included in the MEE section for completeness.

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 MEE bowties are labelled in accordance with Type of Effect classifications presented in Table 6-9.

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 hydrocarbon release may credibly occur. The hydrocarbon spill response arrangements are described in Appendix D.

Table 6-9: Barrier Hierarchy and Type of Effect

Type of Effect	Legend	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)		

6.8.2 Quantitative Spill Risk Assessment Methodology

As part of the risk identification process, Woodside identified the range of credible hydrocarbon spill scenarios that may occur during the Petroleum Activities Program. Scenarios that have been classified as MEEs are assessed in Sections 6.8.3. Scenarios that are not classified as MEEs (as explained in Section 6.8.1) are assessed in Section 6.9.

Quantitative hydrocarbon spill modelling was undertaken by RPS, on behalf of Woodside, using a three-dimensional (3D) hydrocarbon spill trajectory and weathering model, SIMAP

(Spill Impact Mapping and Analysis Program), which is designed to simulate the transport, spreading and weathering of specific hydrocarbon types under the influence of changing meteorological and oceanographic forces.

A stochastic modelling scheme was followed in this study, whereby SIMAP was applied to repeatedly simulate the defined credible spill scenarios using different samples of current and wind data. These data samples 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 model simulates surface releases and uses the unique physical and chemical properties of a 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.

During each simulation, the SIMAP model records the location (by latitude, longitude and depth) of each of the particles (representing a given mass of hydrocarbons) on or in the water column, at regular time steps. For any particles that contact a shoreline, the model records the accumulation of hydrocarbon mass that arrives on each section of shoreline over time, less any mass that is lost to evaporation and/or subsequent removal by current and wind forces.

The collective records from all simulations are then analysed by dividing the study region into a 3D grid. For surface hydrocarbons (floating oil), the sum of the mass in all hydrocarbon particles located within a grid cell, divided by the area of the cell, provides hydrocarbon concentration estimates in that grid cell at each model output time interval. For entrained and dissolved aromatic hydrocarbon particles, concentrations are calculated at each time step by summing the mass of particles within a grid cell and dividing by the volume of the grid cell. The process is also subject to the application of spreading filters that represent the expected mass distribution of each distinct particle. The concentrations of hydrocarbons calculated for each grid cell, at each time step, are then analysed to determine whether concentration estimates exceed defined threshold concentrations.

Hydrocarbon spill modelling assessments undertaken 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. This assessment is done by post-processing the sensitivity test results and analysing time-series of median and maximum concentrations in the water and on the surface.

6.8.2.1 Hydrocarbon Characteristics

Brunello condensate is a mixture of volatile and persistent hydrocarbons with high proportions of volatile and semi-volatile components. In general, about 45.5% of the oil mass should evaporate within the first 12 hours, a further 37.3% should evaporate within the first 24 hours and a further 10.3% should evaporate over several days. About 6.9% of the oil is shown to be persistent (RPS 2020).

The whole oil has a low asphaltene content (~0.5%), indicating a low propensity for the mixture to take up water to form water-in-oil emulsion over the weathering cycle (RPS 2020).

Soluble, aromatic, hydrocarbons contribute about 11.2% by mass of the whole oil, ~6.9% by mass is highly soluble and highly volatile. The fate of this component, which include the benzene, toluene, ethylbenzene, and xylene (BTEX) compounds, varies depending on the release conditions and subsequent setting. Subsea discharge favours the process of dissolution but if dissolved plume rises to the surface water, the compounds tend to evaporate from the water into the atmosphere. A further 2.4% by mass is contributed by moderately volatile and soluble di-aromatic hydrocarbons. These compounds dissolve more slowly but tend to persist in soluble form for longer (RPS 2020).

The mass balance forecast for the constant-wind case for Brunello condensate (Figure 6-1) shows that ~83% of the oil is predicted to evaporate within 24 hrs. Under calm conditions, the majority of the remaining oil on the water surface weathers at a slower rate due to being comprised of the longer-chain compounds with higher boiling points. Evaporation of the residual compounds slows significantly, and they would then be subject to more gradual decay through biological and photochemical processes (RPS 2020).

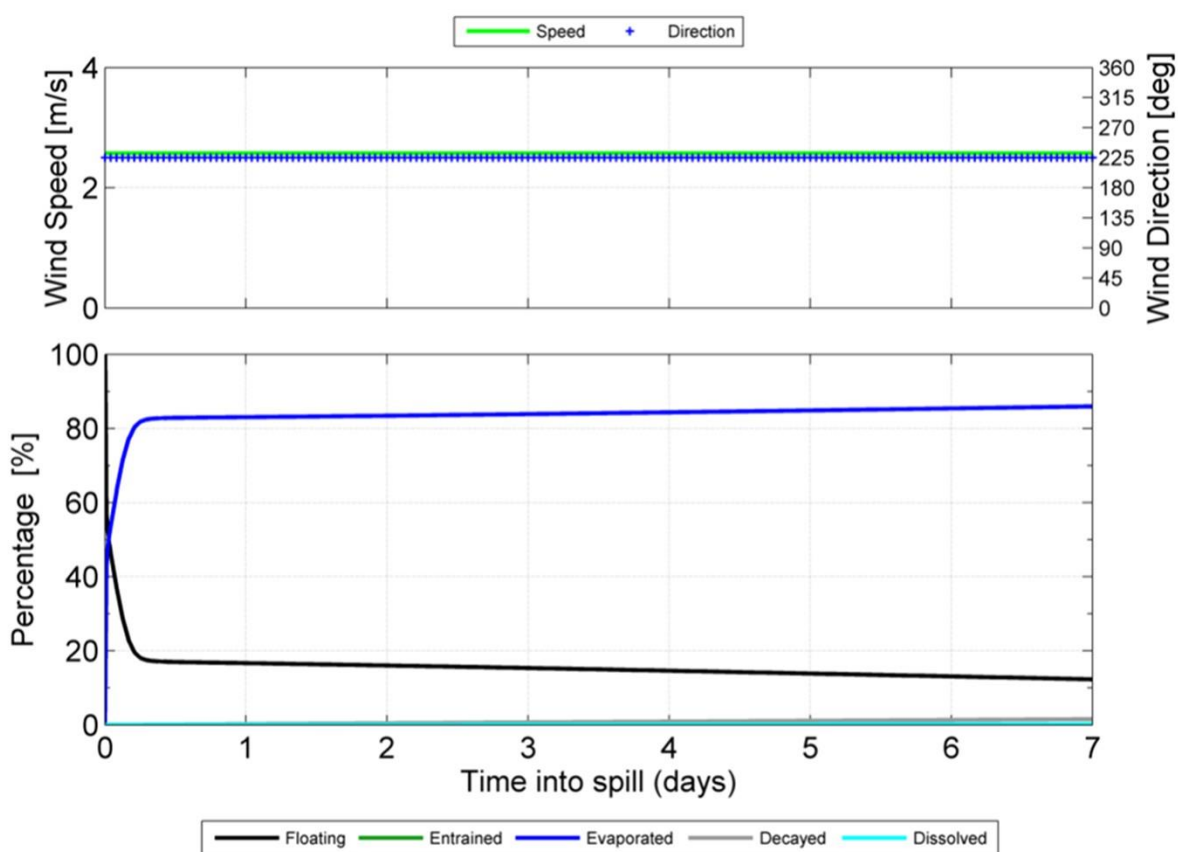


Figure 6-1: Proportional Mass Balance Plot Representing the Weathering of Brunello Condensate Spilled onto the Water Surface as a One-off Instantaneous Release and Subject to a Constant 5 kn (2.6 m/s) Wind at 27 °C Water Temperature and 25 °C Air Temperature.

Under the variable-wind case (Figure 6-2), where the winds are of greater strength, entrainment of Brunello condensate into the water column is predicted to increase; ~24 hours after the spill, ~16% of the oil mass is forecast to have entrained and a further 78% is forecast to have evaporated, leaving only a small proportion of the oil floating on the

water surface (<4%). The residual compounds tend to remain entrained beneath the surface under conditions that generate wind waves (~6 m/s).

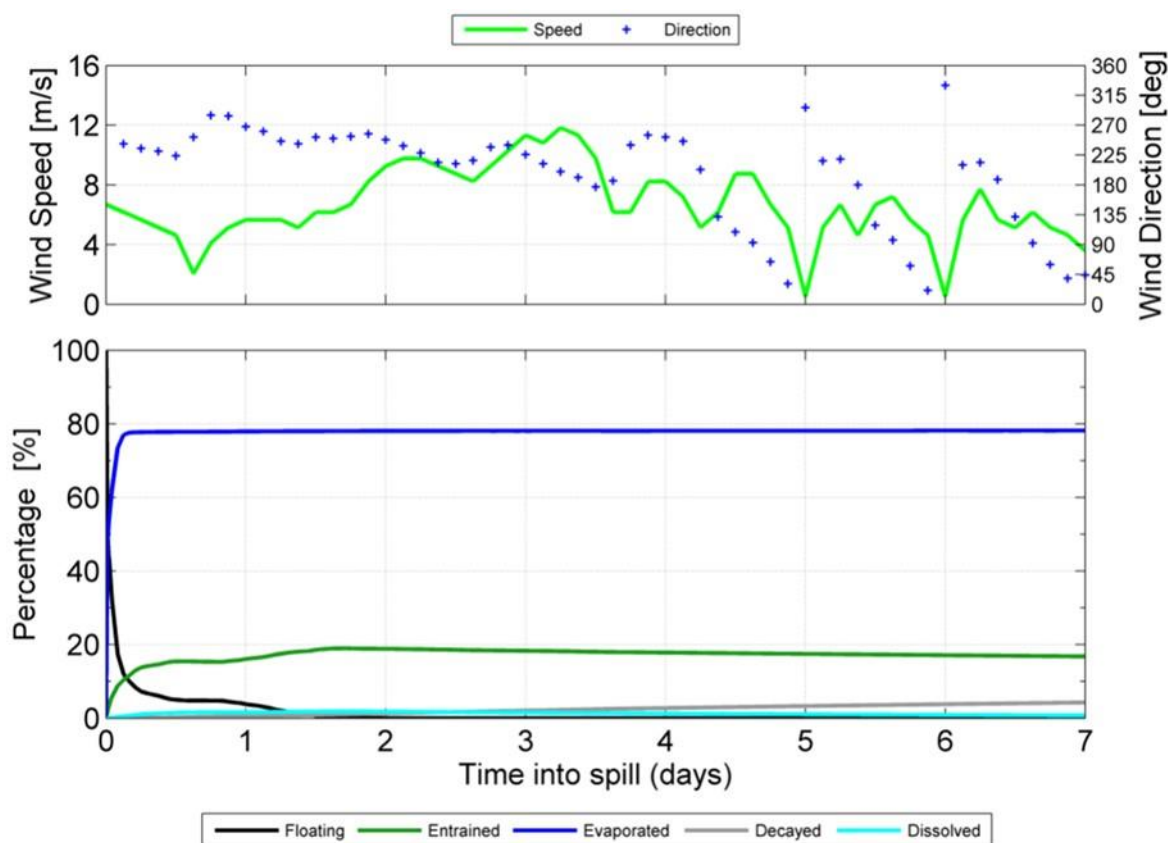


Figure 6-2: Proportional Mass Balance Plot Representing the Weathering of Brunello Condensate Spilled onto the Water Surface as a One-off Instantaneous Release and Subject to Variable Wind at 27 °C Water Temperature and 25 °C Air Temperature.

6.8.2.2 EMBA and Hydrocarbon Contact Thresholds

The outputs of the quantitative hydrocarbon spill modelling are used to assess the environmental consequence by delineating which areas of the marine environment could be exposed to hydrocarbon levels exceeding selected hydrocarbon threshold concentrations if a credible hydrocarbon spill scenario occurred. The summary of the locations where hydrocarbon thresholds could be exceeded by any of the simulations modelled is defined as the EMBA. 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, and the EMBA represents the total extent of all the locations where hydrocarbon thresholds could be exceeded from all modelling runs.

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. Together, these EMBA have defined the spatial extent for the existing environment described in Section 4.

The spill modelling outputs are presented as areas that meet threshold concentrations for surface, entrained and dissolved hydrocarbons for the modelled scenarios. Surface spill

concentrations are expressed as grams per square metre (g/m^2), with entrained and dissolved aromatic hydrocarbon concentrations expressed as parts per billion (ppb).

A conservative approach to selecting thresholds was taken by adopting the guideline impact thresholds (NOPSEMA 2019) for surface, entrained, dissolved and accumulated hydrocarbons to define the EMBA for condensate spills from a loss of well control. An additional threshold has been included to define the boundary within which socio-cultural impacts may occur, based on visible surface oil (1 g/m^2) impacting on the visual amenity of the marine environment. Each of these hydrocarbon thresholds are presented in Table 6-10 and described in the subsections below.

Table 6-10: Summary of 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 / shoreline hydrocarbon (g/m^2)	Surface hydrocarbon (g/m^2)	Accumulated Shoreline Hydrocarbon (g/m^2)
Condensate	10	50	100	100	1	10
Marine Diesel	10	50	100	100	1	10

6.8.2.3 Operational and Scientific Monitoring

A planning area for operational scientific monitoring is also described in Annex C of the Oil Spill Preparedness and Response Mitigation Assessment (Appendix D). This planning area has been set with reference to the low exposure entrained value of 10 ppb detailed in the NOPSEMA (2019) bulletin Oil Spill Modelling. This low exposure threshold is based on the potential for exceeding water quality triggers.

An operational scientific monitoring program may be activated following a release event with the potential to contact sensitive environmental receptors. This would consider receptors at risk (ecological and socio-economic) and in particular, any identified pre-emptive baseline areas for the worst-case credible spill scenario or other identified unplanned hydrocarbon releases associated with the operational activities.

6.8.3 Unplanned Hydrocarbon Release: Loss of Well Containment (MEE-01)

Context													
Failure of integrity of subsea infrastructure – Section 3.5	Physical Environment – Section 4.3						Consultation – Section 5						
	Biological Environment – Section 4.4												
	Protected Species – Section 4.5												
	KEFs – Section 4.7												
	Protected Places – Section 4.8												
Socio-Economic Environment – Section 4.9													
Risk Evaluation Summary													
Source of Risk	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Loss of well containment of reservoir fluids from a Julimar or Brunello well (e.g. Xmas tree, well production tubing etc.) resulting in loss of hydrocarbons to the environment.		X	X	X	X	X	B	B	1	M	LCS GP PJ RBA CV SV	Acceptable if ALARP	EPO 9
Description of Source of Risk													
<p>A loss of well containment can lead to an uncontrolled release of reservoir hydrocarbons and associated fluids to the environment resulting in a well blowout. Woodside has identified a well blowout as the scenario with the worst-case credible environmental outcome as a result of this event. Due to the potential consequences, a loss of well containment is considered to be a MEE (MEE-01). A loss of containment from a subsea production flowline could occur due to a variety of causes including:</p> <ul style="list-style-type: none">• internal corrosion• external corrosion• erosion• mechanical failure• overpressure of the annuli in conjunction with failure of a primary containment measure• loss of control of suspended load from vessel (operating near subsea wells). <p>A number of common failures causes due to human error and SCE failures are presented in the generic Human Error and SCE Failure bowties Figure 6-3 and Figure 6-4.</p> <p>Loss of Well Containment – Credible Scenarios</p> <p>The Julimar Field Production System includes up to 13 production wells. The credible worst-case loss of well containment scenario identified for the Petroleum Activities Program is the BRUA-2 well blow-out at seabed. The credible worst-case subsea release was based on a review of all the wells, with BRUA-2 evaluated to be the worst-case scenario due to a higher condensate gas ratio as compared to the other wells.</p>													

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The loss of well containment scenario was modelled to a duration of 75 days which is the estimated time required to successfully drill a relief well. The characteristics of Brunello Condensate was used as the basis in the modelling (Table 6-11). Refer to Section 6.8.2 for additional information on modelling methods and environmental impact, thresholds and hydrocarbon characteristics justifications.

Table 6-11: Summary of Worst-case Loss of Well Containment Hydrocarbon Release Scenario

Scenario	Hydrocarbon	Average Rate (m ³ /day)	Duration (days)	Depth (m)	Latitude (GDS84)	Longitude (GDS84)	Release Volume (m ³)
Well blow-out at seabed – subsea well with highest condensate gas ratio.	Brunello Condensate	741.9	75	149	20°01'49.1571"S	115°12'05.6357"E	55647

Decision Type, Risk Analysis and ALARP Tools

Woodside implements industry standard practice in well design and construction. In the company's recent history, it has not experienced a well integrity event that has resulted in significant releases or significant environmental impacts. Woodside has never experienced a worst-case loss of well containment in its operational history.

Decision Type

A Decision Type B has been applied to this risk under the Guidance on Risk Related Decision Making (OGUK 2014). This reflects the complexity of the risk, the higher potential consequence and stakeholder implications should the event be realised. To align with this Decision Type, a further level of analysis has been applied using risk-based tools including the Bowtie Methodology (described in Section 2.7.3) and hydrocarbon spill trajectory modelling. Company and societal values were also considered in the demonstration of ALARP and acceptability, through peer review, benchmarking and consultation (Section 5).

The release of hydrocarbons as a result of well loss of containment is considered a MEE (MEE-01). The hazard associated with this MEE is hydrocarbons in subsea wells.

Quantitative Spill Risk Assessment

Spill modelling of the worst-case credible loss of well containment spill scenario was undertaken by RPS (RPS 2020) to determine the fate of hydrocarbons released based on the assumptions in Section 6.8.2. Modelling was undertaken over all seasons to address year-round operations. This is considered to provide a conservative estimate of the EMBA and the potential impacts from the identified worst-case credible release volumes for all loss of well containment scenarios.

Hydrocarbon Characteristics

Hydrocarbon characteristics of Brunello Condensate are provided in Table 6-11 and described in more detail in Section 6.8.2.1.

Likelihood

In accordance with the Woodside Risk Matrix, a worst-case loss of well containment has been defined as highly unlikely (1) event as it 'has occurred once or twice in the industry' (experience-based likelihood) and aligns with a frequency of a '1 in 10,000 to 1 in 100,000 year' event. Information to support this likelihood determination is outlined below.

Review of industry statistics indicates that the probability of a loss of well containment for production wells is low (10.6% of blowouts) relative to other activities in other hydrocarbon provinces (Gulf of Mexico and the North Sea), such as exploration drilling (31.5% of blowouts), development drilling (23.6% of blowouts) and well workovers (20.5% of blowouts) (SINTEF 2017).

Consequence

The spatial extent and fate (including weathering) of the spilled hydrocarbon were considered during the impact assessment for a worst-case loss of well containment (presented in the following section). In addition to condensate in the reservoir fluids, environmental impact assessment considerations included the mercury (Hg) content in some of the Brunello wells, which would see predominantly elemental Hg being released to the

marine environment. A screening assessment was conducted to determine whether any of the hydrocarbon components or Hg will dominate the toxicity of the reservoir fluids. It was determined that although the 99% species protection criteria for Hg (0.1 ug/L) in comparison to the 100 ppb (100 ug/L) impact threshold for entrained hydrocarbons indicates Hg is a 1,000 times more toxic to marine environment than hydrocarbons, the entrained hydrocarbon content exceeded the worst case Hg content in reservoir fluids by a factor of 40,000 indicating the overall toxicity of the released well fluids would be determined by the concentrations of hydrocarbons in the water column. Subsequent consequent modelling and risk assessment considered therefore the fate of hydrocarbons in the marine environment. These considerations were informed primarily by the outputs from the numerical modelling studies undertaken by RPS, available information on environmental sensitivities that may credibly be impacted in the event of a worst-case spill (Section 4) and relevant literature and studies considering the effects of hydrocarbon exposure.

Consequence Assessment

Environmental Value(s) Potentially Impacted

EMBA

The overall EMBA for the Petroleum Activities Program is based on stochastic modelling which compiles data from multiple hypothetical worst-case spill simulations under a variety of weather and metocean conditions (as described in Section 6.8.1). The EMBA covers a larger area than the area that would be affected during any 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 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 discussed for each fate.

Surface Hydrocarbons

Hydrocarbon spill modelling results for surface hydrocarbons are shown in Table 6-12. The modelled hydrocarbon slick is forecast to drift in all directions depending on the modelled parameters, reflecting the competing influence of both surface currents and winds across the wide area, and may extend up to 13 km south east from the release site at concentrations above the environmental impact threshold (10 g/m²). The Montebello Marine Park is the only receptor with a probability (92% and 4%) of impact from floating oil concentrations >1 g/m² and >10 g/m², respectively. The minimum time to oil reaches sensitivity is 12 hours (1 g/m²) and 60 hours (10 g/m²). Note that the Operational Area overlaps the AMP, and the release of BRUA-2 well is in close proximity to the AMP.

Entrained Hydrocarbons

Hydrocarbon spill modelling results for entrained hydrocarbons are shown in Table 6-12. The modelled entrained hydrocarbons are forecast to potentially drift in all directions, extending up to 338 km from the release site at or above the 100 ppb impact threshold level. Contact by entrained oil at concentrations equal to or greater than 100 ppb is predicted at several locations, including the Montebello Marine Park (86%), Rankin Bank (44%), Ningaloo Marine Park and World Heritage area (21%), Muiron Islands (18%) and Gascoyne Marine Park (17%) (refer to Table 6-12 for all locations). The maximum entrained oil concentration forecast for any receptor is predicted at 1,277 ppb within the Montebello Marine Park. Note that the Operational Area overlaps the AMP, and the release of BRUA-2 well is in close proximity to the AMP.

Dissolved Hydrocarbons

Hydrocarbon spill modelling results for dissolved hydrocarbons are shown in Table 6-12. The modelled dissolved hydrocarbons are forecast to potentially drift in all directions, extending up to 223 km from the release site at the 50 ppb impact threshold level. Contact by dissolved aromatic hydrocarbons at concentrations equal to or greater than the 50 ppb impact threshold is predicted at Montebello Marine Park (76%) and Rankin Bank (15%), with possible contact at other receptors at probabilities of 1% (Table 6-12). The maximum dissolved aromatic hydrocarbon concentration forecast for any receptor is predicted as 428 ppb within the Montebello Marine Park. Note that the Operational Area overlaps the AMP, and the release of BRUA-2 well is in close proximity to the AMP.

Accumulated Hydrocarbons

Hydrocarbon spill modelling results for accumulated hydrocarbons are shown in Table 6-12. No shoreline contact above environmental impact threshold level was predicted to occur. Five receptors are predicted to receive shoreline oil at concentrations greater than 10 g/m² (socio-cultural threshold). The Muiron Islands are identified as the worst-case (Table 6-12), with a probability of 9%, a maximum volume along the shoreline of 3 m³ and a maximum local accumulated concentration of 73 g/m.

Consequence Assessment Summary

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Table 6-12 presents the full extent of the EMBA, i.e. the sensitive receptors and their locations that may be exposed to hydrocarbons (surface, entrained, dissolved and accumulated) at or above the set impact threshold concentrations in the remote likelihood of a major hydrocarbon release from a loss of well control occurring during the Petroleum Activities Program. Details of these receptors are outlined in Section 4. The potential biological and ecological impacts of an unplanned hydrocarbon release as a result of a loss of well integrity during the Petroleum Activities Program are presented in the following sections.

Table 6-12: EMBA - Key Receptor Locations and Sensitivities Potentially Contacted Above Impact Thresholds by the Loss of Well Containment Scenario with Summary Hydrocarbon Spill Contact

Environmental Setting	Receptor	Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions																										Probability of hydrocarbon contact and fate (%)								
		Physical		Biological																		Socio-economic and Cultural				Socio-cultural EMBA	EMBA									
		Water Quality	Sediment Quality	Marine Primary Producers			Other Communities / Habitats						Protected Species						Other Species																	
Open water – (pristine)	Marine Sediment – (pristine)	Coral reef	Seagrass beds / Macroalgae	Mangroves	Spawning / nursery areas	Open water – Productivity / upwelling	Non-biogenic 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 (foraging and interesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident / Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and Gas Infrastructure (topside and subsea)	Surface hydrocarbon (1 to 10 g/m²)	Accumulated hydrocarbon (1 to 10 g/m²)	Surface hydrocarbon (>10 g/m²)	Entrained hydrocarbon (≥100 ppb)	Dissolved hydrocarbon (≥50 ppb)	Accumulated hydrocarbons (>100 g/m²)		
AMPs	Montebello Marine Park	✓	✓	✓			✓	✓					✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		92		4	86	76		
	Ningaloo Marine Park	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓					21	1		
	Gascoyne Marine Park	✓	✓					✓						✓	✓			✓			✓	✓	✓		✓			✓					17			
Submerged State Marine Parks and Nature Reserves	Barrow Island	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓					8	1	
	Montebello Marine Park	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓						8	1	
	Muiron Islands Marine Park	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓					18			
	Pilbara Islands - Southern Island Group	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓					4			
Submerged Shoals and Banks	Rankin Bank	✓	✓	✓			✓	✓		✓				✓				✓		✓			✓	✓	✓		✓							44	15	
World Heritage	Ningaloo Coast North World Heritage	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				4		21	1	
State Terrestrial Parks and Nature Reserves	Montebello Islands	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				2				
	Muiron Islands	✓	✓	✓	✓		✓	✓		✓		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓			✓	✓				9				
	Pilbara - Middle Pilbara - Islands	✓	✓		✓	✓	✓	✓			✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓					3				

Summary of Potential Impacts to Environmental Values

Modelling shows that ~83% of the hydrocarbon released is predicted to evaporate within 24 hours depending on wind conditions, and a further 10% should evaporate over several days, with only about 7% shown to be persistent (RPS 2020). About 24 hours after the spill, around 16% of the hydrocarbon mass is forecast to have entrained, leaving only a small proportion of the hydrocarbon floating on the water surface (<4%).

Water Quality

Water quality would be affected due to hydrocarbon contamination above impact thresholds. These are defined by the EMBA descriptions for each of the surface, entrained and dissolved hydrocarbon fates and their predicted extent. Due to the weathering processes of the Brunello condensate (>80% will evaporate), potential impacts may result in slight, short-term impacts to water quality (E), with impacts predicted to be greatest for areas closest to the potential release location in offshore waters as a result of hydrocarbon contamination above background levels.

Marine Sediment Quality

Studies of hydrocarbon concentrations in deep-sea sediments in the vicinity of a catastrophic well blowout indicated hydrocarbons can be incorporated into sediments (Romero, et al. 2015). Proposed mechanisms for hydrocarbon contamination of sediments include sedimentation of hydrocarbons and direct contact between submerged plumes and the seabed (Romero, et al. 2015). In the event of a major hydrocarbon release, modelling indicates that a pressurised release of condensate would atomise into droplets that would be transported into the water column to the surface. Consequently, the extent of potential impacts to the seabed area at and surrounding the release site would be confined to a localised footprint.

Sediments within the Operational Area are primarily silty, fine to medium grain calcareous sands with small shell fragments (Section 4.3.1). Marine sediment quality would be reduced as a consequence of hydrocarbon contamination for a small area within the immediate release site for a medium term (C).

Air Quality

A hydrocarbon release resulting from a loss of well containment has the potential to result in short-term reduction in air quality and contribution of GHG (CH₄ and reservoir CO₂) to the atmosphere (Middlebrook, et al. 2011). The concentrations of air pollutants released from diffuse sources is difficult to accurately quantify as emissions disperse rapidly by meteorological factors such as wind (Queensland Government 2017), temperature, among others (NOAA n.d.). Methane and VOC emissions from a hydrocarbon release in offshore environments are rapidly degraded in the atmosphere.

The Operational Area is ~160 km north-west of Dampier and ~46 km south-east to the closest landfall (Montebello Islands).

Due to the unlikely occurrence of a loss of well containment; the temporary nature of any methane or VOC emissions (from either gas surfacing or weathering of liquid hydrocarbons from a loss of well containment); the predicted behaviour and fate of the air pollutants in open offshore environments; and the significant distance from the Operational Area to the nearest sensitive air shed, the potential impacts are expected to be slight, short-term (E).

Marine Primary Producers

Submerged Shoals

Modelling predicts that waters overlying the Rankin Bank are the only submerged shoals that may be impacted by a worst-case spill scenario (Table 6-12). The waters overlying the Rankin Bank have the potential to be exposed (44%) to entrained hydrocarbons above threshold concentrations (100 ppb) 126 hours (~5 days) after the release occurs. Rankin Bank comprises three main sedimentary banks rising steeply from between 80 and 120 m below sea level, reaching 20 to 40 m below the sea surface.

Entrained hydrocarbons reaching these shoals will be highly weathered, with the volatile and water soluble (often the most toxic) components expected to have dissipated. The permanently submerged habitats of Rankin Bank represents sensitive open water benthic community receptors, extending from deep depths to relatively shallow water. Given the water depth, it is likely the potential for biological impact is significantly reduced when compared to the upper water column layers. However, potential biological impacts could include sub-lethal stress and in some instances total or partial mortality of sensitive benthic organisms such as corals and the early life stages of resident fish and invertebrate species.

The submerged shoals are areas associated with sporadic upwelling and associated primary productivity events. Impacts to plankton communities from exposure to entrained hydrocarbons above threshold

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 263 of 445

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concentrations may result in short-term changes in plankton community composition but recovery would occur. Hydrocarbon contact during the spawning seasons for resident shoal community benthos and fish (meroplankton), particularly exposure to in-water toxicity effects to biota, may result in the loss of a discrete cohort population but would not affect the longer term viability of resident populations. Therefore, any impacts to resident shoal community benthos and fish (meroplankton) are likely to be localised at the shoals and temporary.

Hydrocarbon exposure to offshore filter-feeding communities may occur depending on the depth of the entrained/dissolved hydrocarbons. Exposure to entrained (aromatic) hydrocarbons (≥ 50 ppb) has potential to result in lethal or sub-lethal toxic effects. Sub-lethal impacts, including mucus production and polyp retraction, have been recorded for gorgonians exposed to hydrocarbon (White, et al. 2012). Shoals that are exposed to entrained and/or dissolved hydrocarbons are expected to result in localised long-term effects, depending on the exposure concentrations and degree of weathering.

Due to the weathering processes of the Brunello condensate ($>80\%$ will evaporate), potential impacts may result in minor, short-term impacts to Rankin Bank submerged shoal (D).

Coral Reef

Modelling predicts that there would be potential for coral reef habitat to be exposed to entrained hydrocarbons above threshold concentrations (100 ppb) (Table 6-12). Sensitivities identified include Montebello Marine Park, Barrow Islands, Rankin Bank, Southern Pilbara Island Group and Ningaloo Coast World Heritage and Marine Park. The modelling also predicts that maximum entrained oil concentrations in the vicinity of the release site show that concentrations >100 ppb are not expected to exceed depths of around 20 m (RPS 2020).

Exposure to entrained hydrocarbons ≥ 100 ppb has the potential to result in lethal or sublethal toxic effects to corals and other sensitive sessile benthos within the upper water column (<20 m), including upper reef slopes (subtidal corals), reef flat (intertidal corals) and lagoonal (back reef) coral communities. Mortality in a number of coral species is possible, and this could result in the reduction of coral cover and change in the composition of coral communities. Sublethal 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). This could result in impacts to the shallow water fringing coral communities/reefs of the offshore islands (e.g. Barrow / Montebello / Muiron Islands) and the mainland coast (i.e. Ningaloo Coast). With reference to Ningaloo Reef, wave-induced water circulation flushes the lagoon and may promote removal of entrained hydrocarbons from this particular reef habitat. Under typical conditions, breaking waves on the reef crest induce a rise in water level in the lagoon, creating a pressure gradient that drives water in a strong outward flow through channels. These channels are across as much as 15% of the length of Ningaloo Reef (Taylor and Pearce 1999).

If a spill occurs at the time of coral spawning at potentially affected coral locations, or in the general peak period of biological productivity, there is the potential for a significant reduction in successful fertilisation and coral larval survival, due to the sensitivity of coral early life stages to hydrocarbons (Negri and Heyward 2000). Such impacts are likely to result in the failure of recruitment and settlement of new population cohorts. In addition, some non-coral species may be affected via direct contact with entrained hydrocarbons, resulting in sublethal impacts and in some cases mortality—particularly early life-stages of coral reef animals (reef-attached fishes and reef invertebrates), which can be relatively sensitive to hydrocarbon exposure. Coral reef fish are site-attached, have small home ranges, and as reef residents they are at higher risk from hydrocarbon exposure than non-resident, more wide ranging fish species. The exact impact on resident coral communities (which may include fringing reefs of the offshore islands and/or the Ningaloo Reef system) will depend on actual hydrocarbon concentration, duration of exposure and water depth of the affected communities.

Over the worst-affected sections of reef habitat, coral community live cover, structure and composition may reduce, manifested by loss of corals and associated sessile biota. Recovery of these impacted reef areas typically relies on coral larvae from neighbouring coral communities that have either not been affected or only partially impacted. For example, there is evidence that Ningaloo Reef corals and fish are partly self-seeding, with the supply of larvae from locations within Ningaloo Reef of critical importance to the healthy maintenance of the coral communities (Underwood 2009). Recovery at other coral reef areas may not be aided by a large supply of larvae from other reefs, with levels of recruits after a disturbance event only returning to previous levels after the numbers of reproductive corals had also recovered (Gilmour, et al. 2013).

In the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in large scale impacts to coral populations within the EMBA, with long-term effects (recovery >10 years) on coral habitats (B).

Seagrass Beds/Macroalgae and Mangroves

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Revision: 8.0

Native file DRIMS No: 10484514

Page 264 of 445

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Modelling predicts that entrained hydrocarbons above threshold concentrations (100 ppb) have the potential to contact sensitivities that support seagrass beds/macroalgae and mangroves communities. These sensitivities includes nearshore protected areas such as Barrow and Montebello Islands, Southern Pilbara Island Group and Ningaloo Coast World Heritage and Marine Park (Table 6-12).

The variety of habitat and community types, from the upper subtidal to the intertidal zones support a high diversity of marine life and are used as important foraging and nursery grounds by a range of invertebrate and vertebrate species. Exposure to entrained hydrocarbons may result in mortality, depending on actual entrained exposure concentrations received and duration of exposure. Physical contact with entrained hydrocarbon droplets could cause sublethal stress, causing reduced growth rates and reduced tolerance to other stress factors (Zieman, Iverson and Ogden 1984). Toxicity effects can also occur due to absorption of soluble fractions of hydrocarbons into tissues (Runcie, Macinnis-Ng and Ralph 2010.). However, the potential for toxicity effects of entrained hydrocarbons may be reduced by weathering processes that should lower the content of soluble aromatic components before contact occurs.

Entrained hydrocarbons may adhere to the sediment particles and in low-energy environments such as in mangroves, deposited sediment bound hydrocarbons are unlikely to be removed naturally by wave action and may be deposited in layers by successive tides (NOAA 2014). Hydrocarbons may persist in the sediment, potentially causing chronic sublethal toxicity impacts beyond immediate physical and acute effects, which may delay recovery in an affected area. Recovery of mangroves from any impacts could be long-term (>10 years).

In the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in large scale impacts to seagrass beds/macroalgae and mangroves communities within the EMBA, with long-term effects (recovery >10 years) on these habitats (B).

Other Communities / Habitats

Benthic Fauna Communities

Benthic fauna within the relatively small area of predicted impacts to seabed sediments in the immediate release site would be highly likely to be impacted due to hydrocarbon exposure above ecological thresholds. However, the modelling also predicts that maximum entrained oil concentrations in the vicinity of the release site show that concentrations >100 ppb are not expected to exceed depths of around 20 m (RPS 2020). Furthermore, in the event of a major release at the seabed, the stochastic spill model predicted the entrainment of hydrocarbon droplets and rapid transport to the sea surface limiting the exposure and potential ecological impact footprint to benthic communities.

The benthic habitats around the wells are representative of the NWMR and are primarily comprised of soft, sandy substrates grading to clay and silt with increasing water depth (Section 4.3.1). The low sensitivity, widespread benthic communities associated with the soft sediment habitat are not expected to have widespread exposure to released hydrocarbons.

Benthic fauna at geomorphic features located within the water column such as shoals and banks may be impacted by dissolved and/or entrained hydrocarbons are assessed separately.

Due to the weathering processes of the Brunello condensate, characteristics of the benthic habitat and infrequency of the event, potential impacts may result in short-term impacts to benthic communities (E).

Spawning/Nursery Areas

Modelling predicts that entrained hydrocarbons above threshold concentrations (100 ppb) have the potential to contact sensitivities that support spawning/nursery areas (Table 6-12). Sensitivities identified include Montebello Marine Park, Montebello and Barrow Islands, Rankin Bank, Southern Pilbara Island Group and Ningaloo Coast World Heritage and Marine Park. The modelling also predicts that maximum entrained oil concentrations in the vicinity of the release site show that concentrations >100 ppb are not expected to exceed depths of around 20 m (RPS 2020). This has the potential to result in lethal and sublethal impacts to a portion of fish larvae in areas contaminated above impact thresholds, depending on concentration and duration of exposure and the inherent toxicity of the hydrocarbon.

Fish (and other commercially targeted taxa) in their early life stages (eggs, larvae and juveniles) are at their most vulnerable to lethal and sublethal impacts from exposure to hydrocarbons, particularly if a spill coincides with spawning seasons or reaches nursery areas close to the shore (e.g. seagrass and mangroves) (ITOPF 2011). Fish spawning (including for commercially targeted species such as snapper and mackerel) occurs in nearshore waters at certain times of the year, and nearshore waters are also inhabited by higher numbers of juvenile fishes than offshore waters.

Although there is the potential for spawning/nursery habitat to be impacted, losses of fish larvae in worst-affected areas are unlikely to be of major consequence to fish stocks compared with significantly larger losses through natural predation, and the likelihood that most nearshore areas would be exposed is low (i.e. not all

areas in the region would be affected). This is supported by a study in the Gulf of Mexico, which used juvenile abundance data from shallow-water seagrass meadows as indices of the acute, population-level responses of young fishes to the Deepwater Horizon spill. Results indicated that there was no change to the juvenile cohorts following the Deepwater Horizon spill. Additionally, there were no significant post-spill shifts in community composition and structure, nor were there changes in biodiversity measures (Fodrie and Heck Jr. 2011).

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in moderate medium-term impacts to spawning fish and/or nursery areas within the EMBA (C), with consequence severity dependent on the actual timing, duration and extent of a spill in relation to key spawning periods and locations.

Open Water – Productivity/Upwelling

Primary production by plankton (triggered by sporadic upwelling events in the offshore waters) is an important component of the primary marine food web. Planktonic communities are generally mixed, including phytoplankton (cyanobacteria and other microalgae), secondary consuming zooplankton (e.g. copepods), and the eggs and larvae of fish and invertebrates (meroplankton). Exposure to hydrocarbons in the upper water column can result in changes in species composition, with declines or increases in one or more species or taxonomic groups (Batten, Allen and Wotton 1998). Phytoplankton may also experience decreased rates of photosynthesis (Tomajka 1985). For zooplankton, direct effects of contamination may include 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 surface, 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 (ITOPF 2011).

Waters in the North West Shelf (e.g. Ningaloo Coast, Montebello Marine Park) are known locations of seasonal upwelling events and productivity. The seasonal productivity events are critical to krill production, which supports megafauna aggregations such as whale sharks and rays in the region. This has the potential to result in lethal and sublethal impacts to a certain portion of plankton in affected areas, depending on concentration and duration of exposure and the inherent toxicity of the hydrocarbon. However, recovery would occur.

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to plankton populations within the EMBA (D).

Filter Feeders

The modelling predicts that maximum entrained oil concentrations in the vicinity of the release site show that concentrations >100 ppb are not expected to exceed depths of around 20 m (RPS 2020). Entrained hydrocarbons are therefore, not expected to impact filter feeder habitats in deep offshore waters such as filter feed communities associated with the KEFs.

Hydrocarbon exposure to shallow nearshore filter feeding communities (<20 m) (e.g. Montebello Islands, Rankin Bank) may occur. Exposure to in water aromatic hydrocarbons has the potential to result in lethal or sublethal toxic effects. Sublethal impacts, including mucus production and polyp retraction, have been recorded for gorgonians exposed to hydrocarbon (White, et al. 2012). Any impacts may result in localised long-term effects to community structure and habitat.

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in long-term impacts to filter feeders within the EMBA (D).

Non-biogenic Reefs

Modelling predicts that entrained hydrocarbons above threshold concentrations (100 ppb) have the potential to contact sensitivities that support non-biogenic Reefs (Table 6-12). Non-biogenic reefs were identified in the Southern Pilbara Island Group. The probability of contact to the Southern Pilbara Island Group is only 4% (Table 6-12).

Lethal or sublethal impacts to non-biogenic Reefs result in partial or total mortality of keystone sessile benthos, particularly hard corals; thus, potential community structural changes to these shallow, nearshore benthic communities may occur. However, due to the probability to contact this habitat (4%), impacts are expected to be minor to non-biogenic Reefs (D).

Sandy Shores/Estuaries/Tributaries/Creeks (including Mudflats)/Rocky Shores

Shoreline exposure for the upper and lower areas differ. The upper shore has the potential to be exposed to surface slicks, while the lower shore is potentially exposed to entrained hydrocarbon. Potential impacts may occur due to hydrocarbon contact with intertidal areas, including sandy shores, mudflats and rocky shores, listed in Table 6-12. Hydrocarbon at sandy shores is 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 back of the sediments. Typically, hydrocarbon is only incorporated into the surface layers to a maximum of 10 cm (Etkin 2003). Note that no shoreline accumulation above threshold concentrations ($>100 \text{ g/m}^2$) was identified by the modelling and long-term impacts to shorelines is not expected.

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in slight short-term impacts to these habitats within the EMBA (E).

Protected species

Cetaceans

Offshore Cetaceans

Several cetaceans species were identified as potentially occurring within the EMBA (Section 4.6.3). In the event of a LOWC, surface, entrained, and dissolved hydrocarbons exceeding environmental impact threshold concentrations may drift across habitat for cetacean species. Migratory routes and BIAs of cetaceans considered to be MNES may be affected, including humpback whales, southern right whales and pygmy blue whales' migration.

Cetaceans that have direct physical contact with surface, entrained, or dissolved aromatic hydrocarbons may suffer surface fouling, ingestion of hydrocarbons (from prey, water and sediments), aspiration of oily water or droplets, and inhalation of toxic vapours (Deepwater Horizon Natural Resource Damage Assessment Trustees (DHNRTD 2016)). This may result in the irritation of sensitive membranes such as the eyes, mouth, digestive and respiratory tracts, and organs. Other potential impacts include impairment of the immune system, neurological damage (Helm, et al. 2015), reproductive failure, other adverse health effects (e.g. lung disease, poor body condition), and mortality (DHNRTD 2016). Physical contact with hydrocarbons is likely to have biological consequences for these species. Given cetaceans maintain thick skin and blubber, external exposure to hydrocarbons may result in irritation to skin and eyes. Hydrocarbons may also be ingested, particularly by baleen whales (e.g. pygmy blue whales and humpback whales), which feed by filtering large volumes of water.

Geraci (1990) has identified behavioural disturbance through avoidance of spilled hydrocarbons in several species of cetacean, suggesting that cetaceans have the ability to detect surface slicks. However, observations during spills have recorded larger whales (both mysticetes and odontocetes) and smaller delphinids travelling through and feeding in oil slicks. During the Deepwater Horizon spill, cetaceans were routinely seen swimming in surface slicks offshore and nearshore (Dias, et al. 2017). In a review of the impacts of large-scale hydrocarbon spills on cetaceans, it was found that exposure to oil from the Deepwater Horizon resulted in increased mortality to cetaceans in the Gulf of Mexico (DHNRTD 2016), and long-term population level impacts to killer whales were linked to the Exxon Valdez tanker spill (Matkin, et al. 2008).

A major spill could coincide with the migration of humpback whales, southern right whales, or pygmy blue whales (Section 4.6.3) depending on the timing of the potential spill event. These whales are baleen whales, so are most likely to be most impacted by toxic effects when feeding. However, feeding during migrations is low level and opportunistic, with most feeding for both species occurring in the Southern Ocean.

Fresh hydrocarbons (i.e. typically in the vicinity of the release location) may have a higher potential to cause toxic effects when ingested, while weathered hydrocarbons are considered to be less likely to result in toxic effects. As such, the risk of ingestion of hydrocarbons is low. Migration of whales are protracted through time and space (i.e. the whole population will not be within the EMBA), and as such, a spill from the LOWC is unlikely to affect an entire population.

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to offshore cetacean species (B), with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions.

Nearshore Cetaceans and Dugongs

Coastal populations of small cetaceans and dugongs are known to reside or frequent nearshore waters, including the Ningaloo Coast, Muiron Islands, and Pilbara Southern Island Group. Modelling predicts that entrained hydrocarbons above threshold concentrations (100 ppb) have the potential to contact these sensitivities (Table 6-12). Note that no shoreline accumulation above threshold concentrations ($>100 \text{ g/m}^2$) was identified by the modelling.

The Ningaloo Coast is a known to provide high marine species diversity and abundance to different cetacean. A reproduction BIA for southern right whales, a foraging BIA for pygmy blue whales and breeding, nursing and

calving BIAs for dugongs are known to occur; therefore, whales and dugongs may be exposed to entrained hydrocarbons above thresholds levels.

The potential impacts of exposure are discussed above. However, nearshore populations of cetaceans and dugongs are known to exhibit site fidelity and are often resident populations. Therefore, avoidance behaviour may have greater impacts to population functioning. Nearshore dolphin species (e.g. spotted bottlenose dolphins) may exhibit higher site fidelity than oceanic species, although Geraci (1990) observed relatively little impacts beyond behavioural disturbance. Additional potential environment impacts may also include the potential for dugongs to ingest hydrocarbons when feeding on oiled seagrass stands, or indirect impacts to dugongs due to loss of this food source due to dieback in worst-affected areas.

Cetacean populations that are within the EMBA may be susceptible to impacts from spilled hydrocarbons if they interact with an area affected by a spill. Suitable habitat for oceanic toothed whales (e.g. sperm whales) and dolphins is broadly distributed throughout the region and as such, impacts are unlikely to affect an entire population.

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to inshore cetacean species (B), with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions.

Marine Turtles

Offshore

Five marine turtle species identified as threatened or migratory were identified as potentially occurring within the EMBA, with a number of BIAs and Habitat Critical areas identified within the EMBA (Section 4). Modelling predicted that floating hydrocarbons above threshold concentrations (>10 g/m²) have the potential to contact only Montebello Marine Park, which is identified as nesting area for marine turtles (Table 6-12). The probability of contact to the Montebello Marine Park is only 4% (Table 6-12).

Adult sea turtles exhibit no avoidance behaviour when they encounter hydrocarbon spills (NOAA 2010). Therefore, contact with surface slicks or entrained hydrocarbon can result in hydrocarbons adhering to body surfaces (Gagnon and Rawson 2010) causing irritation of mucous membranes in the nose, throat and eyes, leading to inflammation and infection (NOAA 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 includes an increase in the production of white blood cells, and even a short exposure to hydrocarbons may affect the functioning of the salt gland (Lutcavage, et al. 1995).

Hydrocarbons in surface waters may also impact turtles when they surface to breathe as they may 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 (NOAA 2010). Contact with entrained hydrocarbons can result in hydrocarbons adhering to body surfaces, causing irritation of mucous membranes in the nose, throat and eyes and leading to inflammation and infection (Gagnon and Rawson 2010).

Given the hydrocarbon is expected to weather rapidly (>80% will evaporate) when released to the environment, relatively fresh entrained hydrocarbons (which are typically relatively close to the release location) are considered to have the greatest potential for impact. Given the non-persistent nature of the hydrocarbons and the relatively small floating hydrocarbon EMBA in sensitivities areas (i.e. Montebello Marine Park), the area where potential impacts from inhalation may occur would be localised around the release location.

In the event of a LOWC, there is potential that surface, entrained and dissolved hydrocarbons exceeding environmental impact threshold concentrations will be present in offshore waters. Therefore, a hydrocarbon spill may disrupt a portion of marine turtle populations identified in Section 4.6.2. However, there is considered to be no threat to overall population viability given the non-persistent nature of predicted hydrocarbons. Therefore, moderate, medium-term impact on these species (C) are expected.

Nearshore

Marine turtles are known to utilise nearshore waters and shorelines for foraging and breeding activities (including interbreeding), with significant nesting beaches along the WA mainland coast and nearshore islands in locations that may be impacted by a LOWC (including the Ningaloo Coast, Muiron Islands, Montebello and Barrow Islands, and Pilbara Southern Islands Group).

Seasonal timings for breeding, nesting and hatchling dispersal (i.e. timing per BIA and Habitat critical) for each marine turtle species is provided in Section 4.6.2. The nearshore waters of these marine turtle habitat areas may be exposed to surface, entrained or dissolved hydrocarbons exceeding threshold concentrations. In addition, a number of islands along the WA coastline are predicted to be contacted by accumulated

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 268 of 445

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hydrocarbons above the ecological impact threshold; including the Muiron Islands, Barrow Island and the Montebello Islands (Table 6-12).

The potential impacts of exposure are as previously discussed. In the nearshore environment, turtles can ingest hydrocarbons when feeding and/or can be indirectly affected by loss of a food source (e.g. seagrass due to dieback from hydrocarbon exposure) (Gagnon and Rawson 2010). In addition, hydrocarbon exposure can impact on turtles during the breeding season at nesting beaches. Contact with gravid adult females or with hatchlings may occur on nesting beaches (accumulated hydrocarbons) or in nearshore waters (entrained hydrocarbons) where hydrocarbons are predicted to make shoreline contact. Note that no shoreline accumulation above thresholds concentrations ($>100 \text{ g/m}^2$) was identified by the modelling. Males waiting in nearshore areas to mate with adult females may also be impacted by entrained hydrocarbons.

Marine turtles aggregating near nesting beaches within the EMBA during the mating and nesting seasons are most vulnerable to hydrocarbons, due to greater turtle densities and the possible disruption to important life cycle behaviours. Potential impacts may occur at the population level due to the presence of a high number of breeding individuals and hatchlings (during hatchling dispersal) and may impact on overall population viability of marine turtle species. However, given the volatile nature of the hydrocarbons population level impacts are not anticipated to occur. Therefore, moderate, medium-term impact (C) to marine turtles in the nearshore are expected.

Sea snake

Two sea snake species which are listed threatened under the EPBC Act were identified by the PMST as potentially occurring within the EMBA.

Impacts to sea snakes from direct contact with hydrocarbons are likely to result in similar physical effects to those recorded for marine turtles and may include potential damage to the dermis and irritation to mucus membranes of the eyes, nose and throat (ITOPF 2011). They may also be impacted when they return to the surface to breathe and inhale the toxic vapours associated with the hydrocarbons, resulting in damage to their respiratory system.

In general, sea snakes primarily frequent on reef flats or in shallow waters of the outer reef edges to depths of 10 m (DSEWPaC 2011). Their abundance is not expected to be high in the EMBA. However, sea snake species in Australia generally show strong habitat preferences (Heatwole and Cogger 1993); species that have preferred habitats associated with submerged shoals may be disproportionately affected by a hydrocarbon spill affecting such habitat.

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to sea snakes (B), with consequence severity dependent on the duration and extent of a spill in relation to the distribution of sea snakes.

Fish, Sharks and Rays

Offshore

Several shark and ray species which are listed threatened under the EPBC Act were identified as potentially occurring within the EMBA (Section 4.6.1). Foraging BIAs for the whale shark, were also identified. Whale sharks are, therefore, likely to transit the open offshore waters within the EMBA while they migrate to and from Ningaloo Reef. There are no known areas of aggregation for other species in the offshore waters of the EMBA.

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 (i.e. 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, such as the whale shark, are able to detect and avoid surface waters underneath hydrocarbon spills by swimming into deeper water or away from the affected areas.

Impacts to whale sharks from a hydrocarbon spill will depend on the timing of the spill; however, whale sharks as a pelagic species are expected to demonstrate avoidance behaviour and population level impacts are not anticipated. Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in moderate medium-term impacts to sea fish, sharks and rays (C).

Nearshore

Whale sharks and rays are known to utilise nearshore waters and shorelines for foraging and feeding activities (e.g. Ningaloo Reef, Muiron Islands). These coastlines are predicted to be contacted by entrained hydrocarbons above the ecological impact threshold (Table 6-12). Note that no shoreline accumulation above thresholds concentrations ($>100 \text{ g/m}^2$) was identified by the modelling.

Whale sharks and manta rays generally transit along the nearshore coastline in these areas and are vulnerable to surface, entrained and dissolved aromatic hydrocarbon spill impacts, with both taxa having similar modes of feeding.

Whale sharks are versatile feeders, filtering large amounts of water over their gills, catching planktonic and nektonic organisms (Jarman and Wilson 2004). Whale sharks at Ningaloo Reef have been observed using two different feeding strategies, including passive sub-surface ram-feeding and active surface feeding (J. Taylor 2007) g. Passive feeding consists of swimming slowly at the surface with the mouth wide open. During active feeding, sharks swim high in the water with the upper part of the body above the surface with the mouth partially open (J. Taylor 2007). These feeding methods would result in the potential for individuals that are present in worse affected spill areas to ingest potentially toxic amounts of entrained or dissolved aromatic hydrocarbons into their body. Large amounts of ingested hydrocarbons may affect their endocrine and immune system in the longer term.

The presence of hydrocarbons may also cause displacement of whale sharks from important feeding and resting areas at Ningaloo Reef, potentially disrupt migration and aggregations to these areas in subsequent seasons. Whale sharks may also be affected indirectly by entrained or dissolved aromatic hydrocarbons through the contamination of their prey. The preferred food of whale sharks are planktonic organisms which are abundant in the coastal waters of Ningaloo Reef in late summer/autumn, driving the annual arrival and aggregation of whale sharks in this area. If a worse-case spill event were to occur during the spawning season, this food supply (in worse spill affected areas of the reef) may be diminished or contaminated. The contamination of their food supply and the subsequent ingestion of this prey by the whale shark may also result in long term impacts as a result of bioaccumulation.

There is the potential for other coastal shark species (e.g. dwarf, narrow, green sawfish) to be impacted directly from hydrocarbon contact and/or indirectly through contaminated prey or loss of habitat. Excluding sawfish, which may exhibit high site fidelity, it is most likely that shark species (as mobile animals) will move away from spill affected areas and suffer minimal direct impact.

A spill reaching the Ningaloo coastline during key aggregation periods and impacting important whale shark foraging areas may have severe impacts to the local whale shark population, including possible mortality of individuals and impacts to life cycle habitats such as migration patterns. Most species of shark and ray (including whale sharks) are, however, expected to move away from spill affected areas with minimal impacts.

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to fish, sharks and rays (B), with consequence severity dependent on the duration and extent of a spill in relation to the distribution of these species.

Seabirds and Migratory Shorebirds

Offshore

Several seabirds and shorebirds species which are listed threatened under the EPBC Act were identified as potentially occurring within the EMBA (Section 4.6.4). Breeding BIAs for the fairy tern, lesser crested tern, roseate tern and wedge-tailed shearwater, were also identified.

Seabirds and migratory shorebirds are particularly vulnerable to contact with floating hydrocarbons, which may mat their 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). Notably, the credible LOWC result in a relatively small floating hydrocarbon EMBA which is primarily centred around the release location. Subsequently, the potential for seabird exposure to floating hydrocarbons is considered to be low.

Migratory shorebirds are considered unlikely to interact with spilled hydrocarbons as they are not expected to stop over within the offshore waters where the EMBA may occur during their migrations between mainland/island areas. Many seabirds and migratory shorebirds forage over extensive areas (some hundreds of kilometres out to sea) so individuals may be present.

Seabirds which plunge dive to feed on prey may contact entrained or dissolved hydrocarbons, most likely through ingestion of prey which are contaminated. Impacts to prey abundance as a result of hydrocarbons may also indirectly impact individuals.

Breeding BIAs for seabirds and migratory shorebirds that overlap with the EMBA are associated with locations along the Pilbara and Gascoyne coasts and islands. The breeding BIA for the wedge-tailed shearwater overlaps with the Operational Area. It is likely that individual birds may, therefore, transit the Operational Area, where impact concentrations are higher. Other species' BIAs are ~40 km away and these species are less likely to occur within the Operational Area.

Given the relatively low area of floating hydrocarbons and the lack of key aggregation areas for migratory shorebirds and seabirds within the Operational Area, impacts at the population level are not anticipated.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 270 of 445

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Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in minor impacts to migratory seabirds (D).

Nearshore

In the event of a LOWC, there is the potential for seabirds, and resident/non-breeding overwintering shorebirds that use the nearshore waters within the EMBA for foraging and resting, to be exposed to hydrocarbons above ecological impact thresholds. Impacts may include both lethal or sub-lethal effects, as discussed above and in more detail below.

Although breeding oceanic seabird species can travel long distances to forage in offshore waters, most breeding seabirds tend to forage in nearshore waters near to their breeding colony, resulting in intensive feeding by higher seabird densities in these areas during the breeding season and making these areas particularly sensitive in the event of a spill.

Migratory shorebirds may be exposed to stranded hydrocarbon when foraging or resting in intertidal habitats, however, direct oiling is typically restricted to relatively small portion of birds, and such oiling is typically restricted to the birds' feet. Unlike seabirds, shorebird mortality due to hypothermia from matted feathers is relatively uncommon (Henkel, Sigel and Taylor 2012). Indirect impacts, such as reduced prey availability, may occur (Henkel, Sigel and Taylor 2012).

Surface hydrocarbons contact above impact threshold ($>10 \text{ g/m}^2$) was predicted to occur only in Montebello Marine Park, with a 4% probability (Table 6-12). As mentioned, predicted surface hydrocarbons are also relatively restricted to the release location. Shoreline hydrocarbon contact above ecological thresholds ($>100 \text{ g/m}^2$) was not predicted to occur (Table 6-12). Direct impacts, therefore, at the population level are not anticipated.

Impacts are likely to occur through the ingestion of contaminated fish (nearshore waters) or invertebrates (intertidal foraging grounds such as beaches, mudflats and reefs) which have been exposed to surface, shoreline, entrained or dissolved hydrocarbons within the EMBA. Ingestion of contaminated prey can also lead to internal injury to sensitive membranes and organs (IPIECA 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 loss of adult birds. Seabirds also typically nest above the high-water mark, meaning nesting areas would not be expected to be directly impacted.

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in minor impacts to seabirds and shorebirds (D).

Other Species

Demersal and pelagic Fish Populations

Demersal and pelagic fish species are mainly associated with the following offshore features within the EMBA:

- Ancient coastline at the 125 m depth contour KEF
- Continental slope demersal fish communities KEF
- Commonwealth waters adjacent to Ningaloo Reef
- Glomar Shoals KEF
- Rankin Bank.

These geomorphic features may host relatively diverse or abundant fish assemblages compared to the otherwise relatively featureless continental shelf habitats of the NWMR. Impacts to KEFs are discussed below. Indirect impacts due to decreased habitat quality at these KEFs to pelagic and demersal fish communities are considered unlikely. Impacts to pelagic fish (associated with receptors such as Glomar Shoals and Rankin Bank) from hydrocarbons are described herein.

Fish mortalities are rarely observed to occur as a result of hydrocarbon spills (ITOPF 2011). 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, so individuals exposed to a hydrocarbon release 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 are able to 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 are capable of avoiding water contaminated with high

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 271 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

concentrations of hydrocarbons. However, sublethal impacts to adult and juvenile fish may be possible, given long-term exposure (days to weeks) to polycyclic aromatic hydrocarbon (PAH) concentrations (Hjermann, et al. 2007), which are typically the most toxic components of hydrocarbons. Light molecular weight aromatic hydrocarbons (i.e. one- and two-ring molecules) are generally soluble in water, which increases bioavailability to gill-breathing organisms such as fish.

The effects of exposure to hydrocarbons on the metabolism of fish appears 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, Gagnon and Nugegoda 2005). The liver, a major detoxification organ, appears to be the organ where anaerobic activity is most impacted, probably increasing anaerobic activity to help eliminate ingested oil from the fish (Cohen, Gagnon and Nugegoda 2005).

Fish are perhaps most susceptible to the effects of hydrocarbon spills in their early life stages, particularly during egg and planktonic larval stages, which can become entrained in spilled oil. Contact with oil droplets can damage feeding and breathing apparatus of embryos and larvae (Fodrie and Heck Jr. 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 Jr. 2011). More subtle, chronic effects on the life history of fish as a result of exposure in early life stages to hydrocarbons include disruption to complex behaviours 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). PAHs have also been linked to increased mortality and stunted growth rates of early life history (pre-settlement) of reef fishes, as well as behavioural impacts that may increase predation of post-settlement larvae (Johansen, et al. 2017). However, the effect of a hydrocarbon spill on a population of fish in an area with fish larvae and/or eggs, and the extent to which any of the adverse impacts may occur, depends greatly on prevailing oceanographic and ecological conditions at the time of the spill and its contact with fish eggs or larvae.

Mortality and sublethal effects may impact populations located close to the release event for entrained/dissolved aromatic hydrocarbons above ecological impact threshold. Additionally, if prey (infauna and epifauna) surrounding the LOWC and within the EMBA is contaminated, this can result in the absorption of toxic components of the hydrocarbons (PAHs), potentially impacting fish populations that feed on these.

Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts (B) to demersal fish assemblages, particularly, in the area surrounding the release site but slight impacts to pelagic fish species, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' movements and distributions.

Protected Places

Three AMPs may be affected by a worst-case spill scenario (Table 6-12). The AMPs were predicted to potentially be contacted by surface (Montebello Marine Park), entrained (Montebello Marine Park, Ningaloo Marine Park and Gascoyne Marine Park) and dissolved (Montebello Marine Park and Ningaloo Marine Park) hydrocarbons above ecological thresholds in the event of a worst-case spill scenario. Montebello Marine Park was also predicted to potentially be impacted by surface hydrocarbons above social thresholds. Note that the Operational Area overlaps the AMP, and the release of BRUA-2 well is in close proximity to the AMP. Therefore, an assessment of the Montebello Marine Park will be undertaken since it represents the worst-case scenario.

Montebello Marine Park

The Montebello Marine Park comprises an area of ~3,413 km², all of which is zoned as a Multiple Use Zone (IUCN VI). This AMP ranges in depth from <15 m up to 150 m.

The Montebello Marine Park contains habitats, species and ecological communities associated with the Northwest Shelf Province (DNP 2018). It includes one key ecological feature: the ancient coastline at the 125 m depth contour. Impact to KEFs are assessed below.

The AMP provides connectivity between the deeper waters of the continental shelf and slope, and the adjacent Barrow Island and Montebello Islands State Marine Parks. The specific values of the AMP and associated impacts are summarised here.

Natural values: The AMP includes diverse benthic and pelagic fish communities and ancient coastline thought to be an important seafloor feature (KEF) and a migratory pathway for whales (BIA). The AMP supports a range of species, including those listed as threatened, migratory, marine and/or cetacean under the EPBC Act. BIAs within the AMP include breeding habitat for seabirds, interbreeding, foraging, mating and nesting habitat for

marine turtles, a migratory pathway for humpback whales and foraging habitat for whale sharks. Impacts to the relevant species and BIAs are discussed in the sections above.

Cultural values: There is limited information about the cultural significance of this AMP, however, it is noted that 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. Potential impacts to cultural values of the AMP will closely tie in with the impacts to the natural values of the Marine Park, as addressed above and below; and range from moderate mid-term potential impacts to major long-term potential impacts.

Heritage values: There are no World, National or Commonwealth heritage listings that apply to the AMP. Two historic shipwrecks are located within the Marine Park. Impacts to shipwrecks are discussed below under 'Cultural Heritage'.

Social and economic values: Tourism, commercial fishing, mining and recreation are important activities in the AMP. These activities contribute to the wellbeing of regional communities and the prosperity of the nation. Impacts to tourism and recreation are discussed below.

A worst-case hydrocarbon spill scenario has the potential to result in impacts to these AMPs that range from moderate, medium-term to major, long-term, with the consequence severity dependent on the actual timing, duration and extent of a spill.

KEFs

KEFs potentially impacted by the hydrocarbon spill from a LOWC are detailed in Section 4.7. Although these KEFs are primarily defined by seabed geomorphological features, they can indicate a potential for increased biological productivity and, therefore, ecological significance.

The consequences of a hydrocarbon spill from a LOWC are predicted to result in minor impacts to values of the KEFs affected (for the values of each KEF, Refer Section 4.7). Impacts to benthic habitats are not predicted given the maximum depth of entrained hydrocarbons above 100 ppb is predicted to be 20 m beyond the immediate source. Potential impacts to associated demersal fish assemblages and pelagic communities may occur as previously described.

The KEFs within the EMBA have relatively broad-scale distributions and are unlikely to be significantly impacted. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in moderate, medium-term impacts (C) to the ecological values of KEFs within the EMBA, with impacts predicted to be greatest for habitats closest to the potential release location.

Summary of Potential Impacts to Socio-economic Values

Fisheries – Commercial

Offshore

A hydrocarbon release during a loss of well containment event has the potential to result in direct impacts to target species of Commonwealth and State fisheries within the defined EMBA (refer to Section 4.9.4). Lethal and sublethal effects may impact localised populations of targeted species within the EMBA for entrained/dissolved hydrocarbons above thresholds. However, entrained hydrocarbons are likely to be confined in the upper water column; therefore, demersal species are less likely to be exposed to hydrocarbons than pelagic species. A major loss of hydrocarbons from the Petroleum Activity may also lead to an exclusion of fishing from the spill-affected area for an extended period.

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 its efficacy depends on the magnitude of the hydrocarbon contamination. Fish have a high capacity to metabolise these hydrocarbons, while crustaceans (such as prawns) have a reduced ability (Yender, Michel and Lord 2002). Seafood safety is a major concern associated with spill incidents. Therefore, actual or potential seafood contamination can affect commercial and recreational fishing and can impact seafood markets long after any actual risk to seafood from a spill has subsided (Yender, Michel and Lord 2002).

A major spill would 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 of time, and subsequent potential for minor economic impacts to affected commercial fishing operators.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 273 of 445

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Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major, long-term impacts (B) to commercial fisheries within the EMBA, particularly for pelagic fisheries and fisheries with most of their effort focused within the EMBA.

Nearshore

In the highly unlikely event of a LOWC, there is the possibility that target species in some areas used by a number of State fisheries, prawn fisheries, pearl oyster fisheries and aquarium, and land hermit crab fisheries in nearshore waters of the mainland coast and islands that are within the EMBA could be affected. Targeted fish, prawn, mollusc and lobster species could experience sub-lethal stress, or in some instances mortality, depending on the concentration and duration of hydrocarbon exposure and its inherent toxicity.

The hydrocarbons predicted to reach these nearshore water locations will be in an advanced state of weathering and at concentrations typically associated with lethal and sub-lethal impacts to only the most sensitive marine organisms.

Therefore, direct impacts may be limited to sub-lethal impacts only. However, there is also the potential for tainting of target species and for negative public perception.

Prawn Managed Fisheries

In a major spill, the modelling indicated the entrained EMBA may extend to nearshore waters closest to the mainland Pilbara and Gascoyne coasts. Note that the majority of the demarcated area for the prawn managed fishery in the Exmouth Gulf (proper) is outside the EMBA. Those fisheries that occur within the EMBA (refer to Section 4.9.4) occur in shallow, nearshore waters where limited hydrocarbon exposures are predicted to occur.

Prawn habitat utilisation differs between species in the post-larval, juvenile and adult stages (Dall, et al. 1990). Direct impacts to benthic habitat due to a major spill has the potential to impact prawn stocks. For example, juvenile banana prawns are found almost exclusively in mangrove-lined creeks (Rönnbäck, et al. 2002), whereas juvenile tiger prawns are most abundant in areas of seagrass (Masel and Smallwood 2000). Adult prawns also inhabit coastline areas but tend to move to deeper waters to spawn. In a major spill, the model predicted shallow subtidal and intertidal habitats at the Muiron Islands, Montebello Islands, Barrow Island, Pilbara Southern Islands Group, and mangrove and seagrass habitats of the Ningaloo Coast are located within the EMBA and could be exposed to hydrocarbon concentrations above threshold concentrations, depending on the trajectory of the plume. Localised loss of juvenile prawns in worse spill affected areas is possible. Whether lethal or sub-lethal effects occur will depend on duration of exposure, hydrocarbon concentration, weathering stage of the hydrocarbon and its inherent toxicity. Furthermore, seafood consumption safety concerns and a temporary prohibition on fishing activities may lead to subsequent potential for economic impacts to affected commercial fishing operators.

Therefore, a worst-case credible hydrocarbon spill scenario has the potential to result in displacement of fishing activities in the spill-affected area for an extended period, detrimental impacts to seafood quality, and stress/mortality affects to target species including prawn stocks through critical habitat destruction across commercial fisheries within the EMBA. As such, a worst-case hydrocarbon spill scenario has the potential to result in major, long-term impacts (B) to commercial fisheries within the EMBA.

Tourism including Recreational Activities

In the event of a major spill, the nearshore waters of offshore islands and reefs (e.g. Barrow / Montebello / Muiron Islands, Pilbara Islands etc.) as well as the Ningaloo coast could be reached by entrained and dissolved hydrocarbons depending on prevailing wind and current conditions. There is also a low probability (up to 9%) of shoreline accumulation above the socio-cultural threshold at few receptor sites (Table 6-12). As these locations offer a number of amenities such as fishing, swimming and using beaches and surrounds, they have a recreational value for local residents and visitors. If a LOWC resulted in hydrocarbon contact, there could be restricted access to beaches for a period of days to weeks, until natural weathering, tides, currents or oil spill response (e.g. shoreline clean-up if safe to do so) removes the hydrocarbons. Tourists and recreational users may also avoid areas due to perceived impacts, including after the oil spill has dispersed.

Recreational fishers predominantly target large tropical species, such as emperor, snapper, grouper, mackerel, trevally and other game fish. Recreational angling activities include shore-based fishing, private boat and charter boat fishing, with peak activity between April and October (Smallwood, et al. 2011) for the Exmouth region.

There is the potential for stakeholder perception that this environment will be contaminated over a large area and for the longer term, resulting in a prolonged period of tourism decline. Oxford Economics (2010) assessed the duration of hydrocarbon spill-related tourism impacts and found that, on average, it took 12 to 28 months to return to baseline visitor spending. There is likely to be significant impacts to the tourism industry, 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. Recovery and return of tourism to pre-spill levels will depend on the size of the

spill, effectiveness of the spill clean-up, and change in any public perceptions regarding the spill (Oxford Economics 2010).

Consequently, in the case of a LOWC (highly unlikely), a worst-case hydrocarbon spill scenario has the potential to result in moderate, medium-term impacts to tourism and recreation (C) within the EMBA.

Offshore Oil and Gas Infrastructure

A hydrocarbon release during a loss of well containment event has the potential to result in disruptions to production at existing petroleum facilities (e.g. platforms and Floating Production Storage and Offloading facilities), as well as activities such as drilling and seismic exploration. For example, facility water intakes for cooling and fire hydrants could be shut off if contacted by floating hydrocarbons, which could in turn lead to the temporary cessation of production activities. Spill exclusion zones established to manage the spill could also prohibit access for activity support vessels as well as offtake tankers approaching facilities off the North West Cape.

The impact on ongoing operations of regional production facilities would be determined by the nature and scale of the spill and metocean conditions. Furthermore, decisions on the operation of production facilities in the event of a spill would be based primarily on health and safety considerations. The closest production facilities are:

- Wheatstone Platform (operated by Chevron): within the southeast extent of the Operational Area
- Pluto Platform (operated by Woodside): ~4 km south of the Operational Area
- John Brookes Platform (operated by Santos): ~30 km south of the Operational Area
- Goodwyn Alpha Platform (operated by Woodside): ~64 km northeast of the Operational Area
- North Rankin Complex (operated by Woodside): ~86 km northeast of the Operational Area
- Okha FPSO Facility (operated by Woodside): ~117 km northeast of the Operational Area
- Angel Platform (operated by Woodside): ~135 km northeast of the Operational Area.

Therefore, a worst-case hydrocarbon spill scenario has the potential to result in slight, short-term impacts (E) to oil and gas industry.

Heritage – European and Indigenous / Underwater Cultural Heritage

Through consultation and review of available literature (Section 4.9.1), Woodside understands that Sea Country, including marine ecosystems and species, archaeological heritage and heritage sites, marine parks, as well as intangible cultural heritage may be impacted in the event of a hydrocarbon release from LOWC. Cultural features and heritage values that have the potential to be impacted include:

Marine ecosystems and species: Marine ecosystems may hold both cultural and environmental value to Traditional Custodians (see Section 4.9.1), with cultural and environmental values intrinsically linked (DCCEE 2023). 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 EMBA is known to include habitat for culturally important species such as whales, whale sharks, turtles, dugongs, plankton, and seagrass (Sections 4.5 to 4.9.1). In the event of a worst-case release of hydrocarbon individual fauna may be directly impacted or impacted through temporary degradation of their habitats, however, no population level impacts are expected. Impacts are not expected to occur to ecologically significant proportions of the populations of the species, nor expected to result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Heritage Sites:

The EMBA overlaps two registered Aboriginal Sites and 20 lodged Sites. Note that shoreline accumulation above social thresholds concentrations (>10 g/m²) was identified by the modelling in Ningaloo Coast North World Heritage and a few State terrestrial parks (Table 6-12). Any oil that reaches the shoreline has potential to impact on indigenous heritage places along the coastline. In the unlikely event of a hydrocarbon release, shoreline accumulation may affect sensitive artefacts or areas, which could damage their heritage value.

Marine Parks:

The EMBA overlaps three AMPs under North-West Marine Parks Network Management Plan 2018 and five State Marine Parks and Nature Reserves (Section 4.8). Due to the low maximum concentrations predicted to reach any marine park, it is not anticipated that their values will be compromised.

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Intangible cultural heritage: Impacts may occur to intangible cultural values such as songlines; creation / dreaming sites, sacred sites, ancestral beings; cultural obligations to care for Country; knowledge of Country/customary law and transfer of knowledge; connection to Country; Access to Country; kinship systems and totemic species, resource collection. 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, Donald Thomson: Observations of Animal Connections in Visual Ethnography in Northern Australia 2021). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes 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). In the unlikely event of a hydrocarbon release, intangible cultural heritage values may be impacted.

MEE-01 Loss of Well Containment – Risk Analysis

Bowtie risk analysis was undertaken to assess MEE-01; refer to Figure 6-3 and Figure 6-4 for bowtie diagrams.

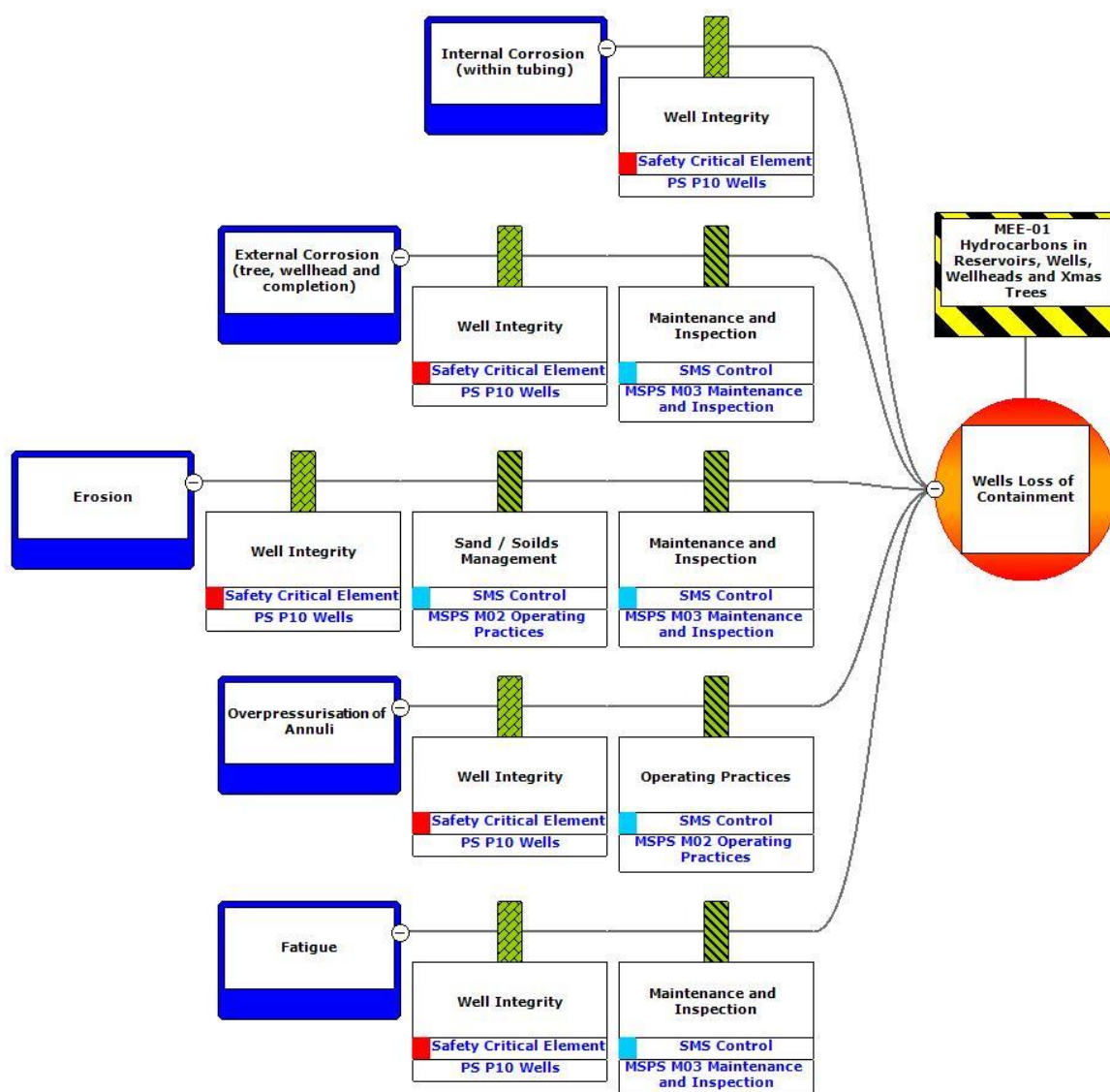


Figure 6-3: MEE-01 Wells Loss of Well Containment (Causes 1-5)

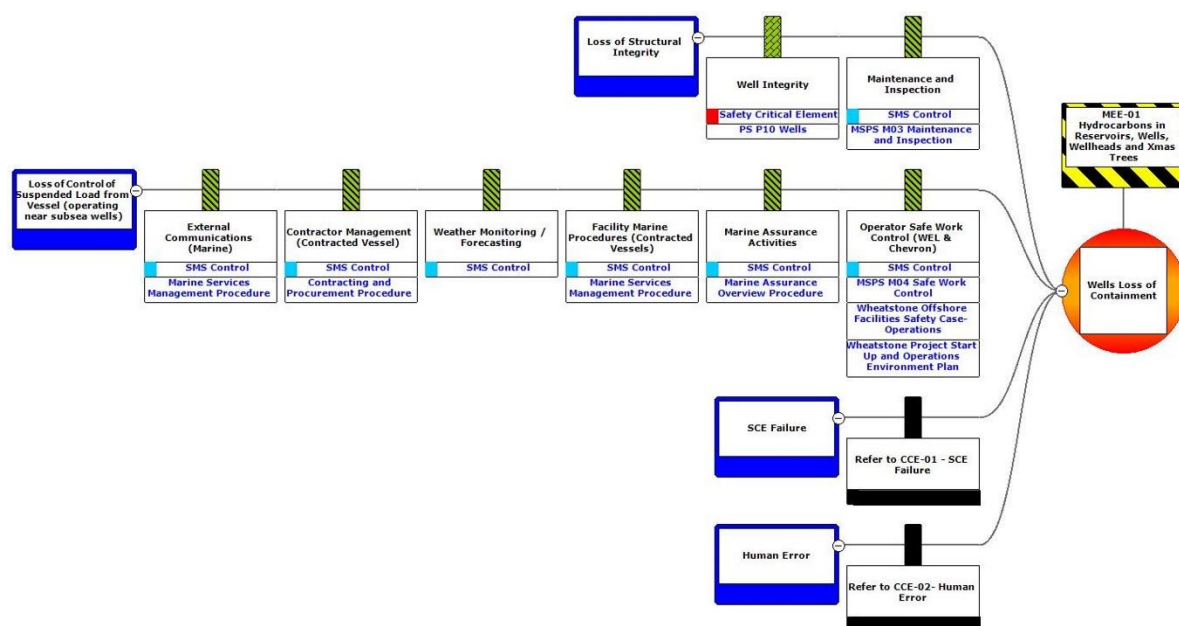


Figure 6-4: MEE-01 Wells Loss of Well Containment (Causes 6-9)

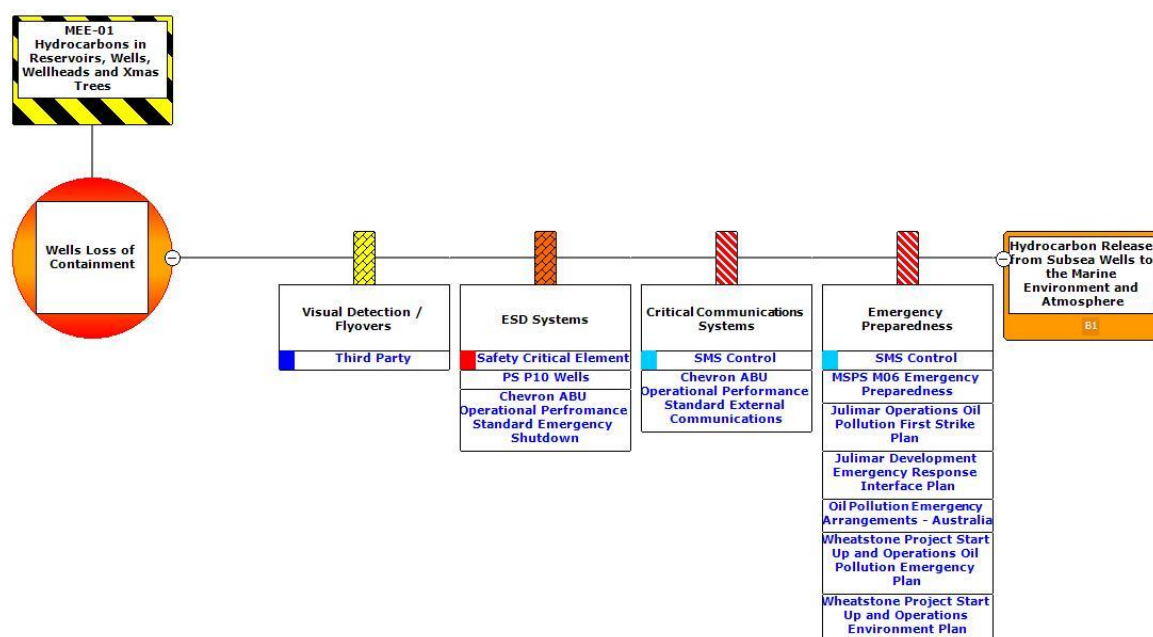


Figure 6-5: MEE-1 Well LOWC (Outcomes)

MEE-01 Loss of Well Containment – Demonstration of ALARP				
ALARP Control Measures				
Hierarchy	Control / Barrier	SCE / Management System Reference	Type of Effect	Control Adopted
Preventive Barriers – Safety and Environmental Critical Elements				

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 278 of 445

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MEE-01 Loss of Well Containment – Demonstration of ALARP ALARP Control Measures				
Hierarchy	Control / Barrier	SCE / Management System Reference	Type of Effect	Control Adopted
Elimination	N/A	No elimination or substitution controls were identified beyond those incorporated in design		
Substitution				
Engineering Controls	Maintaining well and hydrocarbon containing infrastructure mechanical integrity to contain reservoir fluids within the well envelope to avoid an MEE.	P10 – Wells	Prevention (Technical)	Yes C 9.1
Mitigating Barrier – Safety and Environmental Critical Elements				
Engineering Controls	Maintain integrity of well system isolations as fail safe and available to safely isolate reservoir from subsea systems and the environment and prevent LOC event escalation to a MEE.	PS P10 – Wells Wheatstone Upstream Platform Operational Performance Standard Emergency Shutdown as referenced in Wheatstone Safety Case.	Reduction (Technical)	Yes C 9.2
Legislation, Codes and Standards				
Procedures and Administration	OPGGS (Safety) Regulations 2009: Accepted Safety Case: <ul style="list-style-type: none"> Accepted Safety Case for Wheatstone Offshore Facilities to: <ul style="list-style-type: none"> identify hazards that have the potential to cause a 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 a MAE to ALARP. <p>Thus, contributing to management of associated potential environmental consequences of MAEs.</p>	Wheatstone Offshore Facilities Safety Case – Operations.	Prevention / Mitigation (Administration) Control based on legislative requirements – must be adopted)	Yes C 9.3

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 279 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

MEE-01 Loss of Well Containment – Demonstration of ALARP ALARP Control Measures				
<i>Hierarchy</i>	<i>Control / Barrier</i>	<i>SCE / Management System Reference</i>	<i>Type of Effect</i>	<i>Control Adopted</i>
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 that are 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.	Julimar/Brunello WOMP	Prevention/Mitigation (Administration) Control based on legislative requirements – must be adopted.	Yes C9.4
Procedures and Administration	OPGGS(E)R 2023: requires an EP for the Start Up and Operations of the Wheatstone Offshore Facilities (and associated subsea infrastructure).	The Wheatstone Start up and Operations EP is in force and describes the requirements, including legislative requirements, that apply to the activity and are relevant to the environmental management of the activity and demonstrate how those requirements will be met. The Wheatstone Start Up and Operations EP outlines the Operational Interface with Third-Party Assets (including Julimar-Brunello) and Chevron's contracted field operating services role in the safe operation, maintenance/testing and provision of emergency response arrangements for Julimar-Brunello	Prevention/Mitigation (Administration) Control based on legislative requirements – must be adopted.	Yes C 9.5)

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 280 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

MEE-01 Loss of Well Containment – Demonstration of ALARP ALARP Control Measures				
Hierarchy	Control / Barrier	SCE / Management System Reference	Type of Effect	Control Adopted
		subsea and wells systems.		
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 Inspection • M04 Safe Work Control • Contracting and Procurement Procedure • Marine Services Management Procedure • Marine Assurance Overview Procedure • Prevention / management of potential for human error • Prevention / management of potential for systemic / SCE failure. 	MSPS-03 Maintenance and Inspection MSPS 02 Operating practices MSPS 04 Safe Work Control Contracting and Procurement Procedure Marine Services Management Procedure Marine Assurance Overview Procedure.	Prevention (Administration)	Yes See Section 7 (Implementation Strategy)
Procedures and Administration	Incident reports are raised for unplanned releases within event reporting system.	Woodside Health, Safety and Environment Event Reporting and Investigation Procedure.	Prevention / Mitigation (Administration) Control based on Woodside standard and regulatory requirements	Yes C 9.6
Procedures and Administration	Implement Chevron Operational Excellence Management System (OEMS) linked to: <ul style="list-style-type: none"> • maintain well mechanical Integrity in operations • maintain operations within the well integrity and safe operating envelope (e.g. erosion, fatigue) 	Wheatstone Offshore Facilities Safety Case – Operations, and the following, as referenced in the Safety Case: <ul style="list-style-type: none"> • Chevron ABU Permit to Work Manual • Chevron, Wheatstone Operations Training Plan 	Prevention/ Mitigation (Administration)	Yes In place via Wheatstone Safety Case C 9.7

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 281 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

MEE-01 Loss of Well Containment – Demonstration of ALARP ALARP Control Measures				
Hierarchy	Control / Barrier	SCE / Management System Reference	Type of Effect	Control Adopted
	<ul style="list-style-type: none"> prevent/manage potential for human error prevent/manage potential for systemic/SCE failure. 	<ul style="list-style-type: none"> Chevron ABU Operational Performance Standard Emergency Shutdown. 		
Emergency Response and Contingency Planning	Implementing management systems to maintain: <ul style="list-style-type: none"> M06 – Emergency Preparedness Julimar Emergency Response Interface Plan Julimar Operations Oil Pollution First Strike Plan Oil Pollution Emergency Arrangements – Australia. 	MSPS-06 Emergency Preparedness Julimar Operations Oil Pollution First Strike Plan (Appendix G) Julimar Emergency Response Interface Plan Oil Pollution Emergency Arrangements – Australia.	Mitigation (Administration)	Yes C 9.7 C9.8 Refer to Section 7 and Appendix D for a discussion around the ALARP assessment of controls related to hydrocarbon spill response.
Emergency Response and Contingency Planning	Implement Chevron OEMS controls for Emergency Response.	Wheatstone Offshore Facilities Safety Case – Operations which includes; <ul style="list-style-type: none"> Wheatstone Project Start-up and OPEP Chevron ABU, Operational Performance Standard External Communications. 	Mitigation (Administration)	Yes In place via Wheatstone Safety Case C 9.3 , and Environment Plan C 9.5 . Refer to Section 7 and Appendix D for a discussion around the ALARP assessment of controls related to hydrocarbon spill response.
Risk Based Analysis				
<p>For risks identified as MEEs, a detailed risk-based bowtie analysis (as outlined in Section 2.7.3) has been used to identify, analyse and demonstrate that controls in place reduce the risk associated with each MEE to ALARP. 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.</p> <p>Application of Woodside's Risk Management Procedures and implementation of the WOMP provides for continuous identification of hazards, systematic assessment of risks, and ongoing assessment of alternative control measures to reduce risk to ALARP, which includes:</p> <ul style="list-style-type: none"> ongoing hazard identification, risk assessment and the identification of control measures 				

MEE-01 Loss of Well Containment – Demonstration of ALARP ALARP Control Measures				
Hierarchy	Control / Barrier	SCE / Management System Reference	Type of Effect	Control Adopted
<ul style="list-style-type: none"> ongoing integrity management of hardware control measures in accordance with the operational performance standards which define requirements to be suitably maintained, such that they retain effectiveness, functionality, availability and survivability well integrity codes and standards. <p>For each SCE, detailed requirements for equipment functionality, availability, reliability and survivability are incorporated into SCE Performance Standards which also include the relevant assurance tasks (e.g. inspection, maintenance, testing and monitoring requirements) to determine technical integrity.</p> <p>A quantitative spill risk assessment was undertaken (refer to Section 6.8.2 for details of the method used).</p>				
Company Values				
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 will be undertaken in line with these policies, standards and procedures that include suitable controls to prevent loss of well containment, and response should a loss of well containment occur.				
Societal Values				
<p>Due to the Petroleum Activities Program's proximity to sensitive receptors (e.g. Montebello Marine Park) and the potential extent of the wider EMBA, the LOWC risk rating presents a Decision Type B in accordance with the decision support framework described in Section 2.6.1. Consultation was undertaken for this program to identify the views and concerns of relevant persons, as described in Section 5.</p> <p>Woodside has sent a Consultation Information Sheet to all identified relevant persons regarding the Petroleum Activities Program (Section 5). Woodside has consulted with AMSA and the WA Department of Transport (DoT) on spill response strategies. A copy of the Oil Pollution First Strike Plan was provided to AMSA and DoT.</p>				
<p>ALARP Statement:</p> <p>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 impacts and risks of a very low likelihood unplanned hydrocarbon release as a result of a LOWC.</p> <p>The principle of inherent safety and environmental protection is based on the prevention of the MEE through design of well integrity, 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.</p> <p>The controls in place for prevention and mitigation of MEE are specified and assured through implementing the WOMP, SCE management procedures including technical performance standards for SCEs and Management System Performance Standards for Safety Critical Procedures and ensuring the implementation of the Wheatstone Offshore Facilities Safety Case – Operations.</p> <p>The application of Woodside Risk Management Procedures, and implementation of the WOMP provides for the continuous identification of hazards, systematic assessment of risks and ongoing assessment of alternative control measures to reduce risk to ALARP, which includes:</p> <ul style="list-style-type: none"> 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 well integrity codes and standards. <p>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 MEE risk associated with LOWC from Julimar subsea wells are managed to ALARP.</p>				

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Demonstration of Acceptability

Acceptability Statement:

LOWC has been evaluated as having a 'Moderate' risk rating. As per Section 2.6.3, Woodside considers 'Moderate' risk ratings 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.

Acceptability is demonstrated with regard to the considerations below.

Principles of Ecologically Sustainable Development

Woodside is a proud Australian company that is here for the long-term. Woodside has a strong history of exploration and development of oil and gas reserves in the North West of WA with an excellent environmental record, while providing revenue to State and Commonwealth Governments, returns to shareholders, jobs and support to local communities. Titles for oil and gas exploration are released based on commitments to explore with the aim of uncovering and developing resources. It is under the lease agreement that Woodside has determined the potential to develop the hydrocarbon fields for which acceptance of this EP is sought under the Environment Regulations.

Woodside has established a number of research projects in order 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. Where scientific data do not exist, Woodside assumes that a pristine natural environment exists and therefore, implements all practicable steps to prevent damage. Woodside's corporate values require that we consider the environment and communities in which we operate when making decisions.

Woodside looks after the communities and environments in which we operate. Risks are inherent in petroleum activities; however, through sound management, systematic application of policies, standards, procedures and processes, Woodside considers that despite this risk, the extremely low likelihood of loss of well containment is acceptable.

Internal Context

The Petroleum Activities Program is consistent with Woodside corporate policies, standards, procedures, processes and training requirements as outlined in the Demonstration of ALARP and Environmental Performance Outcomes, including:

- Woodside Health, Safety, Environment and Quality Policy
- Woodside Risk Management Policy
- The SCE technical Performance Standards developed and implemented for the Julimar Field Production System.

Hydrocarbon spill preparedness and response strategies are considered applicable to the nature and scale of the risk and associated impacts of the response are reduced to ALARP.

Woodside's corporate values include working sustainably, with respect to the environment and communities in which we operate, listening to internal and external stakeholders and considering Health, Safety and Environment (HSE) when making decisions. Stakeholder consultation, outlined below, has been undertaken prior to the Petroleum Activities Program.

External Context – Societal Values

Woodside recognises that our 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 stakeholder consultation, outlined below, has been undertaken prior to the Petroleum Activities Program:

- Woodside has consulted with AMSA and WA DoT on spill response strategies. A copy of the Oil Pollution First Strike Plan was provided to AMSA and DoT.
- Consultation with other relevant stakeholders (Section 5) and incorporation of stakeholder feedback into this EP where appropriate.
- By providing hydrocarbon spill response measures that are commensurate with the risk rating, location and sensitivity of the receiving environment (including social and aesthetic values), Woodside believes that this addresses societal concerns to an acceptable level.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 284 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Other Requirements (includes laws, policies, standards and conventions)

The Petroleum Activities Program is consistent with laws, policies, standards and conventions, including:

- Accepted Safety Case (as per the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009)
- Mutual aid memorandum of understanding for relief well drilling is in place
- Accepted WOMP as per the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011
- Notification of reportable and recordable incidents to NOPSEMA, if required, in accordance with Section 7.15.

The EMBA overlaps a number of BIAs for threatened and migratory species. Relevant species recovery plans and conservation advice have been considered during the impact assessment and, given the adopted controls, the Petroleum Activities Program is not considered to be inconsistent with the overall objectives and actions of these plans (Section 6.10).

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 9 No unplanned release of hydrocarbons to the marine environment due to loss of well containment.	C 9.1 Maintain well and hydrocarbon containing infrastructure mechanical integrity to contain reservoir fluids within the well envelope to avoid a MEE.	PS 9.1 Integrity will be managed in accordance with SCE Management Procedure (Section 7.3.4) and SCE technical PSs to maintain environment risk-related damage to SCEs for: <ul style="list-style-type: none"> • P10 – Wells to: <ul style="list-style-type: none"> – verify that a well retains the mechanical integrity to contain reservoir fluids within the well envelope at all times to avoid a MEE. Including operate phase environmentally critical equipment for pressure containment, structures, monitoring and isolating the systems associated with the well. 	MC 9.1.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety and Environment Critical Element Management Procedure (Section 7.3.4), in order to achieve the functional objective of the control.
	C 9.2 Maintain integrity of well system isolations as fail safe and available to safely isolate reservoir from subsea systems and the environment and prevent LOC event escalation to a MEE.	PS 9.2 Integrity will be managed in accordance with SCE Management Procedure (Section 7.3.4) and SCE technical PSs to maintain environment risk-related functional objectives for: <ul style="list-style-type: none"> • P10 – Wells to: <ul style="list-style-type: none"> – detect and respond to predefined initiating conditions and/or initiate responses that put the equipment, and 	Refer to MC 9.1.1

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 285 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

EPOs, PS and MC			
EPO	Controls	PS	MC
		the wells in a safe condition so as to prevent or mitigate the effects of a MEE.	
	C 9.3 OPGGS (Safety) Regulations 2009: Accepted Safety Case in place for the Wheatstone Offshore Facilities. This framework, contributes to management of associated potential environmental consequences of MAE, and includes operation of third-party well and subsea systems (with regard to operating integrity envelopes, isolations, and emergency arrangements)	PS 9.3 Woodside to put in place a field operating services contract with Chevron, with the accepted Wheatstone Offshore Facilities Safety Case in force in order to flow Julimar Brunello fluids to integrated field production system.	MC 9.3.1 Field operating services contract and an accepted Wheatstone Offshore Facilities Safety Case in place.
	C 9.4 OPGGS (Resource Management and Administration) Regulations 2011: Accepted 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 that are in place to determine well design and integrity is managed for the well lifecycle, thus contributing to management of associated potential environmental consequences of well integrity events.	PS 9.4 An accepted WOMP is implemented, and well integrity notification and reporting is undertaken in accordance with the Regulations (as applicable).	MC 9.4.1 Acceptance letter from NOPSEMA demonstrates acceptance of the WOMP. Records demonstrate applicable NOPSEMA notification and reporting.
	C 9.5 OPGGS(E)R 2023: Accepted EP for the Start Up and Operations of the Wheatstone Offshore	PS 9.5 Woodside to put in place a field operating services contract with Chevron, with an accepted Wheatstone Operations EP in force in order to flow Julimar	MC 9.5.1 Field operating services contract and an accepted EP in-force.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 286 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

EPOs, PS and MC			
EPO	Controls	PS	MC
	Facilities (and associated subsea infrastructure). The EP outlines the Operational Interface with Third-Party Assets (including Julimar-Brunello) and Chevron's contracted field operating services role in the safe operation, maintenance/testing and provision of emergency response arrangements for Julimar-Brunello subsea and wells systems.	Brunello fluids to integrated field production system.	
	C 9.6 Incident reports are raised for unplanned releases within event reporting system.	PS 9.6 Incident reports raised for unplanned releases, and Recordable Incidents notified.	MC 9.6.1 Records demonstrate incident reports raised for unplanned releases, and applicable Recordable Incident notifications completed.
	C 9.7 In the event of a spill emergency response activities implemented in accordance with the OPEP.	PS 9.7 In the event of a spill the Julimar Operations OPEP requirements are implemented.	MC 9.7.1 Completed incident documentation.
	C 9.8 Arrangements supporting the activities in the OPEP will be tested to ensure the OPEP can be implemented as planned.	PS 9.8.1 Exercises/tests will be conducted in alignment with the frequency identified in Table 7-12.	MC 9.8.1 Testing of arrangement records confirm that emergency response capability has been maintained.
		PS 9.8.2 Woodside's procedure demonstrates a minimum level of trained personnel, for core roles in the OPEP, are maintained.	MC 9.8.2 Emergency Management dashboard confirms that minimum level of personnel trained for core OPEP roles are available.
	Mitigation – hydrocarbon spill response	Refer to Appendix D for the discussion around the ALARP assessment of controls related to hydrocarbon spill response.	

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 287 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

6.9 Unplanned Activities (Accidents, Incidents, Emergency Situations)

6.9.1 Unplanned Hydrocarbon Release: Vessel Collision

Context														
Failure of integrity of subsea infrastructure – Section 3.5	Physical Environment – Section 4.3 Biological Environment – Section 4.4 Protected Species – Section 4.5 KEFs – Section 4.7 Protected Places – Section 4.8 Socio-Economic Environment – Section 4.9						Consultation – Section 5							
	Risk Evaluation Summary													
	Source of Risk	Environmental Value Potentially Impacted						Evaluation						
		Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
	Loss of hydrocarbons to marine environment due to a vessel collision (e.g. support vessels or other marine users).		X		X	X	X	A	D	1	M	LCS GP	Acceptable	EPC 10
Description of Source of Risk														
<p>The temporary presence of vessels in the Operational Area during Petroleum Activities Program 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 an activity vessel resulting in release of hydrocarbons.</p> <p>IMMR vessels have multiple isolatable diesel tanks typically located mid-ship and typically range in size from 22 to 250 m³.</p> <p>In the unlikely event of a vessel collision, the vessel will have the capability to pump marine diesel from a ruptured tank to a tank with spare volume in order to reduce the potential volume of fuel released to the environment.</p> <p>Industry Experience</p> <p>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).</p> <p>From a review of the ATSB marine safety and investigation reports relevant to oil and gas industry vessels conducted for this EP (ATSB 2011), 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</p>														

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 288 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

alongside a wharf, causing it to sink. No reported pollution resulted from the sunken vessel. These incidents demonstrate the likelihood of low volume hydrocarbon releases in the 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 related to the grounding instances.

Credible Scenario

The worst-case hydrocarbon spill scenario for a vessel collision is defined as a maximum volume of 250 m³ of marine diesel resulting from a catastrophic rupture and loss of the largest single diesel tank inventory on a vessel.

For a vessel collision to result in this remote but credible scenario several factors must align, as follows:

- vessel interaction must result in a collision
- the force of the collision should be sufficient to breach the vessel hull
- the tank breach must occur in the location of the fuel tank
- the fuel tank must be full, or at least of volume which is higher than the point of penetration.

The probability of this chain of events is considered remote.

Quantitative Hydrocarbon Risk Assessment

Analogous modelling was performed by RPS, on behalf of Woodside to determine the fate of marine diesel. Existing modelling was undertaken in 2022 for a release of 500 m³ of MDO ~6 km from the Operational Area. Given that the available modelling is 50% larger than then spill risk for this activity, within the same vicinity and slightly closer to Montebello Islands, it is deemed representative and additional modelling was therefore not required.

The modelling assessed the extent of a marine diesel spill for all seasons, using an historic sample of wind and current data for the region. The results of the modelling can be used to demonstrate that a marine diesel spill within the Operational Area has an EMBA that is not predicted to include any shoreline contact or accumulation at impact thresholds. A total of 200 replicate simulations were modelled over an annual period.

Hydrocarbon Characteristics

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 around 72% of the oil mass is forecast to have entrained and a further 24% is forecast to have evaporated over the first 24 hours (Figure 6-6) (RPS 2022). After this time the majority of the remaining hydrocarbon is entrained into the upper water column, leaving only a small proportion of the oil floating on the water surface (<1%). Given the large proportion of entrained oil and the tendency for it to remain mixed in the water column, the remaining hydrocarbons will decay and/or evaporate over time scales of several weeks to a few months.

Given the environmental conditions experienced in the Operational Area, 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. The characteristics of the marine diesel are given in Table 6-13.

Table 6-13: 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 to 265	Low volatility (%) 265 to 380	Residual (%) >380
				Non-Persistent			Persistent
Marine diesel	0.829	4.0	% of total	6	34.6	54.4	5

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 289 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

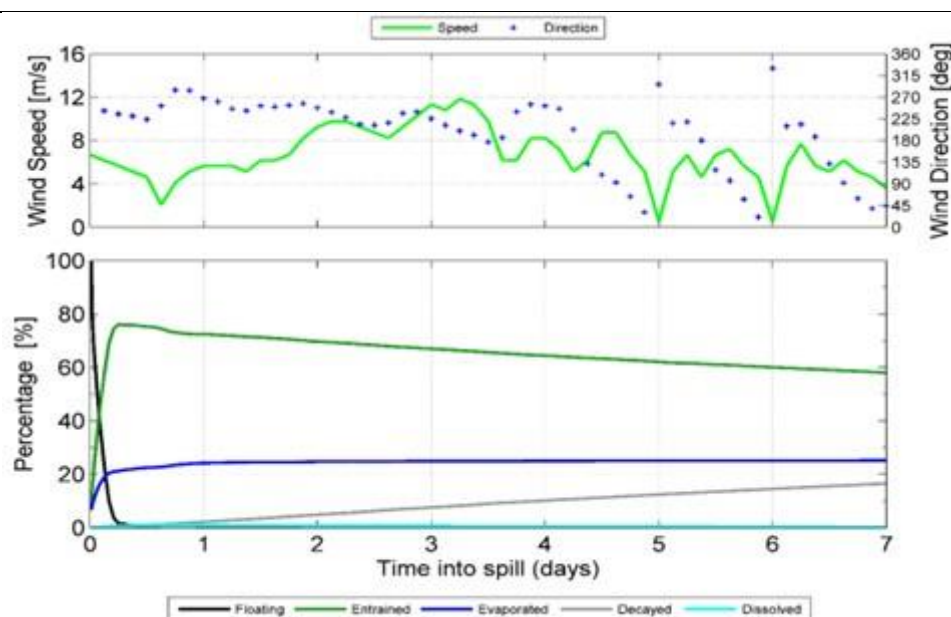


Figure 6-6: Proportional mass balance plot representing the weathering of marine diesel spilled onto the water surface as a one-off release (50 m³) and subject to variable wind at 27 °C water temperature and 25 °C air temperature (RPS 2022).

Consequence Assessment

Environmental Value(s) Potentially Impacted

EMBA

The EMBA covers a larger area than the area that would be affected during any 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 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 discussed for each fate.

Surface Hydrocarbons

Quantitative hydrocarbon spill modelling results for surface hydrocarbons are shown in Table 6-14. If this scenario occurred, 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 would be confined to open water, with surface hydrocarbons extending up to about 105 km and 65 km from the release location at or above the 1 g/m² and 10 g/m² impact threshold. A socio-cultural EMBA for surface hydrocarbons which includes the threshold for visible surface hydrocarbons of 1 g/m² may extend beyond the EMBA in which ecological impacts may occur.

Entrained Hydrocarbons

Quantitative hydrocarbon spill modelling results are shown in Table 6-14. If this vessel collision scenario occurred, a plume of entrained hydrocarbons would form down-current of the release location, with the trajectory dependent on prevailing current conditions at the time. The modelling indicates that locations exposed to entrained hydrocarbons at or above the threshold concentration of 100 ppb are restricted to offshore areas, islands, and reefs. Table 6-14 provides details of receptors potentially contacted by entrained diesel at or above 100 ppb.

Dissolved Hydrocarbons

Dissolved aromatic hydrocarbons at concentrations equal to or greater than the 50 ppb threshold are predicted to be confined to offshore areas and reefs. Dissolved hydrocarbon concentrations above 400 ppb are not predicted to contact any sensitive receptor locations.

Accumulated Hydrocarbons

Hydrocarbon spill modelling results for accumulated hydrocarbons are shown in Table 6-14. No shoreline contact above impact threshold (i.e. social or ecological) level was predicted to occur.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 290 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

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Controlled Ref No: JU-00-RI-10006 Revision: 8.0 Native file DRIMS No: 10484514 Page 291 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Table 6-14: EMBA - Key Receptor Locations and Sensitivities Potentially Contacted Above Impact Thresholds by the Vessel Collision Scenario with Summary Hydrocarbon Spill Contact

Environmental Setting	Receptor	Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions																									Probability of hydrocarbon contact and fate (%)								
		Physical		Biological																		Socio-economic and Cultural					Socio-cultural EMBA		EMBA						
		Water Quality	Sediment Quality	Marine Primary Producers			Other Communities / Habitats						Protected Species																				Other Species		
		Open water – (pristine)	Marine Sediment – (pristine)	Coral reef	Seagrass beds / Macroalgae	Mangroves	Spawning / nursery areas	Open water – Productivity / upwelling	Non-biogenic 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 (foraging and interesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident / Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and Gas Infrastructure (topside and subsea)	Surface hydrocarbon (1 to 10 g/m ²)	Accumulated hydrocarbon (1 to 10 g/m ²)	Surface hydrocarbon (>10 g/m ²)	Entrained hydrocarbon (≥100 ppb)	Dissolved hydrocarbon (≥50 ppb)
AMPs	Montebello Marine Park	✓	✓	✓			✓	✓						✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓		4		1.5	19.5	5		
	Ningaloo Marine Park	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				2.5			
	Gascoyne Marine Park	✓	✓					✓						✓	✓			✓			✓	✓	✓		✓			✓				1			
State Marine Parks and Nature Reserves	Barrow Island (Marine Park and Marine Management Area)	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓		✓			3.5		
	Boodie, Double Middle Islands Nature Reserve	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓		✓			1		
	Montebello Marine Park	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓				1.5			
	Muiron Islands Marine Management Area	✓	✓	✓	✓		✓	✓		✓		✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓				2.5			
	Ningaloo Marine Park	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				1.5			
	Pilbara Islands - Southern Island Group	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				1.5			
Submerged Shoals and Banks	Montebello Shoals	✓	✓	✓			✓	✓			✓			✓	✓			✓	✓	✓	✓		✓	✓								1			
	Ningaloo Reef	✓	✓	✓			✓	✓			✓			✓	✓			✓	✓	✓	✓		✓	✓								1			
	Penguin Bank	✓	✓	✓			✓	✓			✓			✓	✓			✓	✓	✓	✓		✓	✓								1.5			
	Poivre Reef	✓	✓	✓			✓	✓			✓			✓	✓			✓	✓	✓	✓		✓	✓								1			
	Tryal Rocks	✓	✓	✓			✓	✓			✓			✓	✓			✓	✓	✓	✓		✓	✓								8.5			

Environmental Setting		Receptor	Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions																							Probability of hydrocarbon contact and fate (%)									
			Physical		Biological															Socio-economic and Cultural				Socio-cultural EMBA		EMBA									
			Water Quality	Sediment Quality	Marine Primary Producers	Other Communities / Habitats					Protected Species					Other Species																			
			Open water – (pristine)	Marine Sediment – (pristine)	Coral reef	Seagrass beds / Macroalgae	Mangroves	Spawning / nursery areas	Open water – Productivity / upwelling	Non-biogenic 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 (foraging and interesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident / Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and Gas Infrastructure (topside and subsea)	Surface hydrocarbon (1 to 10 g/m²)	Accumulated hydrocarbon (1 to 10 g/m²)	Surface hydrocarbon (>10 g/m²)	Entrained hydrocarbon (≥100 ppb)
World Heritage	Ningaloo Coast North World Heritage	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓					2.5		
Coastline	Exmouth		✓	✓		✓	✓	✓			✓	✓		✓	✓	✓		✓	✓	✓	✓		✓	✓		✓	✓					1			

Summary of Potential Impacts to Environmental Values

In the event of a 500 m³ release of marine diesel spill due to vessel collision, the modelling predicts a low probability (up to 19.5% and 5% [Table 6-14]) of receptors being contacted by entrained hydrocarbons >100 ppb and dissolved aromatic hydrocarbons >50 ppb, respectively. The greatest likelihood of contact is at the Montebello Marine Park (19.5% for entrained and 5% for dissolved) followed by Tryal Rocks (8.5% for entrained only). All other sensitive locations identified in Table 6-14 are predicted to have 3.5% or less probability of contact at entrained threshold concentrations. No other sensitivities were identified to be contacted by dissolved hydrocarbons above impact threshold. No shoreline accumulation was identified by the social or ecological threshold was identified either. Further, entrained hydrocarbons reaching these environments will be highly weathered, with the volatile and water soluble (often the most toxic) components expected to have dissipated. Surface hydrocarbons above 10 g/m² was only predicted to contact Montebello Marine Park with a 1.5% probability.

The potential impacts of spilled hydrocarbons to species (protected and otherwise), marine primary producers, other habitats and communities, water quality, marine sediment quality, air quality, protected areas and socio-economic values are described in detail in Section 6.8.3. The potential impacts of entrained hydrocarbons provided in Section 6.8.3, and the scale of impact described provides a suitable assessment for potential impacts of a 500 m³ release of marine diesel. As identified in Section 6.8.3, the probability of receptors being contacted by entrained hydrocarbons >100 ppb is up to 86%, by dissolved >50 ppb is 76% and surface hydrocarbons above 10 g/m² was 4%.

Impacts specific to a spill of marine diesel are summarised below. It is noted that the toxic components in marine diesel include alkylated naphthalene's which can be rapidly accumulated by marine biota including invertebrates such as marine oysters, clams, shrimp, as well as a range of vertebrates, such as finfish. Marine diesel also contains additives that contribute to its toxicity. Given the localised area of the potential EMBA and the rapid dispersion, dilution and weathering of a marine diesel spill, it is expected that any potential impacts will be low magnitude and temporary in nature.

Protected Species

As identified in Section 4.6 protected species including migrating pygmy blue whales may be encountered near the Operational Area, and therefore could be impacted in close proximity to the marine diesel spill location, where the volatile, water soluble and most toxic components of the diesel may be present. However, the window for exposure to hydrocarbons with the potential for any toxicity effects in these waters would be limited to a few days following the spill. Potential impacts may 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, organ or neurological damage leading to death. Given the absence of critical habitats or aggregation areas, cetaceans in the area are expected to be transient, and impacts are expected to be limited to individuals or small groups of animals. Impact on the overall population viability of cetaceans are not predicted.

There is also the potential for migrating whales, dugongs and coastal dolphin populations to be exposed in nearshore waters, however, the low concentrations and advanced degree of weathering of hydrocarbons in these nearshore waters is not expected to result in any discernible sublethal or lethal impacts to cetaceans.

The EMBA overlaps with BIAs for marine turtle internesting habitat, as identified in Section 4.6.2. Turtle internesting habitats, such as those in waters adjacent to the Montebello Islands, are predicted to have very limited or no exposure to surface or dissolved hydrocarbons above their respective impact threshold concentrations. Some marine turtles in these areas may be exposed to patchy occurrences of entrained hydrocarbons, which would be in an advanced state of weathering with reduced toxicity. Low concentrations are only capable of causing sublethal impacts to the most sensitive marine organisms and no lethal or sub-lethal impacts to marine turtles are expected in the BIAs. The potential for lethal and sub-lethal impacts to marine turtles is limited to small numbers of transient individuals that may be present in offshore waters near the release location.

Seabirds may also be exposed to marine diesel on the sea surface or upper water column, if resting or foraging in waters near to the spill. Impacts may include mortality due to oiling of feathers or the ingestion of hydrocarbons. However, due to the limited spatial extent of a marine diesel spill and limited window for exposure, population level impacts are not expected.

Other protected species that may occasionally transit through the area and may potentially be exposed to a marine diesel spill, include shark and ray species such as whale sharks and manta rays. Should sharks or rays be present in offshore waters near the Operational Area during the spill, direct impacts may occur if foraging within surface slicks or in the upper 20 to 30 m of the water column containing entrained hydrocarbons and dissolved aromatics. Contamination of their food supply and the subsequent ingestion of

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this prey may also result in long term impacts as a result of bioaccumulation. Impacts are again predicted to be limited to a small number of animals given the absence of key habitat and the low numbers of animals that may transit through the area during the short period when spilled hydrocarbons are present.

Given the limited number of animals that may be impacted and the rapid dispersion of marine diesel, it is considered that any potential impacts will be minor.

Other Species, Habitats and Communities

Within the EMBA for a marine diesel spill resulting from a vessel collision, there is the potential for plankton communities to potentially be impacted where entrained hydrocarbon threshold concentrations are exceeded. A range of lethal and sublethal impacts may occur to plankton exposed to entrained or dissolved hydrocarbons within the EMBA. Communities are expected to recover quickly (weeks/months) due to high population turnover (ITOPF 2011). It is therefore considered that any potential impacts would be low magnitude and temporary in nature. Pelagic fish populations in the open water offshore environment of the EMBA are highly mobile and have the ability to move away from a marine diesel spill. The spill-affected area would be confined to the surface layer and upper 20 to 30 m of the water column. It is therefore unlikely that fish populations would be exposed to widespread hydrocarbon contamination. Pelagic fish populations are distributed over a wide geographical area so impacts on populations or species level are considered to be negligible. Combined with these factors and the rapid dispersion of marine diesel, it is considered that any potential impacts will be minor.

Other communities (e.g. demersal fish, benthic infauna and epifauna) and key sensitivities (e.g. KEFs) occur within the EMBA, however will not be directly exposed or impacted by a marine diesel spill as hydrocarbons are confined to the upper layers of the water column.

Water Quality

It is likely that water quality will be reduced at the release location of the spill; however, such impacts to water quality would be temporary and localised in nature due to the rapid dispersion and weathering of marine diesel. The potential impact is therefore expected to be low.

Protected Areas

Entrained hydrocarbons at or exceeding the 100 ppb threshold have a low probability of contacting the Montebello, Ningaloo and Gascoyne Marine Parks. Entrained hydrocarbons are only predicted within the surface waters of the deep open waters of these protected areas, with no contact to seabed habitats or to shoreline contact. Potential impacts to water quality and the natural values (e.g. mobile protected species) in these areas would be temporary and localised in nature due to the rapid dispersion and weathering of the marine diesel, as described above.

Socio-economic

A marine diesel spill is considered unlikely to cause significant direct impacts on the target species fished by the Commonwealth and State active fisheries identified in Section 4.9.4 which overlap with the EMBA. The fisheries that operate within the EMBA predominantly target demersal fish species (demersal finfish and crustaceans) that inhabit waters in the range of >60 to 200 m depth, or pelagic species which are highly mobile. Therefore, a marine diesel spill is expected to only result in negligible impacts, considering that hydrocarbons are confined to the upper layers of the water column. Visible surface hydrocarbons at or exceeding 1 g/m² may also occur up to 53 km from the release site (RPS 2022), which may result in fouling of fishing gear and a perception of impacts to fish stocks by fisheries stakeholders and the public. There is the potential that a fishing exclusion zone would be applied in the area of the spill, which would put a temporary ban on fishing activities and therefore potentially lead to subsequent economic impacts on commercial fishing operators if they were planning to fish within the area of the spill. Such measures would likely be in place for less than a week and would not result in widespread or long-term impacts to fishing activities.

Cultural Values and Heritage

Through consultation and review of available literature (Section 4.9.1), Woodside understands that Sea Country, including marine ecosystems and species, archaeological heritage and heritage sites, marine parks, as well as intangible cultural heritage may be impacted in the event of a hydrocarbon release from a vessel collision. Cultural features and heritage values that have the potential to be impacted are considered in Section 6.8.3.

Summary of Potential Impacts to Environmental Values(s)

Given the adopted controls, the overall risk rating for an unplanned hydrocarbon release resulting from a vessel collision is Moderate based on a Minor consequence (short term impact: 1 to 2 years), to the high value receptors (marine fauna, AMPs, KEFs and commercial fishing), and a highly unlikely likelihood.

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁵	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Vessels to adhere to the navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders..	F: Yes CS: Minimal cost. Standard practice.	Legislative requirements to be followed, reduces the likelihood of interference with other marine users resulting in a collision.	Control based on legislative requirement – must be adopted.	Yes C 1.1
In the event of a spill, emergency response activities implemented in accordance with the OPEP (per Appendix D).	F: Yes CS: Costs associated with implementing response strategies, vary dependant 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 9.7
Arrangements supporting the activities in the OPEP (per Section 7.16) 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.	Control based on legislative requirement – must be adopted.	Yes C9.8
Good Practice				
Develop SIMOPS plan if more than one Woodside contracted vessel is operating in the Operational Area at any time.	F: Yes CS: Minimal cost. Standard Practice.	SIMOPS plans between Woodside contracted vessels in the Operational Area will reduce the likelihood of a collision occurring.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.8
Notify AHO of activities and movements, where support vessels will be in the Operational Area, >3 weeks, no less than four working weeks prior to commencement date.	F: Yes CS: Minimal cost. Standard Practice.	Notification of AHO will enable them to issue a Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) thereby reducing the likelihood of	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 1.5

⁴⁵ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁵	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		unplanned interactions with other vessels.		
Notify AMSA JRCC of activities where vessels will be in the Operational Area > 3 weeks 24 to 48 hours before the scheduled vessel activity commencement date.	F: Yes CS: Minimal cost. Standard Practice.	Notification to ARC allows for population of marine notices.	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 1.7
Mitigation – hydrocarbon spill response		Refer to Appendix D for discussion around the ALARP assessment of controls related to hydrocarbon spill response.		
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				
None identified				
Professional Judgement – Engineered Solution				
None identified				
ALARP Statement: Based on the environmental risk assessment objectives and use of the relevant tools appropriate to the Decision Type (i.e. Decision Type A, Section 2.6.1), Woodside considers the adopted controls appropriate to manage the impacts and risks of an unplanned loss of hydrocarbon as a result of vessel collision. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement: The impact assessment has determined that an unplanned loss of hydrocarbons as a result of a vessel collision represents a moderate current risk rating that is unlikely to result in potential impacts greater than localised, minor and temporary disruption to a small proportion of the population and have no impact on critical habitat or activity. Further opportunities to reduce the impacts and risks have been investigated above. 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 consistent with the most relevant regulatory guidelines, good oil-field practice/industry best practice and meet the legislative requirements of Marine Orders 21, 27 and 30. The

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Revision: 8.0

Native file DRIMS No: 10484514

Page 297 of 445

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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 of a loss of vessel structural integrity to a level that is broadly acceptable.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 10 No unplanned release of hydrocarbons to the marine environment due to a vessel collision associated with the Petroleum Activities Program.	C 1.1 Refer to Section 6.7.1	PS 1.1 Refer to Section 6.7.1	MC 1.1.1 Refer to Section 6.7.1
	C 9.7 Refer to Section 6.8.3	PS 9.7 Refer to Section 6.8.3	MC 9.7.1 Refer to Section 6.8.3
	C 9.8 Refer to Section 6.8.3	PS 9.8.1 Refer to Section 6.8.3	MC 9.8.1 Refer to Section 6.8.3
		PS 9.8.2 Refer to Section 6.8.3	MC 9.8.2 Refer to Section 6.8.3
	C 1.8 Refer to Section 6.7.1	PS 1.8 Refer to Section 6.7.1	MC 1.8.1 Refer to Section 6.7.1
	C 1.5 Refer to Section 6.7.1	PS 1.5 Refer to Section 6.7.1	MC 1.5.1 Refer to Section 6.7.1
	C 1.7 Refer to Section 6.7.1	PS 1.7 Refer to Section 6.7.1	MC 1.7.1 Refer to Section 6.7.1
	Mitigation – hydrocarbon spill response.	Refer to Appendix D for discussion around the ALARP assessment of controls related to hydrocarbon spill response.	

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Revision: 8.0

Native file DRIMS No: 10484514 Page 298 of 445

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6.9.2 Unplanned Hydrocarbon Release: Loss of Containment from Subsea Infrastructure

Context														
Failure of integrity of subsea infrastructure – Section 3.5 Anchor drag or dropped object from vessels– Section 3.6	Physical Environment – Section 4.3 Biological Environment – Section 4.4 Protected Species – Section 4.5 KEFs – Section 4.7 Protected Places – Section 4.8 Socio-Economic Environment – Section 4.9						Consultation – Section 5							
Risk Evaluation Summary														
Source of Risk	Environmental Value Potentially Impacted						Evaluation							
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome	
	Release of hydrocarbons from failure of integrity of subsea infrastructure.	X	X		X	X	X	A	D	2	M	LC S GP PJ	Broadly Acceptable	EPC 11
	Release of hydrocarbons from anchor drag or dropped object from vessels onto flowlines.	X	X		X	X	X	A	D	2	M			
Unplanned discharge of minor fugitive hydrocarbons or hydraulic fluid from subsea equipment		X		X	X	X	A	F	4	M				
Description of Source of Risk														
<p>The Julimar Field Production System infrastructure is shown in Figure 3-1 and includes flowlines, manifolds; production wells; and other associated subsea infrastructure (as described in Table 3-3).</p> <p>A loss of containment from a subsea production flowline could occur due to a variety of causes including:</p> <ul style="list-style-type: none">• internal corrosion• external corrosion• overpressure• equipment fatigue (risers and structural supports)• pipeline stability and freespans• anchor impact/dragging• loss of control of suspended load from visiting vessel. <p>Extreme environmental conditions may also result in movement of a vessel and result in releases from subsea equipment (i.e. through unplanned movement during lowering activities dragging equipment over existing subsea infrastructure).</p>														

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Revision: 8.0

Native file DRIMS No: 10484514

Page 299 of 445

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Subsea Equipment Loss of Containment – Credible Scenario

The worst-case credible scenario for a subsea equipment Loss of Containment was assessed to be a short-term (5.2 hours) subsea release of 1,062 m³ of Brunello Condensate from a full-bore rupture at the JDP2 flowline inlet, representing worst-case loss of containment when the isolation between the Brunello and Julimar Production Flowlines is open and the inventory from three separate flowlines is released at once (Table 6-15).

Chemicals, gas and liquid hydrocarbons are present in subsea equipment and unplanned releases could also occur as minor weeps/seeps/bubbles. Many of these are planned design release locations, for gas, however unplanned releases of liquid hydrocarbons and chemicals could occur. Discharge of minor fugitive hydrocarbons from wells and subsea equipment (e.g. weeps/seeps/bubbles) could be identified during subsea inspection activities (refer to Section 3.9.1).

Refer to Section 6.8.2 for quantitative spill risk assessment methodology.

Table 6-15: Environmental impact analysis summary of planned and unplanned activities

Scenario	Hydrocarbon	Duration (hours)	Depth (m)	Latitude (GDS84)	Longitude (GDS84)	Total Oil Release (m ³)
Loss of containment when the isolation between the Brunello and Julimar Production Flowlines is open and the inventory from three separate flowlines is released at once.	Brunello Condensate	5.2	175	20°01'53.40"S	115°12'09.30"E	1,062

Decision Type, Risk Analysis and ALARP Tools

Woodside has a good history of implementing industry standard practice in subsea system design and construction. In the company's recent history, it has not experienced any subsea integrity events that have resulted in significant environmental impacts. The Julimar Field Production System has never experienced a worst-case subsea loss of containment in its operational history.

Decision Type

A Decision Type A has been applied to this risk under the Guidance on Risk Related Decision Making (OGUK 2014). This scenario was considered to have a consequence rating of D – Minor, short-term impact (1 to 2 years) on species, habitat (but not affecting ecosystem function), physical or biological attribute.

Hydrocarbon Characteristics

Brunello condensate is a mixture of volatile and persistent hydrocarbons with high proportions of volatile and semi-volatile components. In general, ~45.5% of the oil mass should evaporate within the first 12 hours, a further 37.3% should evaporate within the first 24 hours and a further 10.3% should evaporate over several days. About 83% of the oil is predicted to evaporate within 24 hours and ~6.9% of the oil is shown to be persistent (RPS 2020).

Consequence Assessment**Environmental Value(s) Potentially Impacted****EMBA**

The EMBA for the loss of containment from subsea infrastructure is based on stochastic modelling which compiles data from multiple hypothetical worst-case spill simulations under a variety of weather and metocean conditions (as described in Section 6.8.2). Therefore, the EMBA covers a larger area than that which would be affected during any single spill event and represents the total extent of all the locations where hydrocarbon

thresholds could be exceeded from all modelled runs. The trajectory of a single spill would have a considerably smaller footprint.

This EMBA is significantly smaller than the overall EMBA for the Petroleum Activities Program which is based on the worst-case spill scenario (loss of well control), as detailed 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 mechanism of transportation, a different EMBA is discussed for each fate.

Surface Hydrocarbons

The probability contour figures for floating oil indicate that concentrations equal to or greater than the 10 g/m² impact threshold could potentially be found in the form of slicks up to 24 km from the spill site and at 1 g/m² (socio-economic threshold) up to 70 km from the spill site. The Montebello Marine Park is the only receptor with a probability (1.5%) of impact from floating oil concentrations greater than 10 g/m² as a result of the loss of subsea containment scenario.

Entrained and dissolved Hydrocarbons

Entrained oil concentrations equal to or greater than the 100 ppb impact threshold are predicted to be found up to 265 km from the spill site and dissolved aromatic hydrocarbon concentrations equal to or greater than the 50 ppb threshold are predicted to be found up to 215 km from the spill site. Rankin Bank (5%) and the Montebello Marine Park (22%) are the only receptors predicted to be impacted at the 100 ppb entrained threshold and are also the only receptors with potential impact at the 50 ppb dissolved threshold (2.5% and 11% respectively).

Accumulated Hydrocarbons

No receptors are predicted to receive shoreline oil at impact (100 g/m²) or socio-economic (10 g/m²) thresholds.

Consequence Assessment Summary

Table 6-16 presents all receptors that may be impacted by the loss of containment from subsea infrastructure EMBA (i.e. the sensitive receptors and their locations that may be exposed to hydrocarbons [including surface, entrained, dissolved and accumulated hydrocarbon fates] at or above the adopted thresholds). These receptors are described in Section 4.

The potential biological and ecological impacts of an unplanned hydrocarbon release as a result of a loss of containment from subsea infrastructure during the Petroleum Activity to these receptors are considered in MEE-01 (Section 6.8.3). No further assessment has been undertaken in this section.

Table 6-16: Key Receptor Locations and Sensitivities Potentially Contacted Above Impact Thresholds by the Loss of Containment from Subsea Infrastructure with Summary Hydrocarbon Spill Contact

Environmental Setting		Receptor		Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions																				Probability of hydrocarbon contact and fate (%)									
				Physical		Biological																Socio-economic and Cultural				EMBA							
				Water Quality	Sediment Quality	Marine Primary Producers		Other Communities / Habitats						Protected Species						Other Species													
				Open water – (pristine)	Marine Sediment – (pristine)	Coral reef	Seagrass beds / Macroalgae	Mangroves	Spawning / nursery areas	Open water – Productivity / upwelling	Non-biogenic 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 (foraging and interesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident / Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and Gas Infrastructure (topside and subsea)	Surface hydrocarbon (≥10 g/m ²)
Offshore	Montebello AMP	✓	✓	✓			✓	✓						✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓			1.5	22	11	-
Submerged Shoals and Banks	Rankin Bank	✓	✓	✓			✓	✓		✓					✓				✓		✓		✓	✓	✓		✓				5	2.5	-

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
OPGGS (Safety) Regulations 2009: Accepted Safety Case in place for the Wheatstone Offshore Facilities.	F: Yes. CS: Standard practice.	The Chevron Wheatstone Offshore Facilities Safety Case is in place and regulated 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 barrier SCEs and the safety management systems identified as being required to reduce the risk to personnel associated with a MAE to ALARP. Thus contributing to management of associated potential environmental consequences of MAEs.	Control based on legislative requirements – must be adopted.	Yes C 9.3
OPGGS (Resource Management and Administration) Regulations 2011: requires an accepted Julimar/Brunello Well Operations Management Plan (WOMP); which includes: <ul style="list-style-type: none"> Julimar Subsea Inspection, Monitoring and Maintenance (IMM) Plan Julimar Production Systems Operating Manual Julimar - Subsea Operating Integrity	F: Yes. CS: Minimal cost. Standard practice.	The Julimar/Brunello WOMP is in place 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 that are 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.	Control based on legislative requirements – must be adopted.	Yes C 9.4

⁴⁶ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Envelope - Subsea XTree Envelope.				
OPGGS(E)R 2023: requires an EP for the Start Up and Operations of the Wheatstone Offshore Facilities (and associated subsea infrastructure)	F: Yes. CS: Standard practice	The Start-Up and Operations EP is in force and describes the requirements, including legislative requirements, that apply to the activity and are relevant to the environmental management of the activity and demonstrate how those requirements will be met. The Start-Up and Operations EP: Wheatstone Project, outlines the Operational Interface with Third-Party Assets (including Julimar-Brunello) and Chevron's contracted field operating services role in the safe operation, maintenance/testing and provision of emergency response arrangements for Julimar-Brunello subsea and wells systems.	Control based on legislative requirements – must be adopted.	Yes C 9.5
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 dependant 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 legislative requirements – must be adopted.	Yes C 9.7
Good Practice				
Incident reports are raised for unplanned releases within event reporting system.	F: Yes CS: Minimal cost. Standard practice.	Good practice that operators identify, report and learn from unplanned release events. Supports compliance with regulatory reporting requirements.	Control based on Woodside standard and regulatory requirements.	Yes C 9.6
Arrangements supporting the activities in the OPEP will be tested to ensure the OPEP can be implemented as planned.	F: Yes. CS: Moderate costs associated with exercises. Standard practice.	No change to impact or risk, however, ensures OPEP can be implemented in the event of a hydrocarbon spill thereby potentially reducing the consequence.	Benefits outweigh the cost/sacrifice. Control is also Standard Practice.	Yes C 9.8
Monitor and track subsea fugitive hydrocarbon emissions to support	F: Yes. CS: Minimal cost. Standard practice.	Tracks and manages fugitive hydrocarbons discharged to the marine environment and	Benefits outweigh cost/sacrifice.	Yes C 11.9

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 304 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
identification of potential integrity failures in accordance with the Subsea and Pipelines Integrity Management Procedure.		supports integrity management assessments.	The subsea anomaly and its scale is noted in the anomaly/inspection report and recorded in the Company's centralised subsea Inspection Database. The anomaly is then assessed to determine integrity risks, future monitoring, and/or corrective actions.	
Mitigation: Oil spill response		Refer to Oil Spill Preparedness and Response Mitigation Assessment for the Julimar Operations Appendix D		
Professional Judgement – Eliminate				
None identified.				
Professional Judgement – Substitute				
None identified.				
Professional Judgement – Engineered Solution				
<ul style="list-style-type: none">Monitoring and maintenance of wells and subsea infrastructure to ensure integrity management.	F: Yes CS: Minimal cost. Standard practice	Reduces the likelihood of subsea loss of containment and ensures barriers are in place and verified, thus reducing consequence and likelihood of the risk. Assurance programmes include a risk management approach in determining inspection, monitoring and maintenance requirements are undertaken (e.g. via the Julimar Subsea IMMR Plan) to identify potential risk areas or anomalies which may require risk management actions or remediation.	Benefits outweigh cost/sacrifice.	Yes C 11.2
Professional Judgement – Engineered Solution				
Mitigation – hydrocarbon spill response	Refer to Oil Spill Preparedness and Response Mitigation Assessment for the Julimar Operations (Appendix D)			

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>ALARP Statement:</p> <p>On the basis of the environmental assessment outcomes, use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.6.1) Woodside considers the adopted controls appropriate to manage potential risks associated with a low likelihood unplanned hydrocarbon release as a result of a loss of subsea containment.</p> <p>The principle of inherent safety and environmental protection is based on the prevention of a loss of containment through design of subsea equipment integrity and ensuring the systems 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.</p> <p>The application of Woodside Risk Management Procedures, and Chevron implementation of the Wheatstone Offshore Facilities Safety Case and Environment Plan ensures the continuous identification of hazards, systematic assessment of risks and ongoing assessment of alternative control measures to reduce risk to ALARP, which includes:</p> <ul style="list-style-type: none"> 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. <p>Given the controls in place to prevent and control loss of containment events and mitigate their consequences, alongside procedural controls, it is considered that the risks associated with a subsea loss of containment are managed to ALARP.</p>				

Demonstration of Acceptability
<p>Acceptability Statement:</p> <p>The risk assessment has determined that an unplanned loss of hydrocarbon from subsea infrastructure represents a moderate current risk rating that is unlikely to result in potential consequence greater than minor and short-term disruption to species or habitat but not affecting ecosystem function. 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.</p> <p>Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are considered good oil-field practice / industry best practice. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of the described emissions, to a level that is broadly acceptable.</p>

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 11 No unplanned release of hydrocarbons to the marine environment from subsea equipment	C 9.3 Refer to Section 6.8.3	PS 9.3 Refer to Section 6.8.3	MC 9.3.1 Refer to Section 6.8.3
	C 9.5 Refer to Section 6.8.3	PS 9.5 Refer to Section 6.8.3	MC 9.5.1 Refer to Section 6.8.3
	C 9.4 Refer to Section 6.8.3	PS 9.4 Refer to Section 6.8.3	MC 9.4.1 Refer to Section 6.8.3

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 306 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

EPOs, PS and MC			
EPO	Controls	PS	MC
during the Petroleum Activities Program.	C 9.7 Refer to Section 6.8.3	PS 9.7 Refer to Section 6.8.3	MC 9.7.1 Refer to Section 6.8.3
	C 9.6 Refer to Section 6.8.3	PS 9.6 Refer to Section 6.8.3	MC 9.6.1 Refer to Section 6.8.3
	PS 9.8 Refer to Section 6.8.3	PS 9.8.1 Refer to Section 6.8.3	MC 9.8.1 Refer to Section 6.8.3
		PS 9.8.2 Refer to Section 6.8.3	MC 9.8.2 Refer to Section 6.8.3
	C 11.1 Monitor, track and assess subsea fugitive hydrocarbon emissions to support identification of potential integrity failures in accordance with the Subsea and Pipelines Integrity Management Procedure.	PS 11.1 Subsea fugitive hydrocarbon emissions are monitored, tracked and assessed to determine future monitoring and/or corrective actions.	C 11.1.1 Subsea fugitive emissions anomalies are noted in the anomaly/inspection report and recorded in the Company's centralised Inspection Database.
	C 11.2 Monitoring and maintenance of wells and subsea infrastructure to ensure integrity management.	PS 11.2 Integrity will be managed in accordance with SCE Management Procedure (Section 7.3.4) and SCE Technical Performance Standard(s) to prevent environment risk related damage to SCEs for: P10 – Wells, <ul style="list-style-type: none"> ensure that a well retains the mechanical integrity to contain reservoir fluids within the well envelope at all times to avoid a MEE. Including operate phase environmentally critical equipment for pressure containment, structures, monitoring and isolating the systems associated with the well. P09 – Pipeline Systems, <ul style="list-style-type: none"> to maintain the minimum required mechanical integrity 	MC11.2.1 Records demonstrate implementation of SCE Technical Performance Standard(s) and Safety and Environment Critical Element Management Procedure (Section 7.3.4), in order to achieve the functional objective of the control.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 307 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

EPOs, PS and MC			
EPO	Controls	PS	MC
		to prevent loss of containment.	
	Mitigation – hydrocarbon spill response	Refer to Appendix D for discussion around the ALARP assessment of controls related to hydrocarbon spill response.	

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 308 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

6.9.3 Unplanned Hydrocarbon or Chemical Release: Hydrocarbon or Chemical during Transfer, Storage or Use

Context													
Vessels Operations – Section 3.6 Chemical Usage During IMMR Activities – Section 3.9.5		Physical Environment – Section 4.3 Biological Environment – Section 4.4 Protected Species – Section 4.5 KEFs – Section 4.7 Protected Places – Section 4.8 Socio-Economic Environment – Section 4.9						Consultation – Section 5					
Risk Evaluation Summary													
Source of Risk	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Accidental discharge of hydrocarbons or chemicals from vessel activities, and equipment used in subsea IMMR activities.		X		X	X	X	A	E	3	M	LCS GP	Broadly Acceptable	EPO 12
Description of Source of Risk													
<p>Chemicals will be used during the Petroleum Activities Program for various purposes (refer to Section 3.8 and 3.9.5). Selection of chemicals is undertaken in accordance with the Woodside Chemical Selection and Assessment Environment Guideline. Spills of chemicals (including non-process hydrocarbons) can originate from equipment on the support vessel decks or subsea (refer to Section 7.2.3 for an assessment of the impacts of planned chemical discharges).</p> <p>IMMR</p> <p>Due to the short duration of IMMR activities, significant chemical/fluid storage volumes are not anticipated. Storage areas are typically set up with effective primary and secondary bunding to contain deck spills. Releases from equipment are predominantly from the failure of hydraulic hoses, which can either be located within bunded areas or outside of bunded or deck areas (e.g. over water on cranes).</p> <p>Woodside’s operational experience identifies that spills are most likely to originate from hydraulic hoses and have been <0.1 m³, with an average volume of <0.01 m³.</p> <p>The accidental discharge of hydrocarbons and/or chemicals to the subsea marine environment can result from the failure of seals on the field production system, resulting in leaks of MEG, subsea hydraulic fluids, scale inhibitor, etc. A MEG line or umbilical release could result in loss of control fluids ranging from 1 to 25 m³, based on the volumes contained in the flowlines. A valve loss of containment could result in control fluids leaking up to about 1 m³ per day.</p> <p>The ROVs used in IMMR activities require hydraulic fluid to function. This is supplied through hoses containing about 100 L of fluid. On occasion hydraulic lines to the ROV arms and other tooling may become caught which may potentially result in minor leaks to the marine environment. Hydraulic lines may be isolated to prevent full loss of inventory if a leak is detected.</p>													

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 309 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Consequence Assessment**Environmental Value(s) Potentially Impacted**

The largest LoC identified above was estimated to be up to 25 m³ of MEG; thus, this scenario was used in the following consequence evaluations.

Water Quality

Unplanned release of hydrocarbons or chemicals from vessels and equipment may decrease the water quality in the immediate area of the release. However, the impacts are expected to be temporary and very localised as only small volumes of hydrocarbons or chemicals (up to 25 m³) would be discharged. The unplanned releases are expected to rapidly disperse and dilute in the marine environment.

Given the offshore / open water location, the small and the infrequent nature of the release, unplanned release would result in no lasting effects and highly localised changes to the water quality (F).

Benthic Habitats and Communities

The benthic habitats within the Operational Area are representative of the NWMR and are primarily comprised of soft, sandy substrates grading to clay and silt with increasing water depth with some smaller areas of hard outcropping and site attached species (i.e. close to Wheatstone platform, in water depths <120 m), as described in Section 4.3. MEG toxicity is very low and it is on the OSPAR list of substances that are considered PLONOR. Unplanned MEG release is expected to mix with the receiving environment with no adverse impacts to habitats. Potential impacts to benthic communities as a result of unplanned discharges of hydrocarbons and/or chemicals at the volumes described above are expected to be negligible, with no lethal stress impacts. Due to the low abundance of benthic fauna in the Operational Area, the offshore / open water location, the small and the infrequent nature of the release, the unplanned release would result in no lasting effects and highly localised impacts to benthic habitats and communities (F).

Fish, Marine Reptiles and Marine Mammals

As a result of a change in water quality, potential impacts to marine fauna may occur. However, MEG toxicity is very low and it is on the OSPAR list of substances that are considered PLONOR. Unplanned MEG release is expected to mix with the receiving environment with no adverse impacts to marine fauna. The following values and sensitivities were identified within the Operational Area: a foraging BIA for the whale shark, interesting buffer BIA and habitat critical for the fatback turtle and a migration BIA for pygmy blue whale.

Given the small and the infrequent nature of the release, rapid dispersion and dilution and no sedentary behaviour was identified, potential impacts to these values and sensitivities are expected to be limited. Marine fauna, which is expected to be transient, would need to pass directly through the plume at the time the unplanned discharges are released. Therefore, slight, short-term impact on species but not affecting ecosystem function are expected (E).

KEFs and Protected places

Impacts to values and sensitivities located within the Montebello AMP are also unlikely, particularly as <1 km of the Operational Area (umbilical, MEG line and production flowlines with no valves) overlaps with 0.1% of the AMP boundary.

Similarly, potential impacts to the Ancient Coastline at the 125 m depth contour KEF (described in Section 4.7.1) are expected to be limited, particularly as no characteristics typical of this KEF have been identified during surveys of the relevant areas other than the outcroppings to the north-east of the Operational Area (i.e. close to Wheatstone platform, in water depths <120 m). Potential impacts to the Continental slope demersal fish communities KEF are not expected due to limited overlap with this KEF (~0.02%) and no overlap with the infrastructure was identified (Table 4-15).

Given the small and the infrequent nature of the release, rapid dispersion and dilution and limited overlapping with the KEFs and Montebello AMP, potential impacts to the values and sensitivities within these areas are expected to be limited. Therefore, no lasting effects and localised impacts to the values and sensitivities within these areas are expected (F).

Socio-economic

No impacts on socio-economic receptors are expected due to the low levels of fishing activity in the Operational Area (Table 4-24) and tourism and recreational activities (Section 4.9.6) the volumes of hydrocarbons/chemicals that could be unplanned released, and the localised and temporary nature of the impacts.

Cultural Values and Heritage

Through consultation and review of available literature (Section 4.9.1), Woodside understands that marine fauna that may be affected by unplanned discharges of hydrocarbon/chemicals, such as marine mammals,

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whale sharks and marine turtles, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact marine turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (Delisle, et al. 2018). Whale species may be subject of First Nations' increase ceremonies/rituals which are performed to enhance or maintain populations. As these thalu ceremonies are performed to maintain and increase populations of marine species, it is considered that management applies at the species/population level and not to individuals. For example, it is anticipated 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.

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). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes 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 above, potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to significant proportions of the populations of the species, nor expected to result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁷	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
Vessels complying with Marine Orders for safe vessel operations: <ul style="list-style-type: none"> Marine Order 91 – oil (as relevant to vessel class) requirements. Marine Order 95 (Pollution prevention – garbage), Marine Order 96 – pollution prevention – sewage (as appropriate to vessel class) and Marine Orders 91, 95 and 96 (pollution prevention) reduce the	F: Yes CS: Minimal cost. Standard Practice.	Legislative requirements to be followed reduce the likelihood of an unplanned release. The consequence is unchanged.	Controls based on legislative requirements – must be adopted.	Yes C 6.1

⁴⁷ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁷	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
potential impact of marine wastewater discharges on water quality.				
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 12.1
Good Practice				
Chemical 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 5.1
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 subsea infrastructure will ensure barriers are in place and verified limiting the volume of hydrocarbon released.	Benefits outweigh cost/sacrifice.	Yes C 5.4
<ul style="list-style-type: none"> Monitoring and maintenance of wells and subsea infrastructure to ensure integrity management. 	F: Yes CS: Minimal cost. Standard practice.	Reduces the likelihood of subsea loss of containment. Ensures materials integrity, isolations / barriers are verified, thus reducing consequence and likelihood of the risk. Assurance programmes include a risk management approach in determining inspection,	Benefits outweigh cost/sacrifice.	Yes C 11.2

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 312 of 445

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁷	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
		monitoring and maintenance requirements are undertaken (e.g. via the Julimar Subsea IMMR Plan) to identify potential risk areas or anomalies which may require risk management actions or remediation.		
Incident reports are raised for unplanned releases within event reporting system.	F: Yes CS: Minimal cost. Standard practice.	Good practice that operators identify, report, and learn from unplanned release events. Supports compliance with regulatory reporting requirements.	Control based on Woodside standard and regulatory requirements.	Yes C 9.6
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 subsea control fluid is monitored to maintain adequate fluid in the system. CS: Minimal cost.	Limits the volumes of subsea control fluid discharge to the marine environment.	Benefits outweigh cost/sacrifice.	Yes C 12.2
Spill kits positioned in high-risk locations around the support vessels (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.	Benefit outweighs the cost/sacrifice.	Yes C 12.3
Mitigation – hydrocarbon spill response		Refer to Appendix D for discussion around the ALARP assessment of controls related to hydrocarbon spill response		
Professional Judgement – Eliminate				
None identified				
Professional Judgement – Substitute				
None identified				
Professional Judgement – Engineered Solution				
A reduction in the volumes of chemicals and hydrocarbons stored onboard support 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	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

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 313 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Demonstration of ALARP				
<i>Control Considered</i>	<i>Control Feasibility (F) and Cost/Sacrifice (CS)⁴⁷</i>	<i>Benefit in Impact/Risk Reduction</i>	<i>Proportionality</i>	<i>Control Adopted</i>
	transportation and lifting operations.			
<p>ALARP Statement:</p> <p>On the basis of the assessment outcomes, use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.6.1) and Woodside's criteria for demonstrating ALARP (Section 2.8.1), Woodside considers the adopted controls are appropriate to manage potential risks associated with unplanned loss of hydrocarbon or chemical. As no reasonably practicable additional/alternative controls were identified that would further reduce the impacts without disproportionate sacrifice, the risks are considered ALARP.</p>				

Demonstration of Acceptability
<p>Acceptability Statement:</p> <p>The risk assessment has determined that an unplanned discharge of hydrocarbons or chemicals represents a low to moderate current risk rating that has the potential to result in short-term impact on species but not affecting ecosystem function. BIAs within the Operational Area include the whale shark foraging area, internesting buffer, and habitat critical for the flatback turtle and pygmy blue whale migration. 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.</p> <p>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.</p>

EPOs, PS and MC			
<i>EPO</i>	<i>Controls</i>	<i>PS</i>	<i>MC</i>
EPO 12 No unplanned release of hydrocarbons or chemicals to the marine environment from support vessel activities or subsea infrastructure.	C 6.1 Refer to Section 6.7.5	PS 6.1 Refer to Section 6.7.5.	MC 6.1.1 Refer to Section 6.7.5.
	C 5.1 Refer to Section 6.7.4.	PS 5.1 Refer to Section 6.7.4.	MC 5.1.1 Refer to Section 6.7.4.
	C 5.4 Refer to Section 6.7.4.	PS 5.4 Refer to Section 6.7.4.	MC 5.4.1 Refer to Section 6.7.4.
	C 9.6 Refer to Section 6.8.3	PS 9.6 Refer to Section 6.8.3	MC 9.6.1 Refer to Section 6.8.3
	C 12.1 Liquid chemical and fuel storage containers are bunded or secondarily contained when they are not being handled/moved temporarily.	PS 12.1 Failure of primary containment in liquid chemical and fuel storage areas does not result in loss to the marine environment.	MC 12.1.1 Records confirm all liquid chemicals and fuel are storage meets bunding and secondary containment requirements.
	C 11.2 Refer to Section 6.9.2.	PS 11.2 Refer to Section 6.9.2.	MC 11.2.1 Refer to Section 6.9.2..

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 314 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

EPOs, PS and MC			
EPO	Controls	PS	MC
	C 12.2 Limiting unplanned volume of subsea control fluid discharged to the marine environment through monitoring and investigating material discrepancies.	PS 12.2 Subsea control fluid use monitored and, where losses are unexplained, potential integrity issues are investigated.	MC 12.2.1 Records demonstrate subsea control fluid use is documented, and unexplained discrepancies investigated.
	C 12.3 Spill kits positioned in high-risk locations around the support vessels (near potential spill points such as transfer stations).	PS 12.3 Spill kits to be stocked and located in high-risk areas, for use to cleanup deck spills (Uncrewed Surface Vessels excepted).	MC 12.3.1 Records confirm spill kits are present, maintained and suitably stocked.
	Mitigation – hydrocarbon spill response.	Refer to Appendix D for discussion around the ALARP assessment of controls related to hydrocarbon spill response.	

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514 Page 315 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

6.9.4 Unplanned Discharge: Loss of Hazardous or Non-Hazardous Waste/Equipment

Context													
Support Vessel Operations – Section 3.6	Physical Environment – Section 4.3						Consultation – Section 5						
	Biological Environment – Section 4.4												
	Protected Species – Section 4.5												
	Socio-Economic Environment – Section 4.9												
Risk Evaluation Summary													
Source of Risk	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Accidental loss of solid hazardous and non-hazardous waste to the marine environment.	X	X			X	X	A	F	2	L	LCS GP	Broadly Acceptable	EPO 13
Description of Source of Risk													
<p>Non-hazardous and Hazardous Waste</p> <p>Normal operations on the support vessels 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 and used lubricating oils. Sand and sludges may be periodically generated during process and vessel maintenance.</p> <p>Equipment that has been recorded as being lost on previous activities has primarily been windblown or dropped overboard; and has included items such as personal protective equipment and small tools or materials. These events have occurred during backloading activities, periods of adverse weather and/or as a result of incorrect waste storage.</p> <p>All waste materials not suitable for discharge to the environment, including hazardous wastes (i.e. solid wastes), generated during the Petroleum Activities Program are transported to shore for disposal or recycling by Woodside’s licenced waste contractor.</p>													
Consequence Assessment													
Environmental Value(s) Potentially Impacted													
The potential impacts of hazardous or non-hazardous solid waste/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 waste. This could result in entanglement or ingestion and lead to injury and death of individual animals depending on the nature of the waste. The temporary or permanent loss of waste materials into the marine environment is not likely to have a significant environmental impact, based on													

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 316 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

the location of the Operational Area, the types, size and frequency of wastes that could occur, and species presence.

Water and Sediment Quality

Hazardous solid wastes such as paint cans, oily rags, oil contaminated materials, etc., can cause localised contamination of the water and sediment through a release of toxins and chemicals. Given the small volumes of any unplanned solid waste discharge, and the infrequent nature of the event, these would result in no lasting effects and highly localised changes to the water quality and marine sediments (F).

Seabirds and Migratory Shorebirds, Fish, Marine Reptiles and Marine Mammals

Marine fauna most at risk from marine pollution include marine reptiles and seabirds, through ingestion or entanglement (Commonwealth of Australia 2017a, 2018). Ingestion or entanglement has the potential for physical harm which may limit feeding/foraging behaviours (Commonwealth of Australia 2017a, 2018) and thus can result in mortalities. Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris was listed, in 2003, as a key threatening process under the EPBC Act (Commonwealth of Australia 2018).

The Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (2018). listed harmful marine debris as a key threatening process under the EPBC Act. This harmful marine debris includes "land-sourced garbage, fishing gear from recreational and commercial fishing abandoned or lost to the sea, and vessel-sourced, solid, non-biodegradable floating materials disposed of or lost at sea". Marine debris has also been identified as threat in the Recovery Plan for Marine Turtles in Australia (2017a); however, ingestion of marine debris is particularly likely for turtles foraging in coastal waters.

The temporary or permanent loss of waste materials into the marine environment is not expected to have a significant environmental impact, based on the location of the Operational Area, nature and scale of activities that may generate wastes and the types, size and frequency of wastes that could occur. Consequently, only localised impacts to marine fauna at an individual level may occur (F).

Cultural Values and Heritage

Through consultation and review of available literature (Section 4.9.1), Woodside understands that marine fauna that may be affected by unplanned loss of hazardous and non-hazardous waste/equipment, such as marine turtles, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact marine turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (Delisle, et al. 2018). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes 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 above, potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to significant proportions of the populations of the species, nor expected to result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)⁴⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				

⁴⁸ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<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>Vessel Master may only wash a substance overboard if:</p> <ul style="list-style-type: none"> the physical, chemical and biological properties of the substance have been considered, and washing overboard is considered the most appropriate manner of disposal, and the Vessel Master has authorised the washing overboard. <p>Vessels to comply with Marine Order 95 (Pollution prevention – Garbage) which requires putrescible waste and food scraps are passed through a macerator so that it is capable of passing through a screen with no opening wider than 25 mm.</p>	<p>F: Yes.</p> <p>CS: Minimal cost. Standard practice.</p>	<p>Implementation of Marine Order 94 and Marine Order 95 reduces the likelihood of a harmful substance being released to the environment. Implementation is standard practice for commercial vessels as applicable to vessel size, type and class.</p>	<p>Controls based on legislative requirements – must be adopted.</p>	<p>Yes</p> <p>C 13.1</p>
Good Practice				
<p>Vessel ROV or crane will be used to attempt recovery of material⁴⁹ lost overboard.</p> <p>Where safe and practicable for this activity, will consider:</p>	<p>F: May not always be possible. Assessed case by base.</p> <p>CS: Potentially significant cost. Standard practice.</p>	<p>Occurs after an unplanned release of solid waste and therefore no change to the likelihood.</p> <p>Since the waste objects may be recovered, a</p>	<p>Benefit outweighs cost/sacrifice.</p>	<p>Yes</p> <p>C 13.2</p>

⁴⁹ For the purposes of this control/performance standard “material” is defined as unplanned releases of environmentally hazardous or non-hazardous solid object/waste events with an environmental consequence of >F.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁴⁸	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<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>Material dropped objects/waste that remain in the title will undergo an impact assessment and be added to the inventory.</p>		reduction in consequence is possible.		
Incident reports are raised for unplanned releases within event reporting system.	F: Yes. CS: Minimal cost. Standard practice.	Good practice that operators identify, report and learn from unplanned release events. Supports compliance with regulatory reporting requirements.	Control based on Woodside standard and regulatory requirements.	Yes C 9.6
Implementation of support vessel waste management procedures which provide safe handling and transportation, segregation and storage of appropriate classification of all waste generated.	F: Yes. CS: Minimal cost. Standard practice.	Controls will reduce the likelihood of an unplanned release. The consequence is unchanged.	Benefit outweighs cost/sacrifice.	Yes C 13.3
Professional Judgement – Eliminate				
None identified.				
Professional Judgement – Substitute				
None identified.				
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 impacts and risks of accidental discharge of non-hazardous and hazardous wastes. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 319 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Demonstration of Acceptability

Acceptability Statement:

The risk assessment has determined that, given the adopted controls, accidental discharge of non-hazardous and hazardous wastes represents a low risk rating and is expected to result in a consequence no greater than highly localised impacts to water quality, marine sediment and marine species with no lasting effects.

Woodside, across its operations, has a well-established waste management culture which underpins a strong performance and limits the potential for accidental releases to the marine environment. Opportunities to reduce waste management impacts and risks are employed through standard practices such as job planning, implementation of the Waste Management Plan and job hazard analysis practices. The adopted controls are considered good oil-field practice/industry best practice and meet requirements of Australian Marine Orders.

Section 6.10 demonstrates that the Petroleum Activities Program is not inconsistent with any recovery plan of threat abatement plan for a listed threatened species of ecological community. Regard has also been given to relevant conservation advice and wildlife conservation plans during the assessment of potential impacts.

On the basis of the assessment outcomes, use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.6.1), Woodside considers impacts/risks to be managed to a level that is broadly acceptable.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 13 Environmental risk from hazardous and non-hazardous waste management limited to Moderate ⁵⁰ during the Petroleum Activities Program.	C 13.1 Vessels will comply with Marine Order 94 (where relevant to vessel class - Marine pollution prevention – packaged harmful substances) 2014 which requires: <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 Vessel Master may only wash a substance overboard if: <ul style="list-style-type: none"> the physical, chemical and biological properties of the substance have been considered, and washing overboard is considered the most appropriate manner of disposal, and 	PS 13.1 Vessels contracted whose practices comply with Marine Orders as applicable to vessel size, type and class.	MC 13.1.1 Marine verification records demonstrate compliance with standard maritime safety procedures (Marine Orders 94 and 95).

⁵⁰ Defined in Section 2.6.3.

EPOs, PS and MC			
EPO	Controls	PS	MC
	<ul style="list-style-type: none"> the Vessel Master has authorised the washing overboard. <p>Vessels to comply with Marine Order 95 (Pollution prevention – Garbage) which requires putrescible waste and food scraps are passed through a macerator so that it is capable of passing through a screen with no opening wider than 25 mm.</p>		
	<p>C 13.2 Vessel, ROV, or crane may be used to attempt recovery of material⁵¹ 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>Material dropped objects / waste that remain in the title will undergo an impact assessment and be added to the inventory.</p>	<p>PS 13.2.1 Material solid waste dropped to the marine environment will be recovered where safe and practicable to do so.</p>	<p>MC 13.2.1 Records detail the recovery of material environmentally hazardous or non-hazardous solid waste object/container dropped to the marine environment.</p>
		<p>PS 13.2.2 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>	<p>MC 13.2.2 Records demonstrate outcomes of the safe and practicable evaluation, including an impact assessment for the objects remaining.</p>
	<p>C 9.6 Refer to Section 6.8.3</p>	<p>PS 9.6 Refer to Section 6.8.3</p>	<p>MC 9.6.1 Refer to Section 6.8.3</p>
	<p>C 13.3 Implementation of support vessel waste management procedures which provides safe handling and</p>	<p>PS 13.3 Hazardous and non-hazardous waste will be managed in accordance with the vessel waste</p>	<p>MC 13.3.1 Records demonstrate compliance against vessel waste</p>

⁵¹ For the purposes of this control /performance standard, 'material' is defined as unplanned releases of environmentally hazardous or non-hazardous solid object/waste events with an environmental consequence of >F.

EPOs, PS and MC			
<i>EPO</i>	<i>Controls</i>	<i>PS</i>	<i>MC</i>
	transportation, segregation and storage of appropriate classification of all waste generated.	management arrangements.	management arrangements.

6.9.5 Physical Presence: Vessel Collision with Marine Fauna

Context													
Support Vessel Operations – Section 3.6				Protected Species – Section 4.5 Socio-Economic Environment – Section 4.9				Consultation – Section 5					
Risk Evaluation Summary													
Source of Risk	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Physical presence of vessels resulting in collision with marine fauna					X	X	A	E	1	L	LCS	Broadly Acceptable	EPO 14
Description of Source of Risk													
<p>Activities associated with the Petroleum Activities Program will require vessels. Only vessel transiting within the Operational Area are within the scope of this EP, and therefore, assessed in this section. The type and number of vessels in the Operational Area at any one time, and the duration of presence, will differ depending on the activities being undertaken.</p> <p>Commissioning, and start up activities will be undertaken by a single support vessel and are expected to take one month to complete (Section 3.4). Inspection activities may take one to two weeks per campaign, and maintenance and repair activities, which are infrequent, may result in additional vessel time up to four weeks, depending on the scale and complexity of the work scope. On rare occasions, more than one vessel may be needed for IMMR (Section 3.6). Vessels for either activity are likely to be travelling <8 knots and/or will be stationary within the Operational Area.</p>													
Consequence Assessment													
Environmental Value(s) Potentially Impacted													
<p>Vessel collisions between the vessel (e.g. hull and propellers) and marine fauna, potentially resulting in superficial injury, serious injury that may affect life functions (e.g. movement and reproduction) and mortality. The frequency and severity of impacts due to collisions vary due to vessel type, vessel operation (specific activity, speed), physical environment (e.g. water depth), and the type of marine fauna potentially present and their behaviours.</p> <p>The likelihood of vessel/whale collision being lethal is mainly influenced by vessel speed; the greater the speed at impact, the greater the risk of mortality (Jensen, Silber and Calambokidis 2004, Laist, et al. 2001). Vanderlaan and Taggart (2007) found that lethal injury to large whales as a result of a vessel strike increases from about 20% at 8.6 knots (kn) to 80% at 15 kn. Vessels within the Operational Area are likely to be travelling <8 knots (and will often be stationary). Therefore, the risk of a vessel collision with protected species resulting in death is inherently low.</p>													

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 323 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Marine species listed as threatened and/or migratory have the potential to occur within the Operational Area. A foraging BIA for the whale shark, interesting buffer BIA and habitat critical for the flatback turtle and a migration BIA for pygmy blue whale was also identified. No known key aggregation areas (resting, breeding or feeding) are located within the Operational Area.

Marine Mammals, Sharks and Marine Reptiles

Laist et al. (2001) noted that individuals engaged in behaviours such as feeding, mating or nursing may be more vulnerable to vessel collision, when distracted by these activities. Some species responded by undertaking shallow dives at a slow descent, none showed signs of horizontal movement away from the approaching ship (Commonwealth of Australia 2017c). However, blue whales demonstrated limited behavioural response when being approached by ships (McKenna, et al. 2015). As previously described, lethal injury to large whales as a result of a vessel strike increases from about 20% at 8.6 kn to 80% at 15 kn (Vanderlaan and Taggart 2007). This data also suggest that the risk is <10% at a speed of four knots (Vanderlaan and Taggart 2007).

Vessel-whale collisions at this speed are uncommon and, based on reported data contained in the US NOAA database (Jensen, Silber and Calambokidis 2004), there only two known instances of collisions when the vessel was travelling at less than six kn. Both of these were from whale watching vessels that were deliberately placed among whales. Between 1988 and 2000 there were only three documented incidents involving small marine mammal (Commonwealth of Australia 2017c), such as dolphins, though it is difficult to determine if this is due to a lower collision rate or lower detection rate of incidents.

The pygmy blue whale migration BIA partially overlaps the northwestern part of the Operational Area; thus, individuals may occasionally be present during seasonal migrations (Table 4-10). However, based on recent satellite tracking and acoustic detection, pygmy blue whales travel further offshore in deeper waters (Thums, Ferreira, et al. 2022).

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 migrate large distances and can be found in coastal offshore waters where they spend ~25% of their time <two metres from the surface and >40 % of their time in the upper 15 m of the water columns (Commonwealth of Australia 2017c).

The foraging BIA (northward from Ningaloo along the 200 m isobath) overlaps with the Operational Area. Whale sharks may traverse the Operational Area during their migrations to and from Ningaloo Reef (>180 km southwest of the Operational Area), where they form seasonal aggregations (TSSC 2015c). As such it is expected that their presence would be transitory and of a short duration (i.e. during spring).

A study by Hazel et al. (2007) recorded 60% of green turtles fleeing from vessels travelling at four km/h, while only 4% fled from vessels travelling at 19 km/h. This study concluded that most turtles would be unlikely to avoid vessels travelling at speeds greater than four km/h. Vessel disturbance, including collision, has been identified as a threat to marine turtles; however, is particularly an issue in shallow coastal foraging habitats and interesting areas (Commonwealth of Australia 2017a). The Plan also mentions that boat strike occurs in highly populated areas.

An interesting buffer BIA and habitat critical for the flatback turtle were identified overlapping the Operational Area. However, considering the absence of potential nesting or foraging habitat (i.e. no emergent islands, reef habitat or shallow shoals) and as identified in Section 4.6.2.1, the water depth within the Operational Area (>70 m) and distance from the closest coast (>45 km), it is unlikely that the Operational Area represents important habitat for marine turtles; therefore, only transient individuals are expected.

Given the previous details, it is not expected that vessel activities within the Operational Area could have a significant impact on marine fauna populations given (1) the low presence of transiting individuals, (2) no known key aggregation, feeding, mating or nursing areas were identified within the Operational Area (3) the Operational Area is not considered to be a 'confined migratory pathway' (e.g. no constraints preventing fauna from moving away from vessels to avoid injury) and (4) low operating speed of the activity support vessels (generally <eight knots or stationary, unless operating in an emergency). Activities are considered unlikely to result in a consequence greater than slight, short-term disruption to individuals or a small proportion of the population, and no impact on critical habitat or fauna activity (E).

Cultural Values and Heritage

Through consultation and review of available literature (Section 4.9.1), Woodside understands that marine fauna that may be affected by a collision with a support vessel, such as marine mammals, whale sharks and marine turtles, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 324 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact marine turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (Delisle, et al. 2018). Whale species may be subject of First Nations' increase ceremonies/rituals which are performed to enhance or maintain populations. As these thalu ceremonies are performed to maintain and increase populations of marine species, it is considered that management applies at the species/population level and not to individuals. For example, it is anticipated 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.

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, Donald Thomson: Observations of Animal Connections in Visual Ethnography in Northern Australia 2021). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes 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 above, potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to significant proportions of the populations of the species, nor expected to result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵²	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, which include the following measures ⁵³ : <ul style="list-style-type: none"> Support 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. Support vessels will not approach closer than 50 m for a dolphin and/or 100 m for a whale (with the 	F: Yes. CS: Minimal cost. Standard practice.	Reductions in speed around protected cetaceans reduce the likelihood of a collision.	Controls based on legislative requirements – must be adopted.	Yes C 4.1

⁵² Qualitative measure

⁵³ For safety reasons, the specified distances requirements are not applied for a vessel holding station or with limited manoeuvrability (e.g., loading, back-loading, close standby cover for overside working and emergency situations).

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵²	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>exception of animals bow riding).</p> <ul style="list-style-type: none"> If the cetacean shows signs of being disturbed, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. 				
Good Practice				
Support vessels will not travel greater than 8 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, Benefits outweigh cost/sacrifice. Good Practice.	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
Vary the timing of the Petroleum Activities Program to avoid whale migration and marine turtle breeding/nesting periods	F: No. Timing of all activities is currently not determined, and due to vessel availability and operational requirements, undertaking activities during migration and/or breeding/nesting 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

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 326 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵²	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Manage IMMR vessel speed in the pygmy blue whale BIA and in migration / foraging seasons (Apr-Jul & Oct-Jan for PBW).	F: Yes, within the limits of navigational safety. CS: Time/cost associated with slower transit speed.	Given the Operational Area overlaps the pygmy blue whale migration BIA and s reducing vessel speed can result in reduced risk of vessel collision.	Benefit outweighs cost/sacrifice.	Yes C 4.4
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				
None identified				
Professional Judgement – Engineered Solution				
The use of dedicated MFOs on support 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 – Charters Instructions on the requirements of vessel and whale interactions, and crew complete specific cetacean observation training.	Given that support vessel bridge crews already maintain a constant watch during operations in compliance with the Woodside Marine – Charters Instructions, additional MFOs would not significantly reduce the risk further.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 327 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵²	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	CS: Additional cost of MFOs considered unnecessary.			
<p>ALARP Statement:</p> <p>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 2.6.1), Woodside considers the adopted controls appropriate to manage potential risks associated with potential vessel collision with marine fauna. As no reasonably practicable additional/alternative controls were identified that would further reduce the impacts without disproportionate sacrifice, the risks are considered ALARP.</p>				

Demonstration of Acceptability
<p>Acceptability Statement:</p> <p>The risk assessment has determined that, given the adopted controls, vessel collision with marine fauna represents a low current risk rating that is highly unlikely to result in a potential impact greater than slight, short term disruption to a small proportion of the population, and no impact on critical habitat or activity. Further opportunities to reduce the impacts and risks have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet the requirements of Part 8 (Division 8.1) of the EPBC Regulations 2000. The management of interactions with marine fauna is consistent with the objectives of approved conservation advice and recovery plans for marine fauna, including cetaceans and whale sharks, where human interference has been identified as a threat.</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 vessel collision with marine fauna to a level that is broadly acceptable.</p>

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 14 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.	C 4.1 Refer to Section 6.7.3	PS 4.1 Refer to Section 6.7.3	MC 4.1.1 Refer to Section 6.7.3
			MC 4.1.2 Refer to Section 6.7.3
	C 4.2 Refer to Section 6.7.3	PS 4.2 Refer to Section 6.7.3	MC 4.2.1 Refer to Section 6.7.3
	C 4.3 Refer to Section 6.7.3	PS 4.3 Refer to Section 6.7.3	MC 4.3.1 Refer to Section 6.7.3
	C 4.4 Refer to Section 6.7.3	PS 4.4 Refer to Section 6.7.3	MC 4.4.1 Refer to Section 6.7.3

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 328 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

6.9.6 Physical Presence: Interaction with Live Infrastructure

Context													
Vessels Operations – Section 3.6 IMMR Activities – Section 3.9			Socio-Economic Environment – Section 4.9					Consultation – Section 5					
Risk Evaluation Summary													
Source of Risk	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Interaction with live infrastructure from dropped objects.						X	A	E	1	L	GP	Broadly Acceptable	EPO 15
Description of Source of Risk													
<p>As detailed in Section 4.9.8, there is existing live subsea infrastructure in the Operational Area, which includes pipeline crossings the Pluto and Scarborough subsea system (operated by Woodside) and Chevron’s Wheatstone trunkline in close proximity (~220 m away at the closest point). During the Petroleum Activities Program, activities may be conducted that present a risk of dropped objects over the nearby live infrastructure.</p> <p>Dropped Objects</p> <p>There is the potential for objects to be dropped overboard from vessels to the marine environment. Objects that have been dropped during previous offshore activities include small numbers of personal protective gear (e.g. glasses, gloves, hard hats), small tools (e.g. spanners), hardware fixtures (e.g. riser hose clamp) and drill equipment (e.g. drill pipe). However, there is potential for larger equipment to be dropped during the activity, particularly during recovery of infrastructure from the seabed. The spatial extent in which dropped objects can occur is restricted to the Operational Area.</p>													
Consequence Assessment													
Environmental Value(s) Potentially Impacted													
<p>Interactions with other marine users</p> <p>In the unlikely event of an object being dropped on live infrastructure there is potential impacts to the infrastructure and the Operators of that infrastructure.</p> <p>As identified in Section 4.9.8, within the Operational Area, there is the Wheatstone pipeline owned and operated by Chevron, as well as the Pluto and Scarborough pipelines owned and operated by Woodside.</p> <p>If interactions with live infrastructure were to occur, Woodside would notify the relevant operations team in accordance with Appendix G (for Woodside assets), or Communication Strategy (for Chevron assets - see Section 7.9). This would trigger responses from the Operator to assess and respond to any damage caused in accordance with the relevant operations EP for the live infrastructure. Under Regulation 56 of the Environment Regulations, a titleholder may refer NOPSEMA to information previously given to NOPSEMA for another purpose under the OPGGS Act, the Environment Regulations or any other Regulations made under the Act, to comply with a requirement on the titleholder under the Environment Regulations to give NOPSEMA information or include information in a document. In accordance with this Regulation, NOPSEMA is referred to</p>													

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the relevant operations EPs⁵⁴ submitted by the Operators of the live infrastructure, and accepted by NOPSEMA, for the detail of the Operators' assessment and response in such a scenario. Potential impacts therefore include time and costs associated with inspecting the infrastructure and time and costs associated with any associated repair, which are expected to be slight and short-term in nature.

Potential subsequent loss of containment

In the unlikely event of an object being dropped on live infrastructure, and in the further unlikely event of a severe interaction with the infrastructure, there is a possibility that live infrastructure could be ruptured releasing hydrocarbons into the marine environment in such a scenario. In accordance with Regulation 56, NOPSEMA is referred to the relevant operations EPs submitted by the Operators of the live infrastructure, and accepted by NOPSEMA, for the detail of potential impacts, receptors and the extent of the environment that may be affected in such a scenario, being:

- Wheatstone Project Start-up and Operations EP, Section 6.2.9 (NOPSEMA Doc. A853704 <https://docs.nopsema.gov.au/A853704>).
- Pluto Facility Operations Environment, MEE-05 (NOPSEMA Doc. A680743 <https://docs.nopsema.gov.au/A680743>)
- Scarborough Seabed Intervention and Trunkline Installation, Section 6.5.2 (NOPSEMA Doc. A1027151 <https://docs.nopsema.gov.au/A1027151>)

As detailed in the Section above, the EPs address the risks and impacts (interaction with live infrastructure) that arise from the activities under this EP (interaction from dropped objects). This EP also contains controls to prevent such an event from occurring that are within the operational control of this EP. As detailed in this Section, the operational control, maintenance and incident response associated with the live infrastructure and/or loss of containment from the live infrastructure is not within the operational control of this EP.

As detailed below, the risks and impacts of the activities under this EP are managed to ALARP and an acceptable level by implementing the SIMOPS plan and notifying the relevant Operators in the instance of an interaction with live infrastructure to allow the relevant Operator's detailed response strategies under the relevant operations EPs to be triggered, if required. In the event of a loss of containment caused by an interaction with live infrastructure Woodside will follow direction from the relevant Operator and will respond as per the relevant Operator's requirements. In accordance with Regulation 56, NOPSEMA is referred to the relevant operations EPs submitted by the Operators of the live infrastructure, and accepted by NOPSEMA, for the detail of the operational control, maintenance and incident response associated with the live infrastructure and/or loss of containment from the live infrastructure⁵⁶.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵⁵	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
None identified.				
Good Practice				
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. 	F: Yes. CS: Minimal cost. Standard practice	Vessel work procedures for lifts, bulk transfers and cargo loading will reduce the risk of	Benefits outweigh cost/sacrifice.	Yes C 15.1

⁵⁴ Wheatstone Project - Start-Up and Operations (NOPSEMA Doc. A853704 <https://docs.nopsema.gov.au/A853704>), Pluto Facility Operations (NOPSEMA Doc. A680743 <https://docs.nopsema.gov.au/A680743>) and Scarborough Seabed Intervention and Trunkline Installation (NOPSEMA Doc. A1027151 <https://docs.nopsema.gov.au/A1027151>)

⁵⁵ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵⁵	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<ul style="list-style-type: none"> 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. 		dropped objects		
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement: Woodside considers the adopted controls appropriate to manage potential risks associated with dropped object interacting with live infrastructure within the Operational Area. As no reasonably practicable additional/alternative controls were identified that would further reduce the impacts without disproportionate sacrifice, the impacts/risks are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement: The risk assessment has determined that interaction with live infrastructure from dropped objects interacting with live infrastructure represents a low current risk rating and is unlikely to result in a risk consequence greater than slight. The adopted controls are considered industry good practice. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks of interacting with live infrastructure within the Operational Area to an acceptable level.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 15 No interactions with live infrastructure resulting in loss of hydrocarbons to the marine environment during the Petroleum Activities Program.	C 15.1 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 	PS 15.1 All lifts conducted in accordance with applicable installation vessel work procedures to limit potential for dropped objects.	MC 15.1.1 Records show lifts conducted in accordance with the applicable installation vessel work procedures.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 331 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

EPOs, PS and MC			
EPO	Controls	PS	MC
	<p>is a risk of loss of loose materials.</p> <ul style="list-style-type: none"> 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. 		

6.9.7 Physical Presence: Disturbance to Seabed from Dropped Objects

Context													
Support Vessel Operations – Section 3.6 IMMR – Section 3.9				Biological Environment – Section 4.4 Socio-Economic Environment – Section 4.9				Consultation – Section 5					
Risk Evaluation Summary													
Source of Risk	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Dropped objects resulting in the disturbance of benthic habitat.	X	X		X		X	A	F	1	L	GP	Broadly Acceptable	EPO 16
Description of Source of Risk													
<p>During vessel operations, the primary cause for unplanned seabed disturbance is through dropped objects from the vessels.</p> <p>There is the potential for objects to be dropped overboard from the vessels to the marine environment. Objects that have been dropped during previous offshore activities include small numbers of personal protective gear (e.g. glasses, gloves, hard hats), small tools (e.g. spanners) hardware fixtures (e.g. riser hose clamp) and drill equipment (e.g. drill pipe); however, there is also potential for larger equipment to also be dropped during the activity. The spatial extent in which dropped objects can occur is restricted to the Operational Area.</p>													
Consequence Assessment													
Environmental Value(s) Potentially Impacted													
<p>In the unlikely event of an object being dropped into the marine environment, potential environmental impacts would be limited to minor physical impacts on benthic communities localised and temporary decline in water quality. In most cases, objects will be able to be recovered; 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 to benthic habitat will continue to be minor but permanent.</p> <p>Water Quality</p> <p>Unplanned seabed disturbance may include localised and temporary decline in water quality due to increased suspended sediments. The potential impacts are expected to be localised to around the area of the dropped object and rapidly dissipate.</p> <p>The frequency (infrequent) and nature (usually small items) of this seabed disturbance is significantly smaller than those identified in planned seabed disturbance (Section 6.7.2). Therefore, turbidity resulting from the described activities is not expected to result in any significant environmental impacts. Thus, it would result in no lasting effects and highly localised changes to the water quality (F).</p> <p>Benthic Habitats and Communities</p>													

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 333 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

The benthic habitats within the Operational Area are representative of the NWMR and are primarily comprised of soft, sandy substrates grading to clay and silt with increasing water depth with some smaller areas of hard outcropping and site attached species (i.e. close to Wheatstone platform, in water depths <120 m), as described in Section 4.3.1. In addition, two KEFs were identified:

- ancient coastline at 125 m depth contour (0.2% of the KEF [~31 km] crosses the eastern part of the Operational Area)
- continental slope demersal fish communities (~0.02% of the KEF [~6 km] overlaps the northwest of the Operational Area)

Due to the limited overlapping with either KEF and the infrequency of the potential impact, any unplanned seabed disturbance within the KEFs would be minor and relatively small compared to the size of them. Furthermore, as previously described, the benthic habitats within the Operational Area are representative of the NWMR.

Considering the type, size, scale and frequency of dropped objects that could occur and the low abundance of benthic fauna in the Operational Area, unplanned seabed disturbance would result in no lasting effects and highly localised impacts to benthic habitats and communities (F).

Cultural Values and Heritage

As described in Section 4.9.1 and above, the Operational Area partially overlaps the Ancient Coastline at 125 m depth contour KEF and therefore there is the potential that Indigenous Cultural features may exist and these may potentially be impacted during seabed disturbance resulting from dropped objects. While no cultural features have been identified in the Operational Area, further archaeological studies will be undertaken prior to the activity commencing to understand any potential cultural features.

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
None identified.				
Good Practice				
Vessels 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 15.1
Professional Judgement – Eliminate				

⁵⁶ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵⁶	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
None identified.				
Professional Judgement – Substitute				
None identified.				
Professional Judgement – Engineered Solution				
None identified.				
ALARP Statement: On the basis of the environmental risk assessment outcomes, use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.6.1), Woodside considers the adopted controls appropriate to manage potential risks associated with unplanned seabed disturbance. As no reasonably practicable additional/alternative controls were identified that would further reduce the impacts without disproportionate sacrifice, the impacts/risks are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement: The risk assessment has determined that, disturbance to seabed from dropped objects represents a low current risk rating and is unlikely to result in a risk consequence greater than Minor. The adopted controls are considered industry good practice. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks of seabed disturbance from dropped objects/anchor drag to an acceptable level.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 16 Seabed disturbance from dropped objects to be limited to planned activities and impacts as part of the Petroleum Activity and will not occur outside of the Operational Area.	C 15.1 Refer to Section 6.9.6.	PS 15.1 Refer to Section 6.9.6.	MC 15.1.1 Refer to Section 6.9.6.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 335 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

6.9.8 Physical Presence: Accidental Introduction of Invasive Marine Species

Context													
Support Vessel Operations – Section 3.6 IMMR – Section 3.9			Biological Environment – Section 4.4 Socio-Economic Environment – Section 4.9				Consultation – Section 5						
Risk Evaluation Summary													
Source of Risk	Environmental Value Potentially Impacted						Evaluation						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/ Habitat	Species	Socio-economic	Decision Type	Consequence/Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Introduction and establishment of invasive marine species (IMS) in vessel ballast tanks or on vessels/submersible equipment.				X		X	A	E	1	L	LCS GP	Broadly Acceptable	EPO 17
Description of Source of Risk													
<p>During the Petroleum Activities Program, vessels and submersible equipment have the potential to introduce IMS through biofouling and ballast water exchange, cross contamination between vessels and vessel interactions with the Wheatstone facility. All vessels are subject to some level of marine fouling. Organisms may attach to the vessel hull, particularly in areas where organisms can find a good attachment surface (e.g. seams, strainers and unpainted surfaces), and/or in areas where turbulence is lowest (e.g. niches and sea chests). Organisms can also be drawn into ballast tanks during onboarding of ballast water as cargo is loaded or to balance vessels under load.</p> <p>During the Petroleum Activities Program vessels will transit to and from the Operational Area. Submersible equipment required for IMMR activities (e.g. ROV/AUV) is transported to and used within the Operational Area. There is the potential that this equipment may be used on other projects before being used on this activity. Consequently, there is the potential for IMS translocation.</p> <p>Vessels may be sourced from the local area (Dampier, Port Hedland, etc.) or from further afield (e.g. international waters), depending on the type of vessel required and the availability of vessels. Vessels arriving from international waters typically call into Dampier, where quarantine clearance including ballast log reviews is conducted in accordance with the <i>Biosecurity Act 2015</i>.</p>													
Consequence Assessment													
Environmental Value(s) Potentially Impacted													
Non-indigenous marine species (NIMS) are those species that have been introduced into a region beyond their natural biogeographic range and have the ability to survive, reproduce and establish founder populations. Not all NIMS introduced into an area will thrive or cause demonstrable impacts (i.e. become IMS) (DoF 2016). In WA, the greatest number of NIMS is found in the south-west corner of the State, Perth, Fremantle waters, Albany and Bunbury (DoF 2016). Only a subset of NIMS that become abundant and impact on social/cultural, human health, economic and/or environmental values can be considered IMS. For example, in WA waters, of the 60 known NIMS only seven species are consider IMS (Wells 2024).													

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 336 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

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) (NOAA n.d.). IMS may outcompete indigenous species for food, habitat or light and can also interbreed with local species, creating hybrids such that the endemic species is lost (NOAA n.d.). These changes to the local marine environment result in changes to the natural ecosystem.

Potential IMS have historically been introduced and translocated around Australia by various natural (e.g. marine debris and ocean currents) and human means (e.g. biofouling and ballast water) (DCCEEW 2024). 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.

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.

Despite the potential high consequence of an IMS being introduced and established in a high-value environment, the deep offshore open waters of the Operational Area (i.e. >70 m) result in low light levels at the seabed, which are not conducive to the settlement and establishment of IMS. Furthermore, the distance to the closest island (~46 km [Montebello Islands]), mainland coast (~130 km) and large port (~160 km [Dampier]) are also not conducive to the settlement and establishment of IMS.

Table 6-17 provides an assessment of the IMS impacts and risks associated with the Petroleum Activity.

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 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 (Brewer, et al. 2007, DEWHA 2008). As described in Section 4.4, surveys within the Operational Area (RPS 2010, 2011) have found that benthic epifauna associated with the soft sediment seabed habitat comprise sparsely (<5%) distributed filter and deposit feeding invertebrates. The benthic infauna and epifauna found within the Operational Area are representative of the wider NWMR (and EMBA) (Brewer, et al. 2007, Rainer 1991).

The relatively deep offshore open waters of the Operational Area (>70 m) are not conducive to the settlement and establishment of IMS due to low light levels. Furthermore, the Operational Area is away from shorelines and/or critical habitat. Consequently, as identified in Table 6-17, impact to epifauna/infauna in the Operational Area is not considered credible.

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.

Given translocation to, and colonisation of IMS to the Operational Area is not considered credible, vessel activities is not expected to result in establishment of IMS, and as such not adversely affect other marine user activities in the region.

Based on the impact evaluation, the magnitude of potential impacts of a change to the functions, interests or activities of other users is slight (see Table 6-17). Leading to a Slight (E) risk consequence.

Cultural Values and Heritage

Through consultation and review of available literature (Section 4.9.1), Woodside understands that ecosystem health that may be affected by accidental introduction and establishment of IMS, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

Listening and talking with Country, which includes Sea Country, through stories, songlines, and other practices are ways Traditional Custodians care for, navigate, and connect with Country (Woodward, et al. 2020). Songlines rely on the continued health of Country, and people's continued access and connection to it

(McConnell, et al. 2021). When Country is damaged or altered, so too are songlines and the knowledge they embody and enact (McConnell, et al. 2021).

As described above, translocation to, and colonisation of IMS to the Operational Area is not considered credible, as such, no impact pathway to a change in access to Country from an accidental introduction and establishment of IMS within the Operational Area are anticipated. Cultural values and intangible cultural heritage associated with ecosystem health are expected to be maintained.

Summary of Potential Impacts to Environmental Values

In support of Woodside's assessment of the impacts and risks of IMS introduction associated with the Petroleum Activities Program, a risk and impact evaluation of the different aspects of marine pest translocation associated with the activity was conducted. The results of this assessment are presented in Table 6-17.

As a result of this assessment, Woodside has presented the highest potential environment consequence as E 'slight, short-term local impact' and a likelihood as Remote (0), resulting in an overall low risk following the implementation of identified controls.

Table 6-17: Assessment of the impacts and risks of invasive marine species introduction associated with the Petroleum Activity

IMS introduction aspect	Credibility of introduction	Consequence of introduction	Likelihood
Transfer of IMS from infected vessel to the Operational Area and establishment on the seafloor or subsea infrastructure.	Not Credible The deep offshore open waters of the Operational Area (i.e. >70 m), away from shorelines and/or critical habitat and >46 km from a shore, are not conducive to the settlement and establishment of IMS.		
Transfer of IMS from infected vessel to and subsequent establishment on the Wheatstone Platform.	Not Credible The translocation of IMS from a colonised vessel to the Wheatstone Platform is not considered credible. The Platform is located in an offshore, open ocean, deep environment. Woodside is not the operator and therefore, interaction with this infrastructure is not expected.		
Introduced to Operational Area and establishment on a vessel.	Credible There is potential for the transfer of marine pests between vessels within the Operational Area.	Environment – Not Credible The translocation of IMS from a colonised vessel to shallower environments via natural dispersion is not considered credible, given that the Operational Area is >46 km from nearshore environments. There is, therefore, no credible environmental risk and the assessment is limited to Woodside's reputation. Reputation – E If IMS were to establish on a vessel, this could potentially impact the vessel operationally through the fouling of intakes, result in translocation of an IMS into the Operational Area. Depending on the species, potentially transfer of an IMS to other support vessels, which would likely result in the quarantine of the vessel until eradication could occur (through cleaning and treatment of	Remote (0) Interactions between vessels will be limited to the Petroleum Activities Program. A minimum of 500 m safety exclusion zones will be adhered to around the vessel, and interactions limited to short periods of time alongside (i.e. during some IMMR activities). There is also no direct contact (i.e., they are not tied up alongside) during these activities. Spread of marine pests via ballast water or spawning in these open ocean environments is also considered remote.

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		infected areas), which would be costly to perform. Such introduction would be expected to have slight impact to Woodside's reputation, particularly with Woodside's contractors, and would likely have a reputational impact on future proposals.	
Transfer of IMS from infected vessel to and subsequent establishment on platform, then transfer of IMS to a secondary vessel from the Wheatstone Platform.	Not Credible The risk is considered so remote that it is not credible for the purposes of the Petroleum Activity. The transfer of a marine pest from an infected vessel to the Wheatstone Platform is considered not credible. Furthermore, for a marine pest to then establish into a mature spawning population on the platform and then transfer to another support vessel is not considered credible (i.e. beyond the Woodside risk matrix). The Platform is located in an offshore, open ocean, deep environment. Woodside is not the operator and therefore, interaction with this infrastructure is not expected.		

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵⁷	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 management option will reduce the likelihood of transfer of marine pests between vessels within the Operational Area and subsequently translocating to the Wheatstone platform. No change in consequence would occur.	Controls based on legislative requirements under the Commonwealth <i>Biosecurity Act 2015</i> – must be adopted.	Yes C 17.1
Good Practice				
Woodside's IMS risk assessment process will be applied to the support	F: Yes. CS: Minimal cost. Good practice	Identifies potential risks and additional controls implemented	Benefits outweigh cost/sacrifice.	Yes C 17.2

⁵⁷ Qualitative measure

Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵⁷	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
<p>vessels and immersible equipment that enter the Operational Area, unless exempt (Section 7.2.4)Assessment will consider the following risk factors:</p> <p>For vessels:</p> <ul style="list-style-type: none"> • vessel type • recent IMS inspection and cleaning history, including for internal niches • out-of-water period prior to mobilisation • age and suitability of antifouling coating at mobilisation date • internal treatment systems and history • origin and proposed area of operation • number of stationary/slow speed periods greater than seven days • region of stationary or slow periods • type of activity – contact with seafloor. <p>For immersible equipment:</p> <ul style="list-style-type: none"> • region of deployment since last thorough clean, particularly coastal locations • duration of deployments • duration of time out of water since last deployment • transport conditions during mobilisation • post-retrieval maintenance regime. <p>Based on the outcomes of each IMS risk assessment, management options commensurate with the risk (such as the treatment of internal systems, IMS</p>	<p>implemented across all Woodside operations.</p>	<p>accordingly. In doing so, the likelihood of transferring marine pests between platform and support vessels within the Operational Area is reduced. No change in consequence would occur.</p>		

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514 Page 340 of 445

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵⁷	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
inspections or cleaning) will be implemented to minimise the likelihood of IMS being introduced.				
Professional Judgement – Eliminate				
No discharge of ballast water during the Petroleum Activities Program.	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. CS: Not assessed, control not feasible.	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Eliminate use of vessels.	F: No. Given that support vessels must be used to implement project, there is no feasible means to eliminate the source of risk. CS: Loss of the project.	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Professional Judgement – Substitute				
Source vessels based in Australia only	F: Potentially. Limiting activities to only use local support 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 vessels based in Australian Waters. While the project will attempt to source support vessels locally it is not always possible. Availability cannot always be	Sourcing vessels from within Australia 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 Operational Area and NWMR, or of IMS that have established elsewhere in Australia. The consequence is unchanged.	Disproportionate. Disproportionate. Sourcing vessels from Australian waters may result in a reduction in the likelihood of IMS introduction to the Operational Area; however, the potential cost of implementing this control is grossly disproportionate to the minor environmental gain (or reducing an already remote likelihood of IMS introduction)	No

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 341 of 445

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Demonstration of ALARP				
Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS) ⁵⁷	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
	<p>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 support vessel availability.</p> <p>CS: Significant cost and schedule impacts due to restrictions of vessel hire opportunities.</p>		<p>potentially achieved by using only Australian based vessels, consequently this risk is considered not reasonably practicable.</p>	
Inspect all vessels for IMS	<p>F: Yes. Approach to inspect vessels could be a feasible option.</p> <p>CS: Significant cost and schedule impacts. In addition, Woodside's IMS risk assessment process 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 and resources to areas of greatest concern.</p>	<p>Inspection of all vessels for IMS would reduce the likelihood of IMS being introduced to the Operational Area. However, this reduction is unlikely to be significant, given the other control measures implemented. No change in consequence would occur.</p>	<p>Disproportionate. The cost/sacrifice outweighs the benefit gained, as other controls to be implemented achieve an ALARP position.</p>	No
Professional Judgement – Engineered Solution				
None identified				
<p>ALARP Statement:</p> <p>On the basis of the assessment outcomes, use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.6.1), Woodside considers the adopted controls appropriate to manage the impacts and risks of introducing IMS. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.</p>				

Demonstration of Acceptability
<p>Acceptability Statement:</p> <p>The risk assessment has determined that, given the adopted controls, translocation of IMS may result in slight impact, and the likelihood of introducing IMS to the Operational Area and then subsequently to the Wheatstone Platform is considered highly unlikely. BIAs within the Operational Area include the EIO pygmy blue whale</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514 Page 342 of 445

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migration BIA, flatback turtle interbreeding BIA, whale shark foraging BIA, and wedge-tailed shearwater breeding BIA. However, these species are not expected to be impacted by IMS.

Further opportunities to reduce the impacts and risks have been investigated above. The adopted controls are considered good practice/industry best practice. 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 IMS to an acceptable level.

EPOs, PS and MC			
EPO	Controls	PS	MC
EPO 17 No introduction and establishment of invasive marine species into the Operational Area as a result of the Petroleum Activities Program.	C 17.1 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).	PS 17.1 Prevent the translocation of IMS within the vessel's ballast water from high-risk locations to the Operational Area.	MC 17.1.1 Ballast Water Records System maintained by vessels which verifies compliance against Australian Ballast Water Management Requirements.
	C 17.2 Woodside's IMS risk assessment process will be applied to support vessels and immersible equipment that enter the Operational Area, unless exempt (Section 7.2.4). Assessment will consider the following risk factors: For vessels <ul style="list-style-type: none"> vessel type recent IMS and cleaning history, including for internal niches out of-water period prior to mobilisation age and suitability of antifouling coating at mobilisation date internal treatment systems and history 	PS 17.2 Before entering the Operational Area support vessels and relevant immersible equipment are determined to be low risk ⁵⁸ of introducing IMS of concern.	MC 17.2.1 Records of IMS risk assessments maintained for all support vessels and relevant immersible equipment entering the Operational Area to undertake the Petroleum Activities Program.

⁵⁸ 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.

EPOs, PS and MC			
EPO	Controls	PS	MC
	<ul style="list-style-type: none"> • origin and proposed area of operation • number of stationary/slow speed periods greater than seven days • region of stationary or slow periods • type of activity – contact with seafloor. <p>For immersible equipment:</p> <ul style="list-style-type: none"> • region of deployment since last thorough clean, particularly coastal locations • duration of deployments • duration of time out of-water since last deployment • transport conditions during mobilisation • post retrieval maintenance regime. <p>Based on the outcomes of each IMS risk assessment, management options 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.</p>		

6.10 Recovery Plan and Threat Abatement Assessment

As described in Section 1.10.4, NOPSEMA will not accept an EP that is 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 2017a).
- *Conservation Management Plan for the Blue Whale 2015–2025* (Commonwealth of Australia 2015).
- *Recovery Plan for the Grey Nurse Shark (Carcharias taurus) 2014* (Commonwealth of Australia 2014).
- *Sawfishes and River Sharks Multispecies Recovery Plan* (Commonwealth of Australia 2015).
- *Recovery Plan for the White Shark (Carcharodon carcharias)* (Commonwealth Australia 2013).
- *National Recovery Plan for albatrosses and petrels* (Commonwealth of Australia 2022).
- *National Recovery Plan for the Australian Fairy Tern (Sternula nereis nereis)* (Commonwealth of Australia 2020).
- *National Recovery Plan for the Australian Painted Snipe (Rostratula australis)* (Commonwealth of Australia 2022).
- *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW 2024).
- *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans 2018* (Commonwealth of Australia 2018).

Table 6-18 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 6-19 to Table 6-22.

Table 6-18: Identification of applicability of recovery plan and threat abatement plan objectives and action areas

EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	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		
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		

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Titleholder	Petroleum Activities Program
B. Enabling and measuring recovery			
B1. Determine trends in index beaches	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
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 biologically important areas, 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		
A.4: Minimising vessel collisions	Y	Y	Y
B. Enabling and Measuring Recovery			
B.1: Measuring and monitoring population recovery	Y		

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Titleholder	Petroleum Activities Program
B.2: Investigating population structure	Y		
B.3: Describing spatial and temporal distribution and defining biologically important habitat	Y	Y	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: 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		
Improve understanding of the threat of pollution and disease to the grey nurse shark	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	

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Titleholder	Petroleum Activities Program
Promote community education and awareness in relation to grey nurse shark conservation and management	Y		
Sawfish and River Sharks Recovery Plan			
Primary Objective			
<p>To assist the recovery of sawfish and river sharks in Australian waters with a view to:</p> <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	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 impact of illegal, unregulated and unreported fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species	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 public 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		
White Shark Recovery Plan			

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Titleholder	Petroleum Activities Program
Primary Objective			
<p>To assist the recovery of the white shark in the wild throughout its range in Australian waters with a view to:</p> <ul style="list-style-type: none"> improving the population status leading to future removal of the white shark 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	Y
Specific Objectives			
Develop and apply quantitative measures to assess population trends and any recovery of the white shark in Australian waters and monitor population trends.	Y		
Quantify and minimise the impact of commercial fishing, including aquaculture, on the white shark through incidental (illegal and/or accidental) take, throughout its range in Australian waters.	Y		
Quantify and minimise the impact of recreational fishing on the white shark through incidental (illegal and/or accidental) take, throughout its range in Australian waters.	Y		
Where practicable minimise the impact of shark control activities on the white shark.	Y		
Investigate and manage (and where necessary reduce) the impact of tourism on the white shark.	Y		
Quantify and minimise the impact of international trade in white shark products through implementation of CITES provisions.	Y		
Continue to identify and protect habitat critical to the survival of the white shark and minimise the impact of threatening processes within these areas	Y		
Continue to develop and implement relevant research programs to support the conservation of the white shark.	Y		
Promote community education and awareness in relation to white shark conservation and management.	Y		
Encourage the development of regional partnerships to enhance the conservation and management of the white shark across national and international jurisdictions.	Y		
Albatrosses and petrels National Recovery Plan			
Long-term recovery objective: The populations of albatross and petrel species breeding and/or foraging in Australia's jurisdiction have increased to such a size that each species no longer qualifies for listing as threatened under any of the EPBC Act listing criteria.	Y	Y	Y

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Titleholder	Petroleum Activities Program
Strategies to achieve the objective			
Ensure ongoing protection of albatross and petrel breeding sites and habitats in Australia's jurisdiction.	Y	Y	Y
Improve the understanding of the size, structure and population trends for albatrosses and petrels breeding in Australia's jurisdiction.	Y		
Improve effectiveness of management measures that reduce land-based threats to albatrosses and petrels breeding in Australia's jurisdiction.	Y	Y	
Improve effectiveness of management measures that reduce marine-based threats to albatrosses and petrels foraging in Australia's jurisdiction.	Y	Y	Y
Improve understanding of generalised threats to albatrosses and petrels breeding and foraging within Australia's jurisdiction.	Y	Y	Y
Improve community awareness of the conservation of albatrosses and petrels.	Y		
Achieve substantial progress towards global conservation of albatrosses and petrels in international conservation and fishing forums.	Y		
Action Areas			
A. Assessing and addressing threats			
A.1: Ongoing protection of albatross and petrel species breeding sites and habitats in Australia's jurisdiction	Y		
A.2: Prevent introduction of alien species to breeding islands in Australia's jurisdiction	Y	Y	
A.3: Identify whether competition with native species is causing population declines	Y		
A.4: Identify diseases likely to have a population-level effect on breeding populations	Y		
A 5: Avoid or minimise incidental catch (or bycatch) of seabirds during fishing operations in Australia's jurisdiction	Y		
A 6: Advocate for effective international measures for conserving albatrosses and petrels	Y		
A 7: Minimise the effects of marine debris, plastics and pollution	Y	Y	Y
B. Enabling and Measuring Recovery			
B.1: Monitor population and conservation status of breeding populations in Australia's jurisdiction	Y		
B.2: Monitor the effects of fishing on albatrosses and petrels in Australia's jurisdiction	Y		

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Titleholder	Petroleum Activities Program
B.3: Increase community understanding of and involvement in the conservation of albatrosses and petrels	Y		
B 4: Increase understanding of the effects of climate change on albatrosses and petrels in Australia and identify ways to increase the resilience of the species to these effects.	Y		
B 5: Implement statutory requirements	Y		
Australian Fairy Tern Recovery Plan			
Long-term recovery objective: The Australian Fairy Tern population has increased in size to such an extent that the species no longer qualifies for listing as threatened under any of the Environment Protection and Biodiversity Conservation Act 1999 listing criteria.	Y	Y	Y
Strategies to achieve objectives			
Manage and protect known Australian Fairy Tern breeding populations at the landscape scale	Y		
Develop and apply techniques to measure changes in population trend(s) in order to measure the efficacy of recovery actions	Y		
Reduce, or eliminate threats at breeding, non-breeding and foraging sites	Y	Y	
Undertake research and monitoring to improve understanding of breeding, non-breeding and foraging ecology in order to better target management actions and habitat restoration	Y		
Engage community stakeholders in Australian Fairy Tern conservation	Y		
Coordinate, review and report on recovery progress	Y		
Australian Painted Snipe Recovery Plan			
Long-term recovery objective: The Australian Painted Snipe population has increased in size to such an extent that the species no longer qualifies for listing as threatened under any of the Environment Protection and Biodiversity Conservation Act 1999 listing criteria.	Y	Y	Y
Strategies to achieve objectives			
Manage and protect known Australian Painted Snipe habitat at the landscape scale	Y		
Develop and apply techniques to measure changes in population trajectory in order to measure the success of recovery actions	Y		

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Titleholder	Petroleum Activities Program
Reduce, or eliminate threats at breeding and non-breeding habitats	Y	Y	
Undertake research to improve knowledge of the habitat requirements, biology and behaviour of Australian Painted Snipe	Y		
Engage community stakeholders to improve awareness of the conservation of Australian Painted Snipe	Y		
Coordinate, review and report on recovery progress	Y		
<i>Southern Right Whale Recovery Plan</i>			
Long-term Recovery Objective: The long-term vision for the recovery of the southern right whale is that the population has increased in size 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
<i>Interim Recovery Objectives</i>			
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	Y	Y
Anthropogenic threats are managed consistent with ecologically sustainable development 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 of southern right whales in Australian waters is clearly characterised, including the level of interchange of individuals among coastal reproductive areas, 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 (e.g., New Zealand)	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		
<i>Action Areas</i>			
A. Assessing and addressing threats			
A1. Maintain, implement, and improve efficacy of current legislative and management protection	Y		
A2. Address habitat degradation impacts from coastal and offshore marine infrastructure developments	Y	Y	

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	Titleholder	Petroleum Activities Program
A3. Understand impacts of climate variability and anthropogenic climate change on population recovery	Y		
A4. Manage and mitigate the threat of entanglements from commercial active or discarded fishing gear	Y		
A5. Assess, manage, and mitigate impacts from anthropogenic noise	Y	Y	
A6. Manage, minimise, and mitigate the threat of vessel strike.	Y	Y	
B. Measuring recovery			
B1. Measure and monitor population demographics 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		
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 6-19: Assessment against relevant actions of the Marine Turtle Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
Marine Turtle Recovery Plan	Action Area A3: Reduce the impacts from marine debris.	Action: Support the implementation of the Marine Debris Threat Abatement Plan (TAP). <u>Priority actions at stock level:</u> 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 – No relevant actions.	Refer to Section 6.9.4 Not inconsistent assessment: The assessment of the accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to marine turtles. Controls have been implemented to reduce the likelihood of accidental release of solid wastes for the duration of the Petroleum Activities Program.	EPO 13 PS 13.1
	Action Area A4: Minimise chemical and terrestrial discharge.	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> 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	Refer to Section(s) 6.8.3, 6.9.1 and 6.9.2. Not inconsistent assessment: The assessment of accidental release of hydrocarbons has considered the potential risks to marine turtles. Spill risk strategies and response program include management measures for turtles and their nesting habitats.	Refer to Section(s) 6.8.3, 6.9.1 and 6.9.2. Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are present in Appendix D.
	Action Area A8: Minimise light pollution.	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. <u>Priority actions at stock level:</u> G-NWS – As above. LH-WA – No relevant actions.	Refer to Section 6.7.7 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.	EPO 8b PS 8.1, 8.2, 8.3

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
		F-Pil – Manage artificial light from onshore and offshore sources to ensure biologically important behaviours of nesting adults and emerging/dispersing hatchlings can continue.		
	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> 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 – No relevant actions. F-Pil – No relevant actions.	Refer to Section 6.7.3 Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to marine turtles. Noise related to the Petroleum Activities Program is not expected to result in behavioural response, injury or mortality of individuals, or any other lasting effect.	EPO 4a, b PS 4.1, 4.3
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 6-20: Assessment against relevant actions of the Blue Whale Conservation Management Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
Blue Whale Conservation Management Plan	Action Area A2: 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 whale continues to use the area without injury and is not displaced from a foraging area.	Refer to Section 6.7.3 Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to pygmy blue whales. Acoustic emissions from vessels will not cause injury to any pygmy blue whale. There are no known or possible foraging areas for pygmy blue whales within or adjacent to the Operational Area. If the Petroleum Activities Program overlaps with an individual	EPO 4a, b PS 4.1, 4.4

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
			northbound or southbound migration, they may deviate slightly from the migratory route, but will continue on their migration.	
	Action Area A4: 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 to Section 6.9.5 Not inconsistent assessment: The assessment of vessel collision with marine fauna has considered the potential risks to pygmy blue whales. Vessel collisions with pygmy blue whales are highly unlikely to occur, given the low operating speed of support vessels.	EPO 14 PS 4.1, 4.4
	Action Area B3: 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. satellite tracking of pygmy blue whale migratory movements).	N/A

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.

Table 6-21: Assessment against relevant actions of the Sawfish and River Sharks Recovery plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
Sawfish and River Sharks Recovery plan	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	Action 6a: Assess the impacts of marine debris including ghost nets, fishing gear and plastics on sawfish and river shark species.	Refer to Section 6.9.4 Not inconsistent assessment: The assessment of the accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to fish and shark species. Controls have been implemented to reduce the likelihood of	EPO 13 PS 13.1

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
	of Marine Debris on Vertebrate Marine Life.		accidental release of solid wastes for the duration of the Petroleum Activities Program.	
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.				

Table 6-22: Assessment against relevant actions of the Albatrosses and petrels National Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
Albatrosses and petrels National Recovery Plan	Action A 7: Minimise the effects of marine debris, plastics and pollution	Action: Improve understanding of and reduce the effects of marine debris, plastics and pollution on albatrosses and petrels.	Refer to Section 6.9.4 Not inconsistent assessment: The assessment of the accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to seabirds and shorebirds. Controls have been implemented to reduce the likelihood of accidental release of solid wastes for the duration of the Petroleum Activities Program.	EPO 13 PS 13.1
Assessment Summary The Albatrosses and petrels National 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 6-23: Assessment against relevant actions of the Marine Debris Abatement Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
Marine Debris Threat Abatement Plan	Objective 2: Understand the scale of marine plastic and microplastic impact on key species, ecological	Action 2: Build understanding related to plastic and microplastic pollution.	Refer to Section 6.9.4 Not inconsistent assessment: The assessment of the accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to marine species. Controls have been implemented to reduce the	EPO 13 PS 13.1

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	Relevant EPO and PS
	communities and locations.		likelihood of accidental release of solid wastes for the duration of the Petroleum Activities Program.	
Assessment Summary The Marine Debris Threat Abatement 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.				

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Page 359 of 445

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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 that environmental risks and impacts are continually being reduced to ALARP and are acceptable, and that EPOs and PS outlined in this EP are achieved.

Woodside, as Operator, is responsible for ensuring that the Petroleum Activities Program is managed in accordance with this Implementation Strategy and the WMS (Section 1.8).

7.2 Systems, Practice, and Procedures

All operational activities are planned and performed in accordance with relevant legislation and standards, management measures 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 adopted in Section 6.

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 WMS 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).

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
- The Julimar Field Production Systems Operating Manual describes what is undertaken and “how” Chevron must “operate” the wells that are under its control. This key document is developed and maintained by Woodside and the requirements executed by Chevron. It describes the requirements for operating the Julimar-Brunello field including reference to relevant operating and maintenance procedures. It also defines the relevant emergency response bridging documents and communication arrangements.

7.2.1.1.1 Permit to Work

The *Wheatstone Platform Permit to Work Manual* process outlines the key systems and practices required to achieve effective management of permit-controlled work. The PTW system is a key element in ensuring that all necessary steps are taken to manage the safety of personnel, protection of the environment and technical integrity of the facility and the Julimar Field Production System. Vessels liaise with the Wheatstone Platform to obtain a PTW prior to working on subsea infrastructure, JDP3 commissioning.

The PTW system takes a risk-based approach to all activities with tasks with higher levels of risk subjected to greater scrutiny and control. The PTW system also allows for low-risk routine tasks to be carried out with minimal but adequate administration. The primary objective of PTW is to ensure that work meets regulatory requirements, as well as internal requirements for how to safely manage the execution of work. Specifically, that activities are properly planned, risk assessed, controlled, co-ordinated, and safely executed. It provides a methodical approach to identify hazards, assess risks, create and support 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 Julimar Field Production System.

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.

7.2.1.2 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 Julimar Field Production System. The maintenance strategy for the Julimar Field Production System is based on optimising safety, minimising environmental impact and maximising production. Maintenance practices used to establish well managed maintenance 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 Julimar Field Production System. 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 (CMMS) provides a database called SAP-PM that contains Julimar Field Production System 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 (Technical Integrity status). Refer to Section 7.3.4 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 (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 twenty PSM requirements. The focus areas and requirements are shown in Figure 7-1. Chevron process safety management framework is outlined in the Wheatstone Facility Safety Case (including Julimar-Brunello pipelines) with the interface documents outlined in the Julimar field production Systems Operating Manual.

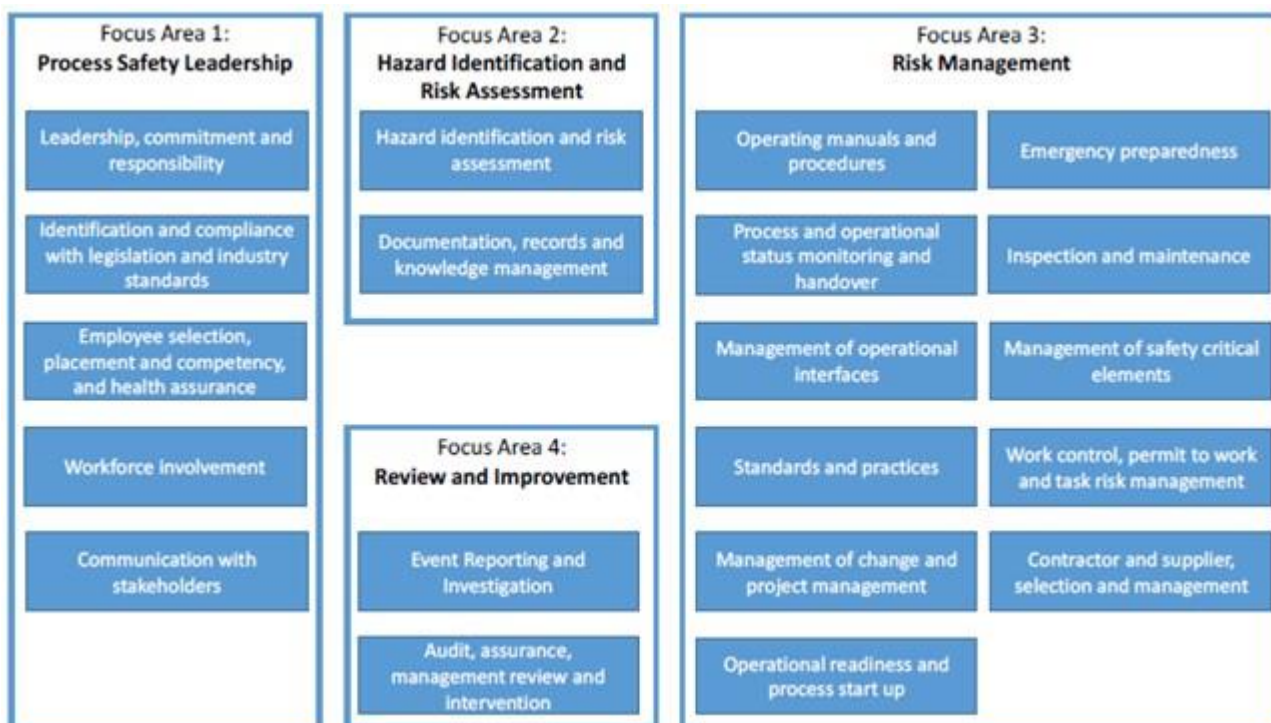


Figure 7-1: Process Safety Management Focus Areas

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. Chevron safety culture framework is outlined in the Wheatstone Facility Safety Case (including Julimar-Brunello pipelines).



Figure 7-2: Woodside 'Our Safety Culture' Framework

7.2.3 Environmental Considerations during 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 reduce potential impacts and risks associated with chemical use to ALARP by selecting chemicals 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.

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 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
- 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.

Background Overview of OCNS

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 7-3)

- **HQ Colour Band:** Gold, Silver, White, Blue, Orange, and Purple (listed in order of increasing environmental hazard)
- **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 7-3: Offshore Chemical Notification Scheme Ranking

7.2.4 Woodside Invasive Marine Species Risk Assessment Process

7.2.4.1 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)⁵⁹
- 'new build' vessels or immersible equipment launched less than 14 days prior to mobilisation
- locally sourced vessels or immersible equipment from within the Western locally sourced zone⁶⁰. 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).

7.2.4.2 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).

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 support 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 7-1 and Table 7-2.

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 7-1: Key factors considered as a part of the risk assessment process for vessels

⁵⁹The IMSMA is defined as all nearshore waters around Australia, extending from the lowest astronomical tide mark to 12 nm from land ('Territorial Seas', and including Australian territorial islands). The IMSMA also includes: (i) all waters which are shallower than the 50-metre depth contour outside of the 12 nm boundary, thereby encompassing submerged reefs and atolls, and (ii) Operational Areas defined in environmental approvals. The IMSMA is based on current maritime boundary definitions, legal frameworks and requirements, IMS risk interpretations and existing management arrangements applied by Commonwealth and State/Territory regulatory agencies.

⁶⁰The Western Locally Sourced Zone (W-LSZ) spans an area that includes the entire Western Australian coastline out to the Exclusive Economic Zone (EEZ) limit at 200 nm (excluding any government-declared Quarantine Areas).

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 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 nm 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 7-2: 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 metres 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.

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Revision: 8.0

Native file DRIMS No: 10484514

Page 366 of 445

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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.
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Following implementation of the risk assessment process, vessels and/or immersible equipment are classified as one of three risk categories, as defined below:

- ‘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:

- having a suitably qualified and experienced IMS inspector inspect (desktop, in-water or dry dock) 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
- applying in-water or dry dock cleaning of the hull and other niche areas, 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
- treating vessels. internal seawater systems, typically applied in isolation for vessels with AFC applied to their hull within the last 12 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); applicable for Uncertain risk vessels only
- rejecting the vessel.

Support vessels and immersible equipment are required to be a low risk of introducing IMS prior to entering the Operational Area.

7.2.5 Risk Management

Risk management processes and practices are applied on an ongoing basis to design, production and maintenance activities for Julimar operations to manage risks to personnel, assets and the environment.

Potential environmental consequences and impacts from the Julimar operations are risk assessed and controlled in accordance with the Woodside risk management processes described in Section 2.2 of this EP (Environmental Risk Management Methodology).

The results of the Julimar operations ENVID are described in Section 6 and in the Julimar Field Production System 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 Julimar Field Production System.

A number of other risk management tools and techniques are used by Julimar operations 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 (e.g. Hazard Identification and Risk Assessments, Operational Risk Assessments, the technical Management of Change (MoC) system (Section 7.3), 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 Wheatstone Facility Safety Case (including Julimar-Brunello pipelines), 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 2.2.1), 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.

7.2.6 Management of Risks – Contracting and Procurement

Suppliers and contractors play a significant role in meeting the resource needs of Woodside's operations, including the Julimar Field Production System 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.

7.2.7 Management of Risks – Subsea Activities

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 Julimar Field Production System 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 usage and waste. This information is used by an environment focal point to determine if further assessment is required. For scopes 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 7.3.2) may be undertaken to confirm if the level of environmental risk warrants revision and resubmission of an EP.

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).

7.2.8 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 this 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 significant modification or change to the Julimar Field Production System description provided in the EP, or where potential significant new environmental risks or impacts or significant increases in an existing environmental risk or impact are identified, an EP MoC review (as per Section 7.3.2) may be undertaken to confirm if the level of environmental risk warrants revision and resubmission of an EP.

7.2.9 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'.

As outlined in Section 6.8.1 human factors can contribute to MEEs or result in failure or degradation of the controls in place to protect against MEEs. The WMS includes a number of procedures designed to manage human factors related risks and prevent incident causation.

7.2.10 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 associated with the Julimar Field Production System are managed under a WOMP.

7.2.11 Management of Risks – Marine Services

Woodside's Marine Services Function 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 management) are in place to ensure marine operations are conducted in a safe and efficient manner, and in accordance with regulatory requirements. Management of subsea activities on subsea support vessels is managed by the SSPL Function.

7.3 Change Management

Woodside's Change Management Procedure describes requirements for change management at 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 7-4. The hierarchy has been developed with sub-processes to address the different types of change performed at Woodside.



Figure 7-4: Change Management Hierarchy

To help manage the day to day operation of the Julimar Field Production System, 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.

7.3.1 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, including any failure to meet the Julimar Field Production System Performance Standards, are identified, assessed and reduced to ALARP (Section 7.3.4 provides further information on management of Performance Standards).

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.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 370 of 445

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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.

The Julimar Field Production System is managed under Chevron's Operations Safety Case for the Julimar-Brunello Pipeline therefore management of change (MoC) will comply with the requirements of the Chevron Operations Excellence Management System (OEMS). Woodside implements a MoC interface process that complies with both the Chevron OEMS and the Woodside Change Management Operating Standard, the interface process describes how change will be managed for the following scenarios:

- change to the Julimar Field Production System instigated by Woodside
- change to the Julimar Field Production System or systems that can impact the Julimar Field Production System instigated by Chevron.

The MoC interface process ensures that the relevant Woodside stakeholder/s including relevant Integrity Authorities (as defined in *Engineering Management Procedure*) are consulted during the change assessment. The interface process shall also ensure that the consultation occurs during the initial assessment phase of the proposed change and the relevant Woodside stakeholder endorses the change prior to implementation.

7.3.2 EP Management of Change and Revision

Management of changes are managed in accordance with Woodside's Environmental Approval Requirements Australia Commonwealth Guideline. Management of changes relevant to this EP, concerning the scope of the activity description (Section 2.10) including: review of advances in technology at stages where new equipment may be selected such as vessel contracting; changes in understanding of the environment, DCCEEW 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 (Section 4.8); and potential new advice from external stakeholders (Section 5), will be managed in accordance with Regulation 39 of the Environment Regulations.

Risk will be assessed in accordance with the environmental risk management methodology (Section 2.8) 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 Regulation 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 Regulation 38 or 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

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 371 of 445

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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.

7.3.3 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 Regulation 38 and 39 to determine if EP, including OPEP, resubmission is required (see Section 7.3.2).

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.

7.3.4 Management of SCE Technical Performance Standards and Management System Performance Standards

7.3.4.1 Management System Performance Standards

Woodside ensures safety critical management processes function as required through the application of Management System Performance Standards (MSPS). MSPS are developed and owned at non-facility specific level (i.e. pan 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.

7.3.4.2 SCE 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, responds and verifies/optimises SCEs by applying SCE technical Performance Standards as described in the Safety and Environment Critical Element (SCE) Management Procedure. Response to an SCE failure is managed by the Control of Operational Risk Procedure. Key elements of the procedure are summarised in Table 7-3.

Table 7-3: Summary of Safety and Environment Critical Element Management Procedures

Identify/Develop	<p>Safety and Environment Critical Element Management Procedure</p> <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 SCE Global Performance Standard and may require designated Engineering Design Studies. Studies could include Reliability Centred Maintenance, Risk Based Inspection and LOPA (Layers of Protection) 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 applicable SCEs by:</p> <ul style="list-style-type: none"> • selecting the relevant 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>Management of Hardware Controls in the Operate Phase Procedure</p> <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 7.2.1.2).</p>
Maintain/Assure	<p>Management of Hardware Controls in the Operate Phase Procedure</p> <p>Execute Testing, Inspection and Maintenance Programs – On completion of SCC and 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>External Reporting – External notification obligations for SCE events 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 7.15.5).</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>
Respond	<p>Control of Operational Risk Procedure</p> <p>Respond 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 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 Management of Change – Assets Procedure (Section 7.3).</p> <p>Management of Hardware Controls in the Operate Phase Procedure</p> <p>Report Internally – SCE failure/damage and SCE demands must be reported in accordance with the Health Safety and Environment Event Reporting and Investigation Procedure (Section 7.15.4).</p> <p>Report Externally – 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 7.15.4).</p>
Verify/	<p>Management of Hardware Controls in the Operate Phase Procedure</p>

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	<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 7.3).</p>
--	--

SCE Facility 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 to confirm that the SCE meets, or will meet, its SCE Performance Standard. Examples of assurance tasks include inspection routines, maintenance activities, test routines, and reliability monitoring.

These assurance tasks are identified in the CMMS, flagged against their associated Performance Standard, and given the appropriate priority (defined as Technical Integrity). Management systems are in place to manage the completion of maintenance.

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 applicable 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.

Additionally, confirmed 'Failure to meet a Facility Performance Standard' events for the SCEs identified in the MEE bowties may equate to a breach of EPOs and/or EPSs. The review to identify such events for external reporting considers whether the hazard event is relevant to environmental SCE functional objectives (goal and/or applicable key requirements) of the SCE Facility Performance Standard and whether the event poses a risk to achieving EPOs and EPSs. The WMS Regulator Event Reporting Guideline provides additional information regarding external SCE related reporting obligations.

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 engineering management procedures (described further within Section 7.3). 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.

7.4 Woodside's Decommissioning Framework

Decommissioning is a routine, planned activity for the offshore oil and gas industry. Current best practice for decommissioning includes:

- 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 compliance with Section 572(3) of the OPGGS Act, which requires titleholders to remove property from the title area when it 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 under Chapter 3 or Chapter 6 of the OPGGS Act, and any other law. Under section 270(3) of the OPGGS Act, before title surrender, all property brought into the surrender area by any person engaged or concerned in the operations authorized by the permit, lease or licence must be removed or cause to be removed from the surrender area 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.

7.4.1 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 removal. Appropriate maintenance plans are developed and implemented to ensure decommissioning critical systems meet the requirements to facilitate removal.

7.4.2 Decommissioning Planning

Decommissioning planning generally commences two to 10 years prior to cessation of production (Figure 7-5). The timeframe selected for decommissioning planning depends on the complexity of the facility and infrastructure requiring decommissioning.

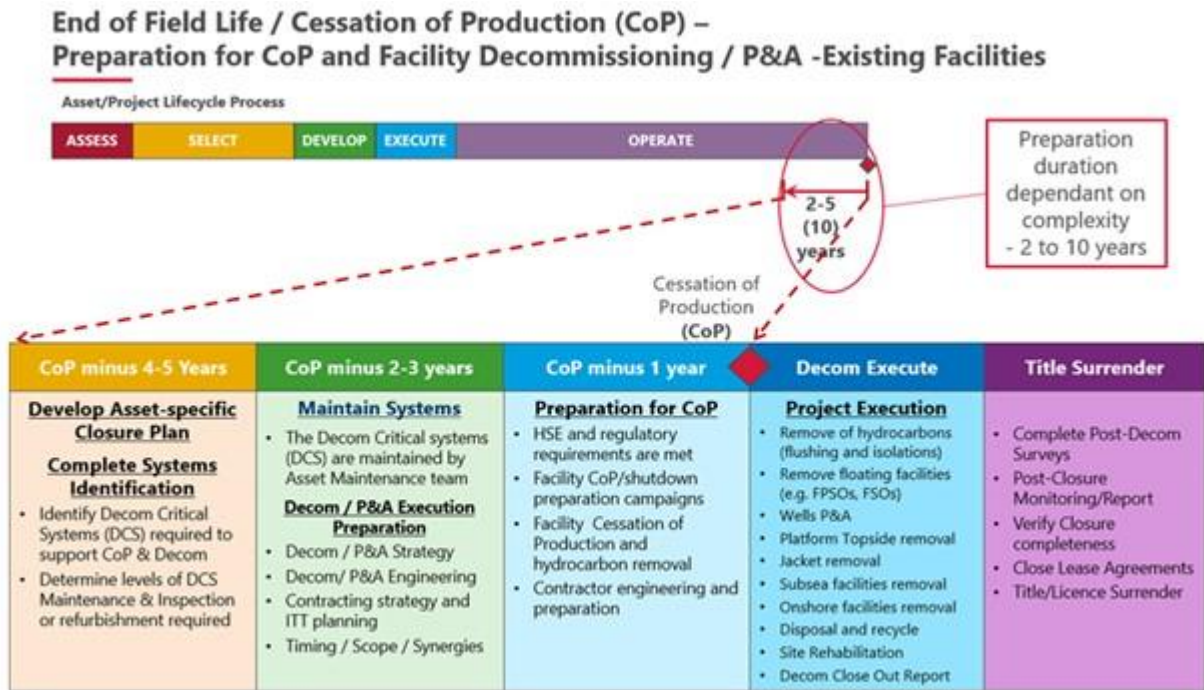


Figure 7-5: Woodside's process for decommissioning planning

7.4.3 Inventory of Property within the Julimar Development

An inventory of property located within the Julimar development in petroleum title WA-49-L and associated pipeline licenses in Commonwealth waters covered under this EP, is provided below in Table 7-4. For a more detailed breakdown of key subsea infrastructure of the Julimar Development see Table 3-3. Other infrastructure in the WA-49-L outside of the Julimar Development are beyond the scope of this EP and are covered under the NWS and Julimar Exploration Wellhead Decommissioning Environment Plan (Document ID: 1401778035, accepted 3 July 2024). and Balnaves Plug and Abandonment Environment Plan (Document ID: 1401739439, accepted 16 December 2021).

Table 7-4: Inventory of Woodside infrastructure within the Julimar Development

Item	Description	Status	Decommissioning Phase
WA-49-L			
Subsea wells			
8 wells (Phase 1 and 2)	Subsea production wells in Julimar and Brunello fields	Maintained for production	Not yet applicable
5 wells (Phase 3)	Subsea production wells in Julimar and Brunello fields	To be drilled	Not yet applicable
Subsea infrastructure - Julimar			
JDP Phase 1/2: 2 x 22 km 18" rigid pipeline (Julimar, Brunello) 23 km 4" MEG pipeline	Production subsea infrastructure	Maintained for production	Planning pending (~5+ years)

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 376 of 445

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2 x 22 km umbilical Anchor structures, rigid spools, flexible and control jumpers			
JDP Phase 3: 5 wells, associated manifolds and flexible 8" flowlines	Production subsea infrastructure – to be installed	Maintained for production (once installed)	Not yet applicable

7.5 Julimar Decommissioning Strategy

Cessation of production for the Julimar development is presently estimated to be 2035. Timing is indicative only and subject to unnotified change based on production forecasting.

Decommissioning of the Julimar development is being considered in a single stage, with all infrastructure anticipated to remain in service through to EoFL. Consideration of implementation of decommissioning in phases will be contemplated if equipment is determined to be redundant ahead of EoFL. End state decisions and execution methodologies will be finalised at EOFL.

In line with Woodside's decommissioning planning process outlined above, an Asset Closure Management Plan has been prepared for the Julimar Offshore assets.

Decommissioning of the infrastructure will be undertaken in two phases:

- decommissioning planning
- decommissioning execution (after cessation of property)

Woodside adopts a risk based approach to the planning and execution of decommissioning of property. The timing of the main activities related to decommissioning planning and execution for the Julimar development are subject to change as plans develop and specific decommissioning requirements are defined.

7.6 Decommissioning Planning Activities

Planning for decommissioning mostly includes desktop studies and engineering design but may also leverage data from inspections and other activities undertaken during IMMR within the scope of the Petroleum Activities Program.

During the decommissioning planning phase all infrastructure will be managed and maintained within the scope of this EP to meet Woodside's obligations under Section 572. With equipment associated with the Julimar development inspected, monitored and maintained in accordance with the Woodside Asset Maintenance and inspection regime for producing infrastructure.

Decommissioning execution activities will adopt a risk based approach, that considers the NOPSEMA Decommissioning Compliance Strategy 2024-2029 (NOPSEMA, 2023a).

7.6.1 Wells

Woodside plans to undertake detailed technical assessment of production wells within the Julimar development. This is ensure that wells are abandoned to the relevant regulatory requirements, including permanent downhole barriers. Production wells are monitored and maintained in accordance with Woodside's Well Integrity Process for production wells. Monitoring continues as per the approved WOMP and the well integrity management procedure. Plug and abandonment of production wells within the Julimar Development will be covered under a separate EP.

7.6.2 Decommissioning Execution Planning

Consistent with Woodside's process (Figure 7-5) detailed decommissioning planning will commence prior to CoP. Detailed planning entails technical engineering studies, contracting activities, approvals planning, consultation with stakeholders, as well as works to assess decommissioning options, timing and risk management. Decommissioning activities will be subject to separate approvals.

7.7 Organisational Structure

The following Woodside organisational structure provides leadership and direction for operation of the Julimar operations and environmental performance:

- the Executive Vice President (EVP) and Chief Operating Officer (COO) Australian Operations report to the Chief Executive Officer (CEO)
- the Vice President (VP) Bass Strait & Wheatstone reports to the EVP and COO Australian Operations
- the Asset Manager and support teams report to the VP Bass Strait & Wheatstone
- the VP HSE Australian Operations reports to the EVP and COO Australian Operations
- the Environment and Sustainability Manager reports to the VP HSE Australian Operations
- all facilities are supported by a team of environmental professionals who report to the Environment and Sustainability Manager.

All facilities are supported functionally by a number of multi-discipline teams including engineering, project development, health and safety, process safety, marine assurance, human resources, subsea, drilling and completions, corporate etc.

All facilities are supported by other Woodside functional teams including:

- **Engineering** – supports operating assets in terms of engineering standards/guidelines and governance processes, systems, applications and specialist personnel to support these standards/guidelines
- **HSE Support** – provides specific guidance and access to specialist HSE resources including assistance for governance and training, as well as guidance on Woodside HSE standards
- **Subsea** – responsible for the installation and IMMR activities on subsea infrastructure including Julimar Field Production System structures, flowlines, manifolds and subsea isolation valves to ensure integrity
- **Drilling and Completions** – ensures the safe planning and execution of drilling (note drilling is excluded from the scope of this EP), completion and work over operations
- **Brownfields** – responsible for the engineering, construction and execution of small projects on operational facilities to ensure ongoing integrity and safe operation
- **Marine Group** – responsible for chartering vessels to support Woodside's offshore production facilities including vessels to aid emergency response
- **Aviation Group** – provides personnel transport, material transport, emergency evacuation and search and rescue capabilities.

A simplified chart of the structural organisation of the Julimar operations is shown in Figure 7-6.

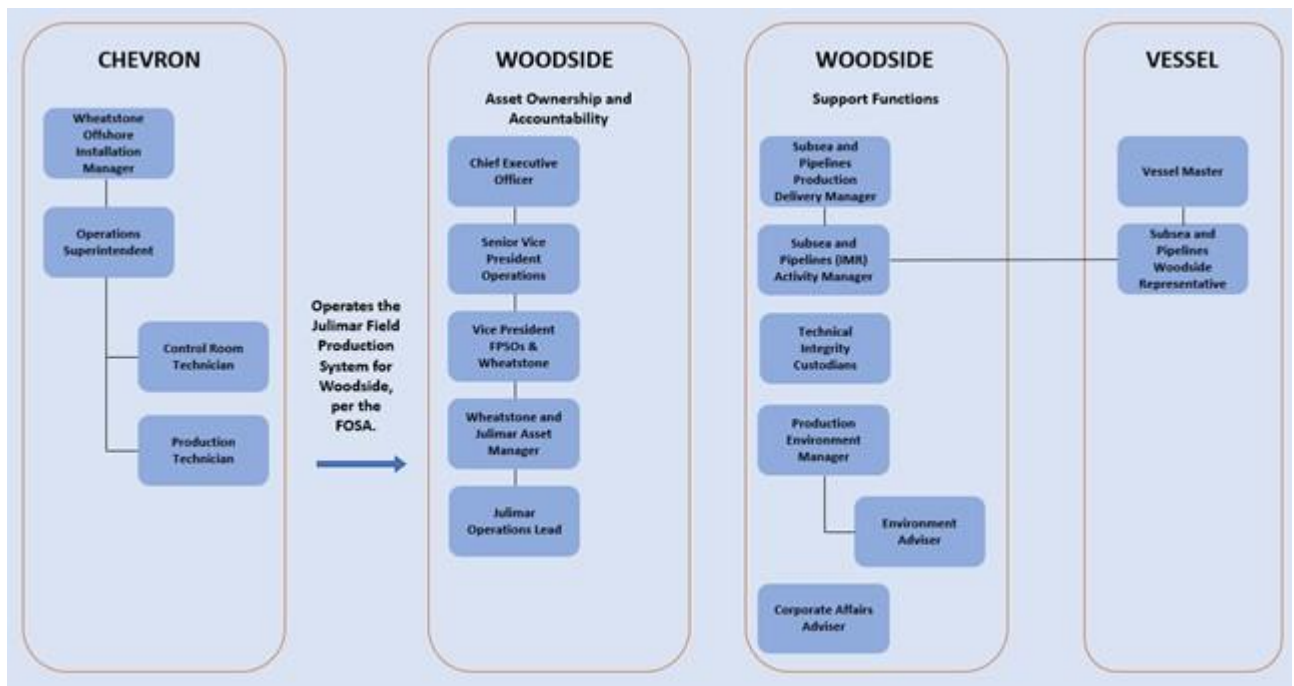


Figure 7-6: Julimar & Wheatstone Operations Organisation Structure

7.8 Roles and Responsibilities

Key roles and responsibilities for Woodside and contractor personnel relating to implementing, managing and reviewing this EP are described in Table 7-5. Roles and responsibilities for oil spill preparation and response are outlined in Appendix D and the [Woodside Oil Pollution Emergency Arrangements \(Australia\)](#). Roles and responsibilities for Julimar Development emergency response are outlined in the Wheatstone Facility Safety Case (including Julimar-Brunello pipelines) and are consistent with the Julimar Emergency Response Interface Plan.

It is the responsibility of Woodside and contractors to implement the Woodside Corporate Health, Safety and Environment Policy (Appendix A) in their areas of responsibility and to ensure that the personnel are suitably trained and competent in their respective roles.

Table 7-5: Roles and responsibilities

Title (Role)	Environmental Responsibilities
Onshore Based Personnel	
Woodside Projects Environment 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. • 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.
Asset Manager	<ul style="list-style-type: none"> • Be accountable for ensuring all necessary regulatory approvals are in place to operate. • Approve (decide on) the content to be contained in the Environment Plan. • Be accountable for managing the asset throughout its operations in accordance with legislative/regulatory requirements (including this EP) and WMS requirements. • Agree facility key performance indicators (KPIs), including environment KPIs and is accountable for their achievement. • Be responsible for continuous improvement of operations of the facility, including environmental performance. • Decide on technical decisions where required based on assessed current level of risk. • Be accountable for incident notification, reporting and investigation in line with regulatory requirements, the WMS and EP requirements.
Asset Superintendent	<ul style="list-style-type: none"> • Be responsible for the operation of the facility in accordance with legislative/regulatory requirements (including this EP) and the WMS. • Decide on technical decisions where required based on assessed current level of risk. • Be accountable for aspects of integrity management. • Communicate changes relevant to the EP to the Production Environment team. • Be responsible for continuous improvement of operations of the facility, including environmental performance. • Be accountable for conformance to production Operations processes.

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Title (Role)	Environmental Responsibilities
Technical Support Lead	<ul style="list-style-type: none"> • Be responsible for safeguarding process safety with respect to the asset. • Ensure technical integrity risks are identified, managed and reduced to ALARP. • Recommend technical decisions where required based on assessed current level of risk. • Be accountable for the operation of the facility in accordance with legislative/regulatory requirements (including this EP) and the WMS.
Integrity Authorities (Technical Integrity Custodians, Technical Authorities and Engineering Authorities)	<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.
Julimar Operations Lead /Focal Point	<ul style="list-style-type: none"> • Provides Julimar Field Production System operational guidance and oversight. • Accountable for maintenance of Field Operating Guidelines, Operating Procedures and Field Production System Operating Manual. • Provides an ongoing interface between Chevron Operations and the Woodside functional support groups.
Environment & Sustainability 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 revision to the EP 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.
Corporate Affairs Adviser	<ul style="list-style-type: none"> • Prepare and implement the Consultation Plan for the Petroleum Activities Program. • Report on consultation.

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Title (Role)	Environmental Responsibilities
	<ul style="list-style-type: none"> Perform ongoing liaison and notification as required as per Section 7.14.
Subsea and Pipelines (IMMR) Activity Manager	<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. Be responsible for governance of IMMR related activities for subsea support vessels. Provide sufficient resources to implement the EP requirements. Monitor and close out corrective actions raised from IMMR environmental inspections/audits or incidents.
Woodside Marine Assurance Superintendent	<ul style="list-style-type: none"> Conduct relevant audit and inspection to confirm vessels comply with relevant Marine Orders and Woodside Marine Charters Instructions requirements to meet safety, navigation and emergency response requirements.
Woodside CIMT Deputy Incident Commander	<p>On receiving notification of an incident, the Woodside CIMT Deputy Incident Commander shall:</p> <ul style="list-style-type: none"> Establish and take control of the IMT and establish an appropriate command structure for the incident Assess situation, identify risks and actions to minimise the risk Communicate incident progress to relevant persons within the organisation Develop the incident action plan (IAP) including setting objectives for action Approve, implement and manage the IAP Communicate within and beyond the incident management structure Manage and review safety of responders Address the broader public safety considerations Conclude and review activities.
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 Personnel (Chevron)	
Wheatstone Offshore Installation	<ul style="list-style-type: none"> Ensures operational obligations on Wheatstone are satisfied under the Julimar Brunello Field Operating Services Agreement: Comply with relevant platform and subsea commitments of this EP Ensures compliance with applicable legislation, guidelines, company policies and procedures.

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Title (Role)	Environmental Responsibilities
Manager (Chevron)	<ul style="list-style-type: none"> Ensures Chevron's Permit to Work process is appropriately applied to relevant Julimar and Brunello work scopes Ensure compliance to relevant platform and subsea commitments of the <i>Start-Up and Operations Environment Plan: Wheatstone Project</i> (Chevron Doc. WS2-COP-00001), including that Wheatstone platform personnel have relevant training to meet the requirements of the document.
Operations Superintendent (Chevron)	<ul style="list-style-type: none"> Ensures Wheatstone platform persons are competent and compliant with all aspects of their tasks. Complies with operational obligations on Wheatstone are satisfied under the Julimar Brunello Field Operating Services Agreement. Complies with and ensures the compliance of others with HSE policies and procedures pertaining to accessing, working on and operating the Julimar Field Production System.
Control Room Technician (Chevron)	<ul style="list-style-type: none"> Operate the Wheatstone Platform following standard operating procedures to meet Operational Excellence Management System commitment to Environment and within compliance of all associated procedures and standards. Respond to emergency incidents as per the Wheatstone Platform Emergency Response Plan. Act upon any SIMOPs activities or safety systems that may be compromised.
Production Technician (Chevron)	<ul style="list-style-type: none"> Complies with HSE policies and procedures pertaining to accessing and working on and operating the Julimar Development. Respond to emergency incidents as per the WP Emergency Response Plan.
Vessel Based Personnel	
Vessel Master (all Project Support Vessels)	<ul style="list-style-type: none"> Ensure the vessel management system and procedures are implemented. Ensure personnel commencing work on the vessel receive an environmental induction that meets the relevant requirements specified in this EP. Ensure personnel are competent to undertake the work they have been assigned. Verify SOPEP drills are conducted as per the vessel's schedule. Ensure the vessel Emergency Response Team (ERT) has been given sufficient training to implement the SOPEP. Ensure any environmental incidents or breaches of relevant Environmental Performance Outcomes or performance standards detailed in this EP, are reported immediately to the Woodside Representative. Ensure corrective actions for incidents or breaches are developed, communicated to the Woodside Representative, and tracked to close out in a timely manner. Close out of actions is communicated to the Woodside Representative.
Vessel Logistics Coordinators	<ul style="list-style-type: none"> Ensure waste is managed on the relevant support vessels or installation vessel and sent to shore as per the relevant Waste Management Plan.

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Title (Role)	Environmental Responsibilities
Vessel HSE Advisers	<ul style="list-style-type: none"> Support the Vessel Master to ensure the controls detailed in this EP relevant to offshore activities are implemented on the vessel and help collect and record evidence of implementation (other controls are implemented, and evidence collected onshore). Support the Vessel Master to ensure the Environmental Performance Outcomes are met and the performance standards detailed in this EP are implemented on the vessel. Support the Vessel Master to ensure environmental incidents or breaches of outcomes or standards outlined in this EP, are reported, and corrective actions for incidents and breaches are developed, tracked and closed out in a timely manner. Ensure periodic environmental inspections/reviews are completed and corrective actions from inspections are developed, tracked and closed out in a timely manner. Review Contractors procedures, input into Toolbox talks and JSAs. Provide day to day environmental support for activities in consultation with the Woodside Environment Adviser.
Contractor Project Manager	<ul style="list-style-type: none"> Confirm that activities are undertaken in accordance with this EP, as detailed in the Woodside approved Contactor Environmental Management Plan. Ensure personnel commencing work on the project receive a relevant environmental induction that meets the requirements specified in this EP. Ensure personnel are competent to undertake the work they have been assigned. Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP, are reported immediately to the Woodside Responsible Engineer or Vessel Master.
Woodside Site Representative/ Resident Engineer	<ul style="list-style-type: none"> Ensure activities are undertaken as detailed in this EP. Ensure the management measures made in this EP are implemented on the vessel. Ensure environmental incidents or breaches of objectives, standards or criteria outlined in this EP, are reported as per the Woodside Corporate Event Notification Matrix. Verify HSE improvement actions identified during the project are implemented where practicable. Ensure periodic environmental inspections are completed.
Title (role)	Responsibilities Related to Environment Plan
All Personnel	
All relevant Wheatstone Platform 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.

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Title (Role)	Environmental Responsibilities
	<ul style="list-style-type: none">• Prompt reporting of environmental hazards/incidents to their supervisor and assist in event investigation.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 385 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

7.9 Communication Strategy

7.9.1 Subsea Operating Procedures

Julimar Subsea Operating procedures define the limits of the Julimar Development boundaries. The procedures cover the following operating scenarios and are integrated into the relevant Chevron topside operating procedures:

- Start-up and Shutdown
- Routine Operations
- MEG Flushing
- Valve integrity Operations
- Hydrate localisation and remediation.

Updates to procedures is outlined in the Woodside Information Management Plan and undertaken in accordance with Chevron MOC requirements (Section 7.3.1).

7.9.2 Information Management

The Woodside Information Management Plan addresses document management and communication of changes between Woodside and Chevron.

A Computerised Maintenance Management System (CMMS) interface enables oversight of critical maintenance activities on the Julimar Field Production System. The system provides Woodside with oversight of critical tasks in accordance with relevant technical integrity standards, using monitoring techniques and alarms that replicate those established for other Woodside facilities. Non-compliance with any critical maintenance activities performed on the Wheatstone Platform will result in relevant notification and close out as provided for in the operating contract.

7.9.3 Onshore

Woodside interface closely with Chevron to ensure Julimar Field Production System deliverables are aligned with the relevant Chevron deliverables to provide a consistent approach to Operational documentation.

Regular interface meetings are held. Meetings include representatives from Chevron and Woodside Operations teams and interface coordinators.

7.9.4 Offshore

Chevron's permit to work system (Wheatstone Platform Permit to Work Manual (Chevron Doc ABU-COP-0011) for the Julimar Field Production System is authorised by appropriate personnel on the Wheatstone Platform.

Recordable incidents from the Wheatstone Platform or contracted vessels under the Julimar Operations Environment Plan will be reported to Woodside within 72 hrs of occurrence and recorded in event reporting software and investigated appropriately, in accordance with Woodside Event Reporting and Investigation Procedure (WM1040PF7386000) (refer also Section 7.15).

7.10 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:

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 386 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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 Principal Heritage Adviser
- 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 Principal Heritage Adviser
- Woodside's Principal Heritage Adviser must notify a qualified underwater 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 Principal Heritage Adviser 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 otherwise reportable under Section 40 of the UCH Act, Woodside's Principal Heritage Advisor must notify the Minister responsible for the UCH Act, the DCCEE underwater archaeology section through the Australasian Underwater Cultural Heritage Database, and the Western Australian Museum
- if the suspected heritage object includes human remains, Woodside's Principal Heritage Adviser 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
 - 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 potential heritage object until Woodside's Principal Heritage Adviser provides written approval. Woodside's Principal Heritage Adviser must only provide written 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.

7.11 Training and Competency

7.11.1 Overview

Woodside as part of its contracting process assesses a proposed contractor's environmental management systems to determine the level of compliance with the standard AS NZ ISO 14001. This assessment is performed for the Petroleum Activities Program as part of the pre-mobilisation process. The assessment determines whether there is a clearly defined organisational structure that sets out 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 training is required for all personnel, detailing awareness and compliance with the contractor's environmental policy and environmental management system.

7.11.2 Inductions

Inductions are provided to all relevant personnel (e.g. contractors and Company 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 Petroleum Activities Program induction may cover information about:

- description of the activity
- ecological and socio-economic values of the activity location
- Regulations relevant to the activity
- Woodside's Environmental Management System – Health Safety and Environment 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 measurement criteria
- incident reporting
- operations competency framework training
- permit to work training
- production environmental leadership training and environment awareness training
- emergency and hydrocarbon spill response training
- inductions for subsea IMMR (vessel based) personnel
- Unexpected Finds Procedure and reporting requirements (**Section 7.10**).

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.

7.11.3 Activities Program Specific Environmental Awareness

Before commencing the activities associated with the Petroleum Activities Program, a pre-activity meeting will be held on-board support 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 to the support vessel personnel. Attendance lists are recorded and retained.

During operations, regular HSE meetings will be held. During these meetings, recent environmental incidents are reviewed and awareness material presented.

7.11.4 Operations Personnel

Training and competency for personnel on the Wheatstone Platform is managed in accordance with commitments in the *Start-Up and Operations Environment Plan: Wheatstone Project* (Chevron

Doc WS2-COP-00001). As part of that training process Woodside provides training to relevant Wheatstone Platform maintenance personnel for the Julimar Field Production System.

Training requirements for Julimar Field Production System have been incorporated into the overall Wheatstone Platform Competency Management System (CMS), which includes maintaining competency. The CMS is managed in accordance with the Wheatstone Operations Training Plan. Chevron report on competency compliance to Woodside. Training for Julimar includes web-based training modules, operator training simulator and vendor training. Competency assessment is managed in accordance with Chevron Wheatstone Operations Training Plan.

7.11.5 Environmental Leadership Training

Woodside personnel in leadership roles working on the Julimar Field Production System, for more than three months will undertake Environmental Leadership training. The training covers Woodside's policies and standards, environmental legislative requirements, the EP, key environmental risks and impacts, hazard and incident reporting, environmental management tools and accountabilities.

7.11.6 Permit to Work System Training

The *Wheatstone Platform Permit to Work* system (see Section 7.2.1) 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 and the Julimar Field Production System. The 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 the system (Section 7.2.1) receive training commensurate with the level of authority and responsibility they hold.

7.11.7 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 Julimar operations. Training includes task specific training and role-based training and 'on the job' experience (i.e. participation in crisis or emergency management exercises).

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 continue to be identified and documented.

7.11.8 Subsea Inspection, Monitoring, Maintenance and Repair Activity Environmental Awareness

At the beginning of, and during a new Subsea IMMR activity, the Subsea 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 the following environmental information:

- 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.

7.11.9 Management of Training Requirements

All personnel on support 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.

7.12 Monitoring, Auditing, Management of Non-Conformance and Review

Regulation 22(5) 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 Julimar Development 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.

7.12.1 Monitoring

Woodside and its contractors will perform a program of periodic monitoring during the Petroleum Activities Program – starting at mobilisation of each activity and continuing through the duration completion of the Program. This information will be collected using the tools and systems outlined below, developed based on the EPOs, controls, PS and MC in this EP. The tools and systems will collect, as a minimum, the data (evidence) referred to in the MC in Section 65.7 and Appendix D.

The collection of this data will form part of the permanent record of compliance maintained by Woodside and will act as the basis for demonstrating that the EPOs and PS are met, which will be summarised in a series of routine reporting documents.

7.12.1.1 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 personnel to record and submit 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 7.3.

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 7.3.

7.12.1.2 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). New knowledge checks take place both routinely primarily via quarterly and annual knowledge reviews and ad hoc (as information is obtained), and encompasses the following topics:

- environmental science – update checks conducted via desktop reviews: scientific literature, government publications and Woodside supported publications and studies relating to existing environment topics (including but not limited to species and habitats) as well as EPBC Act Matters of National Environmental Significance (Part 3) and Part 13 statutory instruments
- socio-economic environment and stakeholder information – update checks conducted via desktop reviews: scientific literature, government publications and Woodside consultation
- environmental legislation – monitoring of emerging regulatory changes and the subsequent management of regulatory change (as outlined in the WMS Regulatory Compliance Management Procedure).

A management of knowledge tracker is maintained to record reviews and updates. Communication of relevant new knowledge is addressed at the EP Consolidation meetings where changes in knowledge prompt a consideration of management of change, this is actioned and documented appropriately.

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. Any relevant new information on cultural values and heritage will be assessed using the EP Management of Change Process (refer to Section 7.3).

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.

7.12.1.3 Management of Newly Identified Impacts and Risks

New sources of receptor based impacts and risks identified through monitoring and auditing systems and tools and the Woodside Environment Knowledge Management System are assessed using the Change Management Process (Section 7.3).

Table 7-6: Summary of Emissions and Discharges Monitoring for the Petroleum Activities Program

Category	Parameter to be Monitored/Reported	Monitoring Frequency	Monitoring Equipment/Methodology	EP Reference
<i>Planned Discharges</i>				
Discharge of subsea control fluids during well actuations	Subsea control fluid consumption	Normally continuous process indication/monthly review	Subsea control fluid consumption surveillance. Process indication for gross leaks/ruptures	Section 6.7.4
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 6.7.4
Waste recycling and disposal	Quantities of solid and liquid wastes disposed of onshore	Ongoing	Support vessel waste log	Section 6.7.5
<i>Unplanned Emissions and Discharges</i>				
Unplanned emissions and discharges	Nature of release	As required	HSEQ Event Reporting System (First Priority)	Sections 6.9.1 to 6.9.4

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 392 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

7.12.2 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.

7.12.2.1 Operations Assurance

To provide confidence, based on evidence commensurate with risk, that business objectives are met, business activities are performed and risks are managed, assurance is performed as described in the Provide Assurance Procedure and the Provide Assurance Guideline. The Guideline aims to explain how the Operations Division Assurance Team implement WMS Assurance requirements, while concurrently satisfying the Operations Division's specific objectives.

Environmental assurance activities are conducted on a regular basis to help:

- 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.

Under the Field Operating Services Agreement (FOSA) Chevron is required to act in accordance with the direction provided by Woodside and the guidelines and procedures contained in the Field Production System Operating Manual provided by Woodside (Section 7.8).

Under the FOSA, Woodside has the means to monitor the performance of Chevron, including access to real-time data and reporting, and has access rights to all facilities under the Joint Operating Agreement.

7.12.2.2 Subsea Scope Activities

The following internal assurance will be performed for the subsea scope activities:

- 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 installation vessels associated with the above

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 639 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

scopes will be audited by Woodside. Support or transport vessels will be assessed on a risk-based approach, but will be audited via the primary subsea installation contractor's process

- at least one operational compliance audit relevant to applicable EP commitments will be conducted by a Woodside Environment Adviser for the subsea campaign. The audit may be conducted offshore or office-based, subject to the duration of the activity and logistics of performing the audit offshore for short duration scopes (e.g., pipelay).
- 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. 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)
- annual inspection of Woodside's long term hire subsea support vessels are undertaken to ensure compliance with both the EP and the approved Contractor Management system.

The internal audits and reviews, combined with the ongoing monitoring described in Section 7.12.1, 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.

7.12.2.3 Marine Assurance

Woodside's marine assurance is managed by the Marine Assurance Team 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:

- Offshore Vessel Management and Self-Assessment (OVMSA) review
- 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 company's Safety Management System, the overall condition of the vessel and the status of the planned maintenance

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 640 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

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
- Oil Companies International Marine Forum (OCIMF) Offshore Vessel Inspection Database (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 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 (Section 7.12.2.4).

Environmental requirements specific to offshore facility support vessel contractors are communicated via Woodside marine charterers instructions. This document provides the Master of a vessel on hire to Woodside, with a clearly defined set of requirements and procedures for operating the vessel in the vicinity of the Woodside's operating facilities. The document includes information on:

- applicable legislation and guidelines
- roles and responsibilities
- marine fauna interaction guidance
- incident reporting requirements.

Environmental requirements specific to Subsea Support Vessels are communicated via the Subsea Environmental Compliance Package. This document outlines mandatory environmental management requirements for Subsea Support Vessels and associated contractors.

7.12.2.4 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:

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 641 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

- management control factors:
 - company 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 company 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.

7.12.3 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 HSE Event Reporting and Investigation Procedure which includes 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 2.8). Detailed investigations are completed for all categories A, B, C and high potential environmental incidents.

7.12.4 Review

7.12.4.1 Management Review

Within the Environment Function, senior management regularly monitor and review environmental performance and the effectiveness of managing environmental risks and performance. Within each

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 642 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Function and Business Unit Leadership Team (e.g. Drilling and Completions, Subsea and Developments/Projects), managers review environmental performance regularly, including through quarterly HSE review meetings.

Woodside's Operations Division Environment Team will perform routine reviews of the effectiveness of the implementation strategy and associated tools. This will involve reviewing the:

- Operations Division environment KPIs (leading and lagging)
- tools and systems to monitor environmental performance (detailed in Section 7.12.1)
- Reviews of oil spill arrangements and testing are performed in accordance with Section 7.16.7.

7.12.4.2 Program of Ongoing Engagement with Traditional Custodians

Woodside will undertake an annual review of the Program of Ongoing Engagement with Traditional Custodians (Appendix I) to 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.

7.12.4.3 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
- formal and informal industry benchmarking
- cross asset learnings
- engineering and technical authorities discipline communications and sharing.

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 7.3).

7.12.4.4 Continuous Improvement

Continuous Improvement (CI) Projects to improve production or environmental performance that involve modification or major maintenance on the Julimar Field Production System are typically managed by Brownfields Engineering and required to follow appraise and develop management procedures. Currently, the Procedure requires that all projects be managed in accordance with the

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 643 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Opportunity Management Framework which supports the progressive maturation of an opportunity through value creation in the Assess and Select Phases and the maintenance of value in the Develop and Execute phases.

To support the accountable executive to make a decision on whether a CI Project should proceed to the next phase in the Opportunity Management Framework, it is sometimes necessary to conduct a trial of the modification to determine the outcomes that can be expected if the modification is implemented. Due to prioritisation of resources, the phased progress of opportunities, competition between different solutions and long-term strategic and financial considerations, it is not possible to set quantitative success criteria to determine whether a modification will be implemented based on the results of trials. Instead, the results of a trial are used to inform a decision on whether to progress the CI Project to the next phase in the Opportunity Management Framework. Decisions are typically made with two key considerations; whether the business is ready to proceed which has a technical/functional focus and whether there is a business case for progressing to the next phase. The business case may consider the ALARP position for the CI Project, if relevant.

7.13 Record Keeping

Compliance records (outlined in MC in **Section 6**) will be maintained.

Record keeping will be in accordance with Regulation 22(6) that addresses maintaining records of emissions and discharges.

7.14 Ongoing Consultation

Although consultation for the purpose of Regulation 25 is complete, 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 and additional persons listed in Table 7-7. Relevant new information identified during ongoing consultation will be assessed using the EP Management of Knowledge (refer to Section 7.12.1.2 and Management of Change Process (refer to Section 7.3)).

Woodside hosts community forums at which members are provided updates on Woodside activities on a regular basis (for example community reference group meetings). Representatives who present at those meetings 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 simply interested in the activities, can otherwise remain up to date on this activity through subscribing to our website the Woodside 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), Woodside will apply its EP Management of Knowledge process (refer to Section 7.12.1.2 and Management of Change process (refer to Section 7.3)), as appropriate.

Woodside has developed a Program of Ongoing Engagement with Traditional Custodians (Appendix I), which is compliant with Corporate Woodside Policies Strategies and procedures and directly informed by feedback from Traditional Custodians. It provides a mechanism for ongoing

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 644 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 may include, as agreed with relevant Traditional Custodians:

- 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 I. 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 7-7. However, a framework agreement may still be initiated by these groups at any time.

Table 7-7: Ongoing consultation engagements

Report/ information	Recipient	Purpose	Frequency	Content
Notification (email)	AHO	As requested by AMSA during consultation	Notify AHO no less than 4 weeks prior to commencement if vessels are undertaking activities within the Operational Area for > 3 three weeks at a time	PS 1.5 (Section 6.7.1) Date of activity start.
Updates (email)			As required.	Changes to planned activities.
Notification (email)	AMSA	As requested by AMSA during consultation	Notify of AMSA JRCC of activities where vessels will be in the Operational Area < 3 weeks 24-48 hours before vessel activity commencement date.	PS 1.7 (Section 6.7.1) Date of activity start.
Update (email)			Provide updates to the AHO and AMSA JRCC should there be changes to the activity.	Changes to planned activities.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 645 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Report/ information	Recipient	Purpose	Frequency	Content
Notification (email)	AFMA, CFA, DAFF-Fisheries	Standard Practice	At least 10 days prior to commencement and on completion of activities when vessels will be in the Operational Area for more than three weeks at a time.	PS 1.10 (Section 6.7.1). Date of activity start and end.
Notification (email)	Department of Defence	Standard practice when DoD is relevant based on defence area overlap with Operational Area	Five weeks prior to commencement of activities, if vessels are undertaking activities within the Operational Area for more than three weeks at a time.	PS 1.9 (Section 6.7.1). Date of activity start
Notification (email)	Director of National Parks	As requested during consultation on previous revision of EP	Notify DNP if the EP is approved.	PS 1.11.1 (Section 6.7.1) EP approval by NOPSEMA
Notification (email)		Standard Practice as required by Class Approval.	Notify DNP at least 10 days prior to all activities occurring within the Montebello marine park (excluding transiting) and at the conclusion of that activity.	PS 1.11.2 (Section 6.7.1) Date of activity start and end.
Notification (email)		As requested during consultation on previous revision of EP	As soon as practicable.	In cases where inspections are required for emergent issues or following a cyclone, notifications will be provided as soon as practicable. Notification information should be consistent with the Petroleum activities and AMP guidance note
Notification (email) Updates (email)	WAFIC, Recfishwest, Longreach Capital	As requested during consultation	At least 10 days prior to commencement and on completion of activities when vessels will be undertaking activities in the Operational Area for more than three weeks at a time.	PS 1.10 (Section 6.7.1) Date of activity start and end.
			As required.	Changes to planned activities.
Notification (email)	Other relevant persons including NOPSEMA and	Notification of significant change	As required.	Notification of significant change.

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 646 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Report/ information	Recipient	Purpose	Frequency	Content
	Department of Defence			
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 (Section 7.12.1.2) and Management of Change Process (refer to Section 7.3).
Notification (email)	Australasian Underwater Cultural Heritage Database Any other stakeholders as required in the Unexpected Finds Procedure (Section 7.10)	Report any unexpected finds of potential Underwater Cultural Heritage	If triggered by Unexpected Finds Procedure (Section 7.10).	Refer to Unexpected Finds Procedure (Section 7.10 and C 3.2).

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 647 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Report/ information	Recipient	Purpose	Frequency	Content
Program of ongoing engagement with Traditional Custodians (Appendix I)	Relevant cultural authorities (Appendix I)	Ongoing engagement	Ongoing. Responses to any feedback received by Traditional Custodian groups will be provided by Woodside within four weeks of receipt. Progress on the Program will be reported in line with annual sustainability reporting via the Woodside website.	Assessment of cultural values. Any relevant new information on cultural values will be assessed using the EP Management of Knowledge (Section 7.12.1.2) and Management of Change Process (refer to Section 7.3).

7.15 Reporting

7.15.1 Overview

To meet the EPOs and EPSs outlined in this EP, Woodside reports at a number of levels, as outlined in the next sections. Routine Reporting (Internal)

7.15.2 Routine Reporting (Internal)

7.15.2.1.1 Daily Progress Reports and Meetings

The following daily reports, containing environmental performance information are issued:

- Pan-Woodside Daily Production Report – The report includes facility performance information on production and a log of any HSE events
- Subsea support vessel Daily Progress Report(s) – During JDP3 commissioning as well as 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.

Meetings between key personnel are used to transfer information, discuss incidents, agree plans for future activities and develop plans and accountabilities for resolving issues.

7.15.2.2 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.

7.15.2.3 Performance Reporting

Monthly and quarterly performance reports are developed and reviewed by the Function and Business Unit Leadership Teams (e.g., Drilling and Completions, Operations). 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

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 648 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

- technical high and low lights
- status of subsea IMMR activities.

7.15.3 Routine Reporting (External)

7.15.3.1 Environmental Performance Review and Reporting

In accordance with applicable environmental legislation for the activity, Woodside is required to report information on environmental performance to the appropriate regulator. Regulatory reporting requirements are summarised in Table 7-8.

Table 7-8: Routine external reporting requirements

Report	Recipient	Frequency	Content
Monthly Recordable Incident Reports	NOPSEMA	Monthly, by 15th of each month	Details of recordable incidents that have occurred during the Petroleum Activities Program for previous month (if applicable).
Annual Environment Plan Performance Report	NOPSEMA	Annual, by 30 April of the year following reporting period	Compliance with EPOs, controls and standards outlined in this EP, in accordance with the Environment Regulations.
National Pollutant Inventory (NPI) Report	DCCEEW	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.

7.15.3.2 Start and End Notifications of the Petroleum Activities Program

7.15.3.2.1 JDP3 commissioning

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.

7.15.3.2.2 End of the Petroleum Activities Program Notification

In accordance with Regulation 54, Woodside will notify NOPSEMA within ten days of the completion of the Petroleum Activities Program.

7.15.3.3 End of the Environment Plan

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.

7.15.4 Incident Reporting (Internal)

The process for reporting environmental incidents is described in Section 7.15 of this EP. It is the responsibility of the Woodside Project Manager to ensure reporting of environmental incidents meets Woodside and regulatory reporting requirements as detailed in the Woodside HSE Event Reporting and Investigation Procedure and this section of this EP.

7.15.5 Incident Reporting (External) – Reportable and Recordable

7.15.5.1 Reportable Incidents

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 2.2)

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 2.6).

The environmental risk assessment (Section 6) for the Petroleum Activities Program identifies those risks with a potential consequence level of C+ for environment. The incidents that have the potential to cause this level of impact include hydrocarbon loss of containment events to ocean resulting from:

- loss of well containment (MEE-01)

Any such incidents represent potential events which would be reportable incidents. Reporting of incidents is undertaken 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.

7.15.5.1.1 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) as soon as practicable (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 (Appendix E) 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.

7.15.5.2 Recordable Incidents

A recordable incident is defined under Regulation 5 of the Environment Regulations as a ‘breach of an EPO or EPS, in the EP that applies to the activity, that is not a reportable incident’.

Any breach of the EPOs or EPSs (as presented within Section 6) will be raised as a recordable incident and managed as per the notification and reporting requirements outlined below and internal requirements outlined in Section 7.15.

7.15.5.2.1 Notification

NOPSEMA will be notified of all recordable incidents, according to the requirements of Regulation 50(2), no later than 15 days after the end of the calendar month using the NOPSEMA Form – Recordable Environmental Incident Monthly Summary Report (Appendix E) 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.

7.15.5.3 Other External Reporting Requirements and Notifications

In addition to the notification and reporting of environmental incidents defined under the Environment Regulations and Woodside requirements, Table 7-9 describes the incident and notification reporting requirements that also apply in the Operational Area.

Table 7-9: External incident reporting requirements

Event	Responsibility	Notifiable party	Notification requirements	Contact	Contact details
External incident reporting requirements					
Any marine incidents during Petroleum Activities Program	Offshore Installation Manager or 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	reports@amsa.gov.au
Oil pollution incidents in Commonwealth waters	Offshore Installation Manager or Vessel Master	AMSA Rescue Coordination Centre (RCC)	Without delay as per <i>Protection of the Sea Act</i> , part II, section 11(1), AMSA JRCC 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 marine incidents during Petroleum Activities Program	Offshore Installation Manager or Vessel Master	Chevron Australia Pty Ltd	Verbally notify Security Operations Centre of event and estimated volume and hydrocarbon lost	Chevron Perth Security Operations Centre	+61 8 9262 2543 +61 417 442 081 Alt (0427 495 187)
Any oil pollution incident which has the potential to significantly impact MNES.	Offshore Installation Manager or Vessel Master	DCCEEW	Phone call notification	Secretary of the DCCEEW	Phone: 1800 803 772 Email: protected.species@environment.gov.au
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	Offshore Installation Manager or Vessel Master	DNP	Reported verbally, as soon as is practicable. The notification should include: <ul style="list-style-type: none"> • titleholder details • time and location of the incident (including name of marine park likely to be affected) • proposed response arrangements as per the Oil Pollution Emergency Plan (e.g. dispersant, containment, etc.) 	Director of National Parks (DNP)	Phone: 0419 293 465 (24 Hr duty officer)

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Event	Responsibility	Notifiable party	Notification requirements	Contact	Contact details
			<ul style="list-style-type: none"> confirmation of providing access to relevant monitoring and evaluation reports when available contact details for the response coordinator. 		
Any oil pollution incident with the potential for oiled wildlife or the spill is expected to contact land or waters managed by WA Department of Biodiversity, Conservation and Attractions	CIMT IC or Delegate	DBCA	Phone call notification	Duty Officer	+61 8 9182 2000 (Pilbara office)
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
Oil pollution incidents that occurs in or may impact state waters	CIMT IC or Delegate	Department of Transport	<p>Verbally notify DoT MEER Duty Officer that a spill has occurred and, if required, request use of equipment stored in Karratha</p> <p>Follow up with a written Marine Pollution Report (POLREP) as soon as practicable following verbal notification.</p> <p>Additionally, DoT to be notified if spill is likely to extend into WA State waters. Request DoT to provide Liaison to Woodside IMT.</p>	DoT Maritime Environmental Emergency Response Unit (MEER) Duty Officer	+61 8 9480 9924

7.16 Emergency Preparedness and Response

7.16.1 Overview

Under Regulation 22(8), the implementation strategy must contain an oil pollution emergency plan (OPEP) and provide for the updating of the OPEP. Regulation 22(9) outlines the requirements for the OPEP which must include adequate arrangements for responding to and monitoring of 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 7-10.

Table 7-10: Oil pollution preparedness and response overview

Content	Environment Regulations Reference	Document/Section Reference
Details (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 21(5), (6), 22(2)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix D)
Describes the oil pollution emergency plan	Regulation 22 (8)	Environment Plan: Woodside's oil pollution emergency plan has the following components: Woodside Oil Pollution Emergency Arrangements (Australia) Julimar Oil Pollution First Strike Plan (Appendix G) Oil Spill Preparedness and Response Mitigation Assessment (Appendix D) 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 (9)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix D) Julimar Oil Pollution First Strike Plan (Appendix G)
Details the arrangements for updating and testing the oil pollution response arrangements	Regulation 22(8)(12),(13)(14)	Environment Plan: Section 7.16.7. Oil Spill Preparedness and Response Mitigation Assessment (Appendix D)
Details provisions for monitoring impacts to the environment from oil pollution and response activities	Regulation 22(10)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix D)
Demonstrates that the oil pollution response arrangements are consistent with the national system for oil pollution preparedness and control	Regulation 22(11)	Woodside Oil Pollution Emergency Arrangements (Australia)

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Controlled Ref No: JU-00-RI-10006

Revision: 8

Native file DRIMS No: 10484514

Page 654 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

7.16.2 Emergency Response Training

Regulation 22(4) 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 emergency response (Table 7-11).

Table 7-11: Emergency response training requirements

IMT Position	Minimum Competency
Corporate Incident Management Team (CIMT) Incident Commander and Deputy Incident Commander	<ul style="list-style-type: none"> • IMT Fundamentals Course (internal course) or equivalent • ICS 100/200 • IMO3 or equivalent spill response specialist level with an oil spill response organisation (OSRO) • Participation in L2 activation, exercise or skills maintenance
Operations, Planning, Logistics and Finance Sections, and other rostered members of the CIMT	<ul style="list-style-type: none"> • IMT Fundamentals Course or equivalent • ICS 100/200 • Oil spill theory • Participation in L2 activation, exercise or skills maintenance
Environment Unit Leader	<ul style="list-style-type: none"> • IMT Fundamentals Course • ICS 100/200 • IMO2 or equivalent spill response specialist level with an OSRO • Participation in L2 activation, exercise or skills maintenance
Note on competency/equivalency	
<p>In 2023 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 Crisis and Emergency Management training and the oil spill response training requirements for IMT roles.</p> <p>The revised IMT Fundamentals training Program aligns with the performance requirements of the <i>PMAOMIR320 – Manage Incident Response Information</i> and <i>PMAOMOR418 - Coordinate Incident Response</i>.</p> <p>In 2023, Woodside took the decision to align its global incident command arrangements to the Incident Command System (ICS). As such all rostered members of the Incident Management Team are trained up to ICS 200.</p> <p>In addition to baseline incident management training, all rostered members of the CIMT undertake a level of hydrocarbon spill response training. Depending upon the role, this may take the form of IMO training or completion of Woodside's internal oil spill training course (OSREC) which involves the completion of two online AMSA Modules (Introduction to National Plan and Incident Management; and Introduction to Oil Spills) and face-to-face training.</p> <p>Woodside Learning Services is responsible for collating and maintaining personnel training records. The HSP Dashboard reflects the competencies required for each oil spill role (IMT/operational).</p>	

7.16.3 Emergency Response Preparation

The Corporate Incident Management Team (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 a number of Emergency Response Plans (ERP) in place relevant to the PAP. The ERP provides procedural guidance specific to the asset and location of operations to control, coordinate and respond to an emergency or incident.

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Controlled Ref No: JU-00-RI-10006

Revision: 8

Native file DRIMS No: 10484514

Page 655 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

The ERP for activities covered by this EP references the *Wheatstone Upstream Emergency Response Plan* (ERP). The ERP contains instructions for oil pollution emergencies, 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).

The *Wheatstone Start-up and Operations Oil Pollution Emergency Plan* outlines requirements for response to an oil spill from field production systems tied into the Wheatstone Platform. Initial response to a subsea release from the Julimar Field Production System would be managed in accordance with the *Julimar Emergency Response Interface Plan* and the *Wheatstone Upstream ERP*, until transferred to Woodside control.

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.

7.16.3.1 Initial Response to Field Production System Incident

In the event of an emergency arising from the Julimar Field Production System, the Wheatstone Platform OIM will assume overall onsite command and continue initial emergency response operations until transfer of control as described in the *Wheatstone Upstream ERP*. The *Wheatstone Upstream ERP* provides guidance on establishing emergency management control, mobilising resources offshore and onshore, and dealing with external authorities and third party contractors.

As per the *Julimar Emergency Response Interface Plan*, Chevron will notify Woodside immediately (within 2 hrs) upon detection of spills from, or suspected to be from, the Julimar Field Production System via the WCC. Key incident details that will be communicated include:

- time of incident
- whether the release is controlled
- weather, tide and current details
- apparent trajectory of the spill.

If an emergency occurs, including unplanned release of hydrocarbon, the Wheatstone Platform operator shall promptly take such action that is necessary to remedy or alleviate such an emergency. For an oil spill incident initial actions to be undertaken by Chevron may include deployment of tracker buoy and opportunistic visual observations, as per the Julimar Operations Oil Pollution First Strike Plan (Appendix G).

In the event of an oil pollution emergency arising from the Julimar Field Production System, Woodside is Control Agency. Woodside would activate a concurrent CIMT, in close liaison with Chevron, including stand up and activation of relevant response arrangements suitable to the nature and scale of the event and subject to relevant Net Environmental Benefit Assessment and Incident Action Plan.

Transfer of Control

The *Emergency Response Interface Plan* describes transfer of control in an emergency event from Chevron and Woodside. With regards to an emergency that is determined to be attributable to the Julimar Field Production System that would require a long-term response (i.e. > 12 hrs); when safe to do so, a decision may be taken for Woodside to take over the coordination of the emergency response and manage the long-term resolution. Such a decision must be agreed between Chevron and Woodside and communicated to key stakeholders detailed in the *Emergency Response*

Interface Plan. To extent required, the appropriate regulatory agency(s) must also approve the transfer of control of the response operations to the Woodside.

Woodside has established EPOs, EPSs and MCs to be used for hydrocarbon spill response during the Petroleum Activities Program, as detailed in Appendix D. These performance outcomes, standards and measurement criteria apply to all activities within Woodside control. Activities controlled by Chevron would be subject to the Start-Up and Operations *Environment Plan: Wheatstone Project* (Chevron Doc. WS2-COP-00001) and associated Oil Spill Offshore Response Plan commitments and performance measures.

7.16.3.2 Initial response to Vessel Incident

In the event of an emergency on a vessel, the Vessel Master will assume overall onsite command and act as the Emergency Response Coordinator (ERC). All persons aboard the vessel will be required to act under the ERC's directions. The vessel will maintain communications with the Wheatstone Platform OIM, Asset Manager and/or other emergency services in the event of an emergency, as set out in the relevant ERP. Emergency response support can be provided by the Contractor's emergency centre or CIMT if requested by the ERC.

The Julimar Oil Pollution First Strike Plan provides immediate actions required to commence a response (Appendix G). 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 Julimar 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.

7.16.4 Oil and Other Hazardous Materials Spill

A significant hydrocarbon spill during the Petroleum Activities Program is unlikely, but should such an event occur, it has the potential to cause serious environmental and reputational damage if not managed properly. Following transfer of control from Chevron, the [Woodside Oil Pollution Emergency Arrangements \(Australia\)](#) document, supported by the Julimar Oil Pollution First Strike Plan which provides tactical response guidance to the activity/area Appendix G and Appendix D of this EP, cover spill response for this Petroleum Activities Program.

The Crisis and Emergency Management Team manages Woodside's hydrocarbon spill response equipment stockpile. Woodside also maintains a suite of contracts for access to additional specialist response equipment and trained personnel as required via Australian and international spill response organisations and labour supply companies. In the event of a major spill, Woodside enact first strike response actions, in liaison with the relevant Control Agency, as detailed in the activity-specific 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 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.

7.16.5 Emergency and Spill Response

Woodside categorises incidents in relation to response requirements as follows:

Level 1 Incident

A Level 1 incident can be resolved through the use of 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.

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Controlled Ref No: JU-00-RI-10006

Revision: 8

Native file DRIMS No: 10484514

Page 657 of 445

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Level 2 Incident

A Level 2 incident is characterised by a response that requires external operational support to manage the incident. It is triggered in the event the capabilities of the tactical level response are exceeded. This support is provided to the activity via the activation of all, or part of, the responsible CIMT.

Level 3 Incident

A Level 3 incident or crisis is identified as a critical event that seriously threatens the organisation's People, the Environment, company Assets, Reputation, Livelihood. At Woodside, the Crisis Management Team (CMT) manages the strategic impacts in order to respond to and recover from the threat to the company (material impacts, litigation, legal & commercial, reputation, etc.). The CIMT may also be activated as required to manage the operational incident response requirements.

7.16.6 Emergency and Spill Response Drills and Exercises

Testing of Woodside's capability to respond to incidents will be conducted in alignment with the Emergency and Crisis Management Procedure. The scope, frequency and objective of these tests is described in the Julimar Oil Pollution First Strike Plan (Appendix G). Woodside's emergency response testing regime 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 point for emergency management and crisis management exercising schedule development. External participants may be invited to attend exercises (e.g. government agencies, specialist service providers, hydrocarbon spill response organisations or industry members with which Woodside has mutual aid arrangements).

The overall objective of exercising is to tests procedures, skills and teamwork of the Emergency Response and Command Teams in their ability to respond to MAEs and MEEs. After each exercise, the team holds a debrief session, during which the exercise is reviewed. Any lessons learnt or areas for improvement are identified and incorporated into revised procedures where appropriate.

Table 7-12: Testing of Response Capability to Incidents

Response Category	Scope	Response Testing Frequency	Response Testing Objective
Level 1 Response	Exercises are project / activity specific	Two comprehensive Level 1 'First Strike' drills conducted per year, per asset. Additional Level 1 emergency drills routinely conducted (Approximately one per fortnight).	<ul style="list-style-type: none"> Comprehensive exercises test elements of the Julimar Oil Pollution First Strike Plan (Appendix G). Emergency drills are scheduled to test other aspects of the Emergency Response Plan.
Level 2 Response	Exercises are facility / vessel specific	A minimum of one Emergency Management exercise is conducted biennially.	<ul style="list-style-type: none"> Testing both the facility IMT response and/or that of the CIMT following handover of incident control.
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.	<ul style="list-style-type: none"> Test the ability of the company to respond to and manage a crisis level incident.

7.16.7 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 Crisis and Emergency Management Team 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 7-12, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment.

7.16.7.1 Testing of Arrangements Schedule

Woodside's Testing of Arrangements Schedule (Figure 7-7) aligns with international good practice for spill preparedness and response management; the testing is compatible with the International Petroleum Industry Environmental Conservation Association 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.

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).

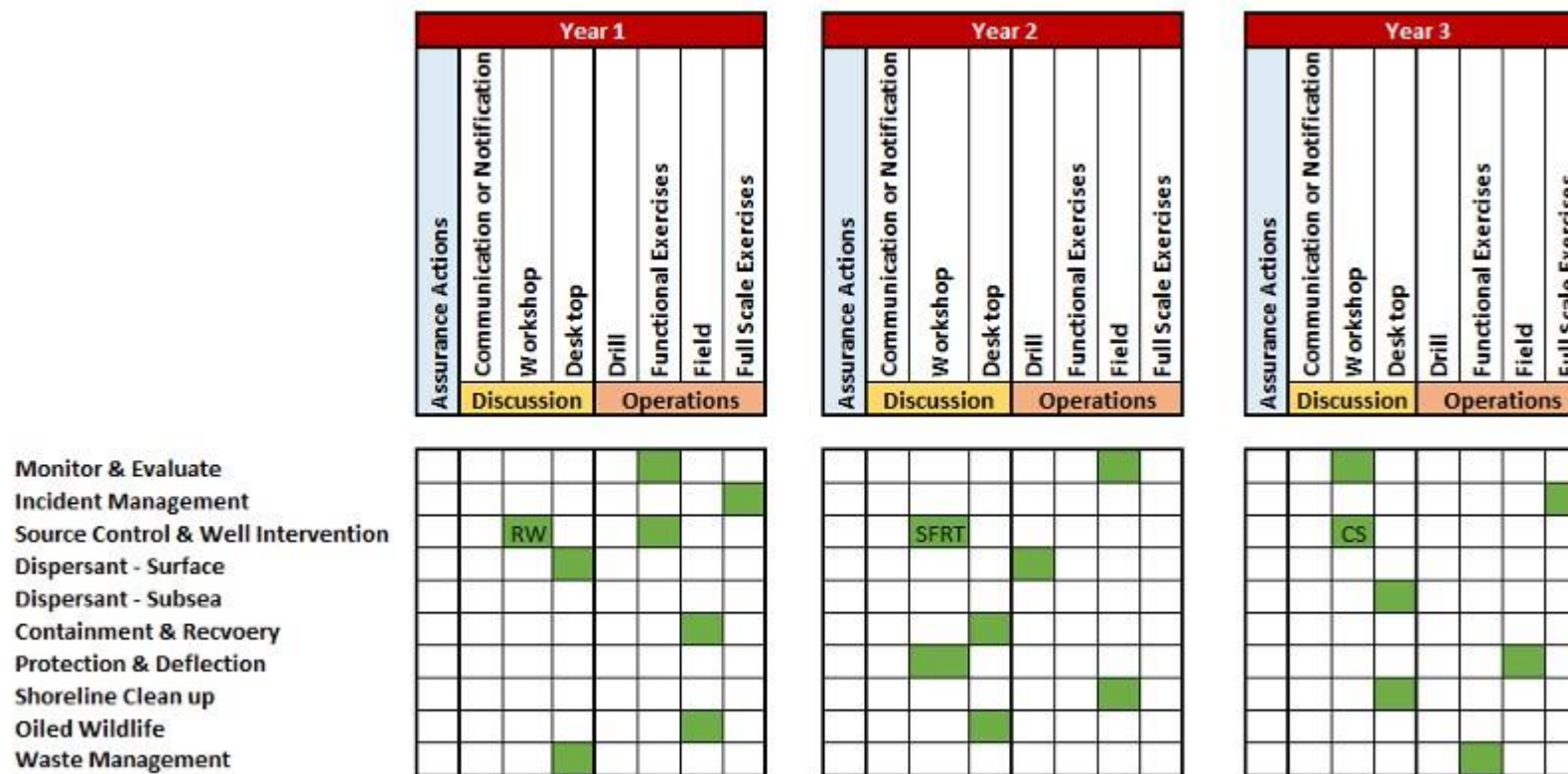


Figure 7-7: Indicative Three Yearly Testing of Arrangements Schedule

7.16.8 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.

The support vessels receive regular forecasts from the Bureau of Meteorology (BoM). If a cyclone (or severe weather event) is forecast, the path and its development will be plotted and monitored using the BoM data. If there is the potential for the cyclone (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 (severe weather event).

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9. LIST OF TERMS AND ACRONYMS

Acronym	Description
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABN	Australian business number
AEP	Australian Energy Producers
AFMA	Australian Fisheries Management Authority
AHO	Australian Hydrographic Office
AIS	Automatic Identification System
ALARP	as low as reasonably practicable
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
AUV	autonomous underwater vehicles
BIA	biologically important area
BoM	Bureau of Meteorology
BOP	blowout preventer
BP	boiling point
BTAC	Buurabalayji Thalanyji Aboriginal Corporation
BWCMP	Blue Whale Conservation Management Plan
CAES	catch and effort system
CCE	common cause effect
CCR	central control room
CFA	Commonwealth Fisheries Association
CHARM	chemical hazard and risk management
CIMT	Corporate Incident Management Team
cm	centimetres
CMMS	Computerised Maintenance Management System
CMT	Crisis Management Team
CP	cathodic protection
CS	cost sacrifice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cth	Commonwealth
CV	company values
CVI	close visual inspections
DAA	Department of Aboriginal Affairs
dB	decibel
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCLM	Department of Conservation and Land Management
DEWHA	Department of the Environment, Water, Heritage and the Arts
DISER	Department of Industry, Science, Energy and Resources

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Page 676 of 445

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Acronym	Description
DEMIRS	Department of Energy, Mining, Industry Regulation and Safety
DNP	Director of National Parks
DoD	Department of Defence
DoT	Department of Transport
DP	dynamic positioning
DPIRD	Department of Primary Industry and Regional Development
DPLH	Department of Planning, Lands and Heritage
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EET	emission estimation techniques
EEZ	Exclusive Economic Zone
EFL	electrical flying lead
EMBA	environment that may be affected
ENVID	environmental risk identification studies
EP	Environment Plan
EPBC Act	Environment Protection and Biodiversity Conservation Act
EPOs	environmental performance outcomes
EPS	environment performance standards
EoFL	end of field life
ERP	Emergency Response Plan
ESD	emergency shutdown
ESDev	ecologically sustainable development
GHG	greenhouse gas
GP	good industry practice
GVI	general visual inspections
HAZID/ENVID	hazard identification studies
HFL	hydraulic flying lead
HPU	hydraulic power unit
HQ	hazard quotient
HSE	health, safety and environment
HSEC	Health, Safety and Environment Coordinator
HSEQ	health, safety, environment and quality
ILUAs	Indigenous Land Use Agreements
IUCN	International Union for the Conservation of Nature
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMMR	inspection, monitoring, maintenance and repair
IMS	invasive marine species
IMSMP	Invasive Marine Species Management Plan
IPIECA	International Petroleum Industry Environmental Conservation Association

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Page 677 of 445

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Acronym	Description
ISO	International Organization for Standardization
ISSoW	integrated safe system of work
ISV	IMMR support vessel
JRCC	Joint Rescue Coordination Centre
KEF	key ecological feature
Kg	kilogram
km	kilometre
KPI	key performance indicator
L	litres
LBL	long baseline
LCS	legislation, codes and standards
LNG	liquefied natural gas
LOA	length overall
LTO	licence to operate
m ³	cubic metres
MAEs	major accident events
MBES	multibeam echo sounder
MC	measurement criteria
MEEs	major environmental events
MEG	monoethylene glycol
MFO	marine fauna observer
MNES	matters of environmental significance
MoC	management of change
MOPO	Manual of Permitted Operation
MoU	Memorandum of Understanding
MPAs	Marine Protected Areas
MSIN	Maritime Safety Information Notifications
MSPS	Management System Performance Standards
NAC	Narluma Aboriginal Corporation
NCVA	National Conservation Values Atlas
NDT	non-destructive testing
NGERS	National Greenhouse and Energy Reporting
NIMS	non-indigenous marine species
NLPG	National Light Pollution Guidelines
NMFS	National Marine Fisheries Service
nm	nautical miles
NOAA	National Oceanic and Atmospheric Administration
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority

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Revision: 8.0

Native file DRIMS No: 10484514

Page 678 of 445

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Acronym	Description
NOPTA	National Offshore Petroleum Titles Administrator
NPI	National Pollutant Inventory
NTA	Native Title Act 1993 (Cth)
NTGAC	Nganhurra Thanardi Garrbu Aboriginal Corporation
NTM	Notice to Mariners
NWMR	North West Marine Region
NWS	North West Shelf
NWSP	North West Shelf Province
OCIMF	Oil Companies International Marine Forum
OCNS	Offshore Chemical Notification Scheme
OIM	Offshore Installation Manager
OPEP	Oil Pollution Emergency Plan
OPGGS Act	Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth)
OSREC	Oil Spill Response Skills Enhancement Course
OSRO	Oil Spill Response Organisation
OVID	Offshore Vessel Inspection Database
PAP	Petroleum Activities Program
PAH	polycyclic aromatic hydrocarbon
PER	Public Environment Report
PJ	professional judgement
PLET	pipeline end termination
PLONOR	pose little or no risk
PMST	Protected Matters Search Tool
PSM	process safety management
PSRA	process safety risk assessment
PSZ	Petroleum Safety Zone
PTS	permanent threshold shift
PTW	Permit to Work
RATSIB	Representative Aboriginal/Torres Strait Islander Bodies
RBA	risk based analysis
RBI	risk based inspection
RCC	AMSA Rescue Coordination Centre
rms SPL	root mean square sound pressure level
ROV	remotely operated vehicle
SBP	sub-bottom profiling
SBV	standby vessel
SCC	safety and environment critical component
SCE	safety and environmental critical element

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Revision: 8.0

Native file DRIMS No: 10484514

Page 679 of 445

Uncontrolled when printed. Refer to electronic version for most up to date information.

Acronym	Description
SCEW	Standing Council on Environment and Water
SCM	subsea control module
SCSSSV	surface controlled sub-surface safety valves
SEL	sound exposure level
SIMAP	spill impact mapping and analysis program
SIMOPS	simultaneous operations
SMP	scientific monitoring program
SOPEP	Ship Oil Pollution Emergency Plan
SPL	sound pressure level
SSPL	subsea pipeline
SSS	side scan sonar
SV	societal values
TAP	Threat Abatement Plan
TD	total depth
TTS	temporary threshold shift
µm	micrometre
UPS	uninterruptable power system
USBL	ultra-short baseline
VOC	volatile organic compound
VP	Vice President
WA	Western Australia
WAC	Wirrawandi Aboriginal Corporation
WAFIC	Western Australian Fishing Industry Council
WALGA	Western Australia Local Government Association
WHA	World Heritage Area
WLS	Woodside Learning Services
WMS	Woodside Management System
WOMP	Well Operations Management Plan
YAC	Yindjibarndi Aboriginal Corporation

APPENDIX A Environment and Biodiversity, Risk Management and Climate Policies

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Revision: 8.0

Native file DRIMS No: 10484514

Page 681 of 445

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Climate Policy

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 2024.

Risk Management Policy

OBJECTIVES

Woodside recognises that risk is inherent in our business and the effective management of risk is vital to deliver our strategic objectives, continued growth and success. We are committed to managing risks in a proactive and effective manner as a source of competitive advantage.

Our approach protects us against potential negative impacts, enables us to take risk for reward and improves our resilience against emerging risks. The objective of our risk management framework is to provide a single consolidated view of risks across the company to understand our full risk exposure and prioritise risk management and governance.

The success of our approach lies in the responsibility placed on everyone at all levels to proactively identify, assess and treat risks relating to the objectives they are accountable for delivering.

PRINCIPLES

Woodside achieves these objectives by:

- Applying a structured and comprehensive framework for the identification, assessment and treatment of current risks and response to emerging risks;
- Ensuring line of sight of financial and non-financial risks at appropriate levels of the organisation;
- Demonstrating leadership and commitment to integrating risk management into our business activities and governance practices;
- Recognising the value of stakeholder engagement, best available information and proactive identification of potential changes in external and internal context;
- Embedding risk management into our critical business processes and control framework;
- Understanding our exposure to risk and tolerance for uncertainty to inform our decision making and assure that Woodside is operating with due regard to the risk appetite endorsed by the Board; and
- Evaluating and improving the effectiveness and efficiency our approach.

APPLICABILITY

The Managing Director of Woodside is accountable to the Board of Directors for ensuring this Policy is effectively implemented.

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 2024.

Environment and Biodiversity Policy

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 activities¹ within the boundaries of natural sites on the UNESCO World Heritage List.²
- Not undertaking new activities within IUCN Protected Areas³ unless compatible with management plans in place for the area.
- Achieving net zero deforestation⁴ for new activities.
- Developing Biodiversity Management Plans for all new major projects (CAPEX >US\$2 billion).
- Supporting positive biodiversity outcomes in regions and areas in which we undertake activities.
- 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.

Revised by the Woodside Energy Group Ltd Board in December 2024.

¹ Does not include non-industrial and existing activities that are compatible with maintenance of the listed outstanding universal values.

² New UNESCO World Heritage Listings that overlap existing activities will be assessed at the time of listing.

³ New IUCN Protected Areas that overlap existing activities will be assessed at the time of listing.

⁴ Definition of Forest: 'native trees higher than 5 metres and a canopy cover of more than 10 percent on the land to be cleared'.

APPENDIX B Relevant Requirements

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Revision: 8.0

Native file DRIMS No: 10484514

Page 682 of 445

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Legislation or Regulation	Description	Relevant
<i>Corporations Act 2001</i>	This Act is the principal legislation regulating matters of Australian companies, such as the formation and operation of companies, duties of officers, takeovers and fundraising.	The titleholder has provided ACN details within the meaning of the Act.
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i> Environment Protection and Biodiversity Conservation Regulations 2000	Commonwealth Department of Sustainability, Environment, Water, Population & Communities administers Act that provides legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places—defined in the EPBC Act as matters of national environmental significance (NES). These include nationally threatened species and ecological communities, migratory species and Commonwealth marine areas. The Act regulates assessment and approval of proposed actions likely to have a significant impact on a matter of NES. The approval decision is made by a delegate of the Australian Government Environment Minister. Regulations provide for a wide range of detail essential for the operation of the Act, including regulations relating to management of Commonwealth reserves, information requirements for assessment processes, enforcement, granting of various permits, publication requirements and criteria that need to be met in relation to a wide variety of decision-making processes provided for under the Act.	This Act applies to all aspects of the activity that have the potential to impact MNES. NOPSEMA manages compliance with the relevant regulations and plans under the Act for this EP. Where activities have existing approvals under the Act, these will continue to apply.
<i>Environment Protection (Sea Dumping) Act 1981</i> Environment Protection (Sea Dumping) Regulations 1983	The Act regulates the dumping at sea of controlled material (including certain wastes and other matter), the incineration at sea of controlled material, loading for the purpose of dumping or incineration, export for the purpose of dumping or incineration, and the placement of artificial reefs. Permits are required for any sea dumping activities. Operational discharges from vessels are not defined as ‘dumping’ under the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 and therefore not regulated under the Act.	Prior to permanently leaving any structure in-situ, BHP will obtain a Sea Dumping Permit in accordance with the requirements of the Sea Dumping Act.
<i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i>	Legislation concerning Australian offshore petroleum exploration & production in Commonwealth Waters. National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is an independent safety and environmental management Authority funded by levies on industry participants and regulates matters with powers conferred directly from OPGGS Act and via Regulations concerned with: occupational health & safety law at facilities and offshore operations under Schedule 3 environmental management structural integrity of Wells under Resource management regulations.	Applies to all aspects of petroleum activities.

Legislation or Regulation	Description	Relevant
Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009	<p>Regulations administered by NOPSEMA to ensure offshore petroleum activity is carried out in a manner consistent with the principles of ecologically sustainable development and in accordance with an accepted environment plan, in particular:</p> <p>assessment of EPs, including associated OPEPs (previously oil spill contingency plans)</p> <p>investigation of accidents, occurrences and circumstances with regard to deficiencies in environmental management.</p>	Applies to environmental management of petroleum activities.
<i>Offshore Petroleum and Greenhouse Gas Storage (Regulatory Levies) Act 2003</i>	Act to impose levies relating to the regulation of offshore petroleum activities, including well levies and environment plan levy.	A levy will be applied to the petroleum activities under this EP.

Industry Standards, Codes of Practice, Guidelines and Commonwealth Guidance Material
NOPSEMA (2012). Control Measures and Performance Standards Guidance Note. N040300-GN0271 Revision No. 4. December 2012
NOPSEMA Guidance note: Environment plan content requirements – (GN1344) 11.9.2020
NOPSEMA Guidance note: Notification and reporting of environmental incidents – (GN0926) 8.6.2020
NOPSEMA Guidance note: ALARP – Rev 6 (GN0166) (2015)
NOPSEMA Policy: Environment plan assessment - (PL1347) 19.5.2020
NOPSEMA Guideline: Environment plan decision making – Rev 7 (GL1721) (2021)
NOPSEMA Guideline: Making submissions to NOPSEMA – (GL0255) 4.5.2020
NOPSEMA Guideline: Consultation with Commonwealth agencies with responsibilities in the marine area
NOPSEMA Bulletin #2: Clarifying Statutory Requirements and Good Practice Consultation – Rev 0 (A696998) (2019)

APPENDIX C Woodside Master Existing Environment Document

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Revision: 8.0

Native file DRIMS No: 10484514

Page 683 of 445

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Description of the Existing Environment

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TABLE OF CONTENTS

1.	INTRODUCTION	10
1.1	Purpose	10
1.2	Scope	10
1.3	Review and Revision	11
1.4	Regional Context	11
2.	PHYSICAL ENVIRONMENT	13
2.1	Regional Context	13
2.2	Marine Systems of the North-west Marine Region (NWMR)	13
2.3	Meteorology and Oceanography	15
2.3.1	Browse	22
2.3.2	North West Shelf / Scarborough	23
2.3.3	North-west Cape	23
2.4	Physical Environment of NWMR	24
2.5	Air Quality	24
3.	MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (EPBC ACT) ...	28
3.1	Summary of Matters of National Environmental Significance (MNES)	28
3.2	Part 13 Statutory Instruments for EPBC Act Listed Threatened and Migratory Species in the NWMR, South-west Marine Region (SWMR) and North Marine Region (NMR) .	34
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	43
4.4.1	Offshore Habitats and Biological Communities	43
4.4.2	Browse	44
4.4.3	North West Shelf / Scarborough	46
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	62
5.2.1	Sharks and Sawfishes	63
5.2.2	Rays	66
5.3	Fish, Shark and Sawfish Biological Important Areas in the NWMR	66
5.4	Fish Assemblages of the NWMR	70
5.4.1	Regional Context for Fish Assemblages of NWMR	70
5.4.2	Browse	71
5.4.3	North West Shelf / Scarborough	71
5.4.4	North-west Cape	72
6.	MARINE REPTILES	73
6.1	Regional Context for Marine Reptiles	73

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 3 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

6.2	Marine Turtles in the NWMR, SWMR and NMR Bioregions	80
6.2.1	Life Cycle Stages	80
6.2.2	Habitat Critical to Survival for Marine Turtles in the NWMR	81
6.3	Marine Turtle Biological Important Areas in the NWMR	86
6.4	Marine Turtle Summary for NWMR	96
6.4.1	Browse.....	96
6.4.2	North West Shelf / Scarborough.....	98
6.4.3	North-west Cape.....	100
6.5	Sea Snakes	100
6.6	Crocodiles	102
6.7	Water Monitor	102
7.	MARINE MAMMALS	103
7.1	Regional Context	103
7.2	Cetaceans in the NWMR.....	108
7.3	Dugongs in the NWMR	108
7.4	Pinnipeds in the NWMR	108
7.5	Marine Mammals in the NWMR	109
7.6	Habitat Critical to the Survival for Marine Mammals in the NWMR	118
7.7	Biological Important Areas in the NWMR.....	120
7.8	Marine Mammal Summary for the NWMR	133
7.8.1	Browse.....	133
7.8.2	North West Shelf / Scarborough.....	133
7.8.3	North-west Cape	133
8.	SEABIRDS AND MIGRATORY SHOREBIRDS OF THE NWMR	134
8.1	Regional Context	134
8.2	Seabirds in the NWMR	147
8.2.1	High-occurrence Key Seabird Species	147
8.2.2	Moderate-occurrence Key Seabird Species.....	155
8.2.3	Biologically Important Areas for Seabirds in the NWMR.....	155
8.2.4	Seabird Summary for NWMR.....	162
8.3	Shorebirds	162
8.4	Other Marine Birds.....	176
9.	THREATENED AND MIGRATORY SPECIES SEASONAL PRESENCE	177
10.	KEY ECOLOGICAL FEATURES	181
11.	PROTECTED AREAS	198
11.1	Regional Context	198
11.2	World Heritage Properties.....	198
11.3	National and Commonwealth Heritage Places – Natural	198
11.4	Wetlands of International Importance (listed under the Ramsar Convention).....	198
11.5	Australian Marine Parks	199
11.5.1	North West Marine Parks Network	199
11.5.2	Indian Ocean Territory	215
11.5.3	South-west Marine Parks Network	217
11.5.4	North Marine Park Network	233
11.6	Threatened Ecological Communities.....	242
11.7	Australian Whale Sanctuary	244
11.8	State Marine Parks and Reserves.....	244

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 4 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

11.9	Summary of Protected Areas Within the NWMR	245
11.10	Summary of Protected Areas Within the SWMR	265
11.11	Summary of Protected Areas Within the NMR	274
12.	SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT	279
12.1	Cultural Values and Heritage	279
12.1.1	Native Title.....	279
12.1.2	Coastal First Nations Groups	280
12.1.3	Sea Country.....	284
12.1.4	Marine Parks.....	285
12.1.5	Indigenous Protected Areas (IPAs)	285
12.1.6	First Nations Cultural Heritage	291
12.1.7	Historic Sites of Significance.....	296
12.1.8	Historic Underwater Heritage	296
12.1.9	World, National and Commonwealth Listed Heritage Places.....	297
12.2	Socio-Economic Values	304
12.2.1	Commercial Fisheries – Commonwealth and State	304
12.2.2	Fish Habitat Protection Areas.....	332
12.2.3	Aquaculture	335
12.3	Fisheries – Traditional	336
12.4	Tourism and Recreation.....	337
12.4.1	Gascoyne Region	337
12.4.2	Pilbara Region	338
12.4.3	Kimberley Region	338
12.5	Shipping	338
12.6	Petroleum Basins.....	339
12.7	Defence.....	339
13.	REFERENCES	341
APPENDIX A	PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR	382
APPENDIX B	SUPPORTING FIGURES FOR SECTION 2.3 METEOROLOGY AND OCEANOGRAPHY	694

TABLE OF FIGURES

Figure 1-1: Marine bioregions: NWMR, SWMR, NMR and South-East (as defined under the EPBC Act, refer to (DCCEEW, 2021b)	12
Figure 2-1: The marine systems of the NWMR (data source: DEWHA, 2007a)	14
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)	17
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)	18
Figure 2-4: Tropical cyclone annual occurrence and cyclone tracks for NWMR	19
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)	20
Figure 2-6: Ocean surface and sub-surface currents of the NWMR and wider region (data source: adopted from Wijeratne et al., 2018)	21
Figure 2-7: The eight Integrated Marine and Coastal Regionalisation of Australia (IMCRA) v4.0 provincial bioregions of the NWMR (GA, 2024)	25
Figure 2-8: Bathymetry of the NWMR (data source: Geoscience Australia)	26
Figure 2-9: Overview of the seabed sediments of the NWMR (data source: Baker et al., 2008)	27
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 biologically important areas (BIAs) for the NWMR and tagged whale shark satellite tracks (data source for BIAs: DCCEEW, 2024b)	68
Figure 5-2: Sawfish BIAs for the NWMR (data source: DCCEEW, 2024b)	69
Figure 6-1: Generalised life cycle of marine turtles (Commonwealth of Australia, 2017)	81
Figure 6-2: Marine turtle species habitat critical to survival (nesting beaches and internesting buffers) for the NWMR (data source: DCCEEW, 2024b)	85
Figure 6-3: Green turtle BIAs within the NWMR (data source: DCCEEW, 2024b)	92
Figure 6-4: Hawksbill turtle BIAs within the NWMR (data source: DCCEEW, 2024b)	93
Figure 6-5: Flatback turtle BIAs within the NWMR (data source: DCCEEW, 2024b)	94
Figure 6-6: Loggerhead turtle BIAs within the NWMR (data source: DCCEEW, 2024b)	95
Figure 7-1: Habitat critical to the survival for the southern right whale in the NWMR (DCCEEW, 2024a)	119
Figure 7-2: Humpback whale BIAs for the NWMR (data source: DCCEEW, 2024b)	124
Figure 7-3: Humpback whale tagged tracks for north and south bound migrations (AMMC as published in Double et al. 2010 and 2012)	125
Figure 7-4: Pygmy blue whale BIAs for the NWMR and tagged whale tracks for northbound migration (data source for BIAs: DCCEEW, 2024b)	126
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)	127
Figure 7-6: Australian snubfin dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)	128
Figure 7-7: Indo-Pacific humpback dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)	129
Figure 7-8: Indo-Pacific spotted bottlenose dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)	130
Figure 7-9: Dugong BIAs for the NWMR (data source: DCCEEW, 2024b)	131
Figure 7-10: Australian sea lion BIAs in the northern extent of the SWMR closest to the NWMR (data source: DCCEEW, 2024b)	132
Figure 8-1: Wedge-tailed shearwater BIAs for the NWMR (data source: DCCEEW, 2024b)	157
Figure 8-2: Tern species BIAs for the NWMR (data source: DCCEEW, 2024b)	158
Figure 8-3: Red-footed and brown booby BIAs for the NWMR (data source: DCCEEW, 2024b) ..	159
Figure 8-4: Greater and lesser frigatebird BIAs for the NWMR (data source: DCCEEW, 2024b) ..	160

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 6 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Figure 8-5: White-tailed tropicbird BIAs for the NWMR (data source: DCCEEW, 2024b)	161
Figure 10-1: KEFs within the NWMR (data source: DCCEEW, 2024d)	190
Figure 10-2: KEFs within the SWMR (data source: DCCEEW, 2024d).....	194
Figure 10-3: KEFs within the NMR (data source: DCCEEW, 2024d).....	197
Figure 11-1: Commonwealth and State Marine Protected Areas for the NWMR and Indian Ocean Territories (data source: GA, 2024)	264
Figure 11-2: Commonwealth and State Marine Protected Areas for the SWMR (data source: GA, 2024)	273
Figure 11-3: Commonwealth and State Marine Protected Areas within the NMR (data source: GA, 2024)	278
Figure 12-1: Coastal Native Title Claims / Determinations and Indigenous Land Use Agreements (ILUAs) in the NWMR (data source: DPLH, 2024).....	281
Figure 12-2: Coastal Native Title Claims / Determinations and ILUAs in the NMR (data source: DPLH, 2024)	282
Figure 12-3: Coastal Native Title Claims / Determinations and ILUAs in the SWMR (data source: DPLH, 2024)	283
Figure 12-4: IPAs in Australia (data source: DCCEEW and NIAA, 2024)	290
Figure 12-5: Indicative bathymetry of the ancient submerged landscape (data source: GA, 2024; DCCEEW, 2024d).....	295
Figure 12-6: Shipwrecks in the NWMR (data source: WAM, 2018 and AODN, 2008)	301
Figure 12-7: Shipwrecks in the NMR (data source: WAM, 2018 and AODN, 2008)	302
Figure 12-8: Shipwrecks in the SWMR (data source: WAM, 2018 and AODN, 2008).....	303
Figure 12-9: MOU 74 Box: operations of Indonesian traditional fishermen in areas of the Australian Fishing Zone and Continental Shelf – 1974.....	337

TABLE OF TABLES

Table 1-1: Description of the marine bioregions	11
Table 2-1: Key physical characteristics of the NWMR, SWMR and NMR	13
Table 2-2: Key characteristics of the marine systems of the NWMR	15
Table 2-3: NWMR climate and oceanography summary	16
Table 2-4: Summary meteorology and oceanography for Browse (refer to Appendix B for supporting metocean figures and data sources).....	22
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)	23
Table 2-6: Summary meteorology and oceanography for the North-west Cape (refer to Appendix B for supporting metocean figures).....	23
Table 3-1: Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) within and potentially occurring within the NWMR.....	30
Table 3-2: Summary of MNES identified by the EPBC Act PMST within and potentially occurring within the SWMR	31
Table 3-3: Summary of MNES identified by the EPBC Act PMST within and potentially occurring within the NMR	32
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	61
Table 5-3: Information on the EPBC-listed threatened shark, fish and sawfish species that may or are known to occur within the NWMR	63
Table 5-4: Information on migratory ray species within the NWMR	66
Table 5-5: Fish, whale shark and sawfish BIAs within the NWMR (source: AMSIS, accessed 14/08/2024).....	67
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.....	78
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.....	82
Table 6-3: Marine turtle BIAs within the NWMR	87
Table 6-4: Marine turtle key information for Browse activity area.	97
Table 6-5: Marine turtle key information for NWS / Scarborough activity area	99
Table 6-6: Marine turtle key information for North-west Cape activity area.....	100
Table 6-7: Information on threatened sea snake species within the NWMR	102
Table 7-1: Marine mammal species identified by the EPBC Act PMST that may occur within the NWMR	104
Table 7-2: Information on the threatened/migratory marine mammal species within the NWMR ..	108
Table 7-3: Marine mammal BIAs within the NWMR.....	121
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	135
Table 8-2: Species summary for moderate occurrence pelagic and nearshore seabird species within the NWMR	155
Table 8-3: Seabird BIAs within the NWMR (source: AMSIS, 2024 [accessed on 12/08/24])	156
Table 8-4: Species summary for high and selected moderate occurrence key shorebird species ..	164
Table 8-5: Species summary for moderate occurrence key shorebird species	175
Table 8-6: Species summary for high occurrence key other marine bird species	176

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 8 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Table 9-1: Seasonal sensitivity of key threatened and migratory species in the NWMR	177
Table 10-1: Key ecological features (KEF) within the NWMR	183
Table 10-2: KEF within the SWMR	191
Table 10-3: KEF within the NMR	195
Table 11-1: Summary of Commonwealth Australian Marine Parks (AMPs) in the North West Marine Park Network	200
Table 11-2: Summary of Commonwealth marine parks within Indian Ocean territories	216
Table 11-3: Summary of Commonwealth AMPs for the South West Marine Park Network	217
Table 11-4: Summary of Commonwealth AMPs for the North Marine Park Network	233
Table 11-5: Summary of threatened ecological communities within the NWMR, NMR and SWMR	243
Table 11-6: Protected areas within the NWMR	245
Table 11-7: Protected areas within the SWMR	265
Table 11-8: Protected Areas within the NMR	274
Table 12-1: Commonly identified Sea Country species and habitats	285
Table 12-2: Intangible heritage values associated with Sea Country	291
Table 12-3: Heritage Places (Indigenous and historic) within the NWMR	298
Table 12-4: Heritage Places (Indigenous and historic) within the NMR	299
Table 12-5: Heritage Places (Indigenous and historic) within the SWMR	299
Table 12-6: Commonwealth and State managed fisheries	305

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.

APPENDIX A 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 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 five-year basis. Key updates are captured in a 'change register'. Material risk may trigger updates within the five-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.

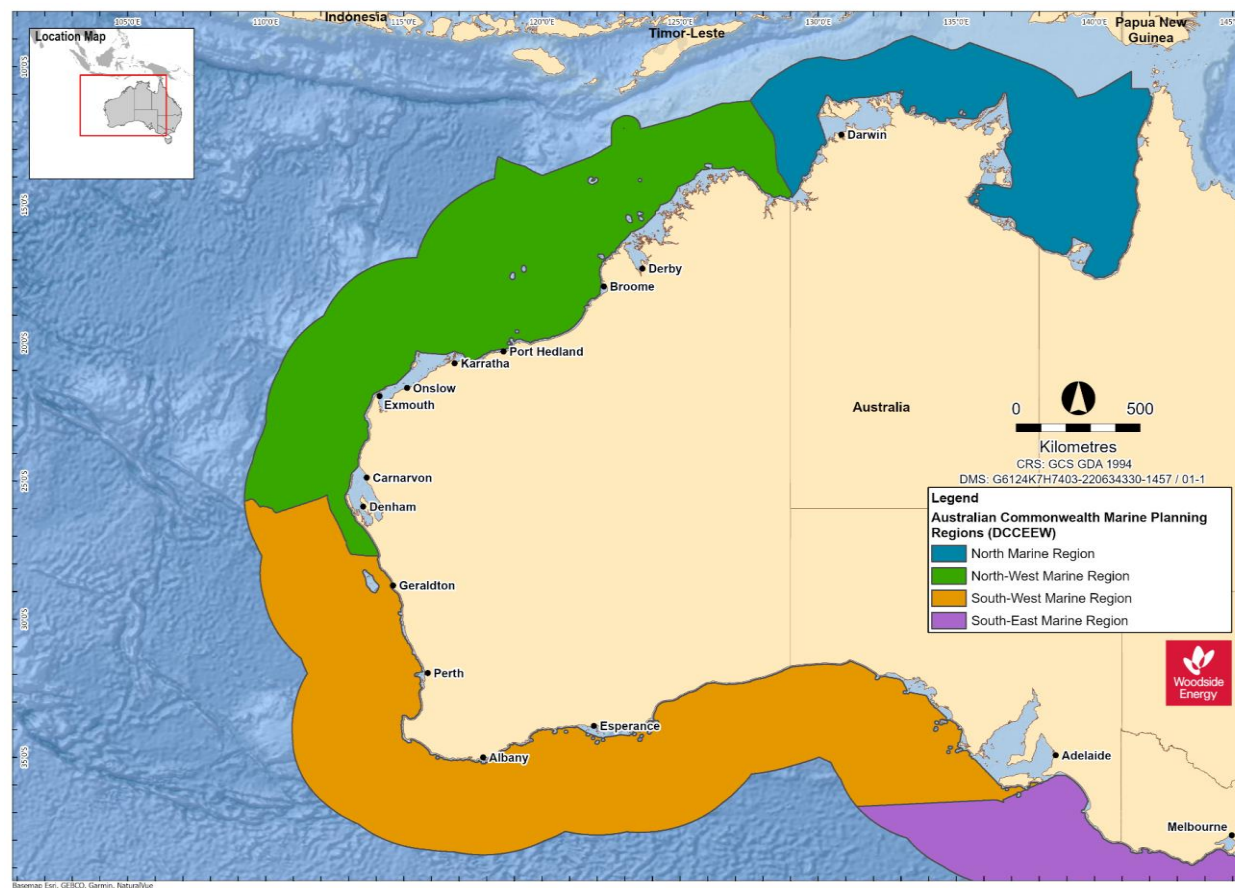
1.4 Regional Context

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.

Table 1-1: Description of the marine bioregions

Marine Bioregion	Description
North-west (DSEWPAC, 2012a)	The NWMR includes all Commonwealth waters (from three nautical miles (NM) from the Territorial Sea Baseline 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.

¹ <https://www.dcceew.gov.au/environment/marine/marine-bioregional-plans> (accessed:04/08/2024)



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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 12 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

2. PHYSICAL ENVIRONMENT

2.1 Regional Context

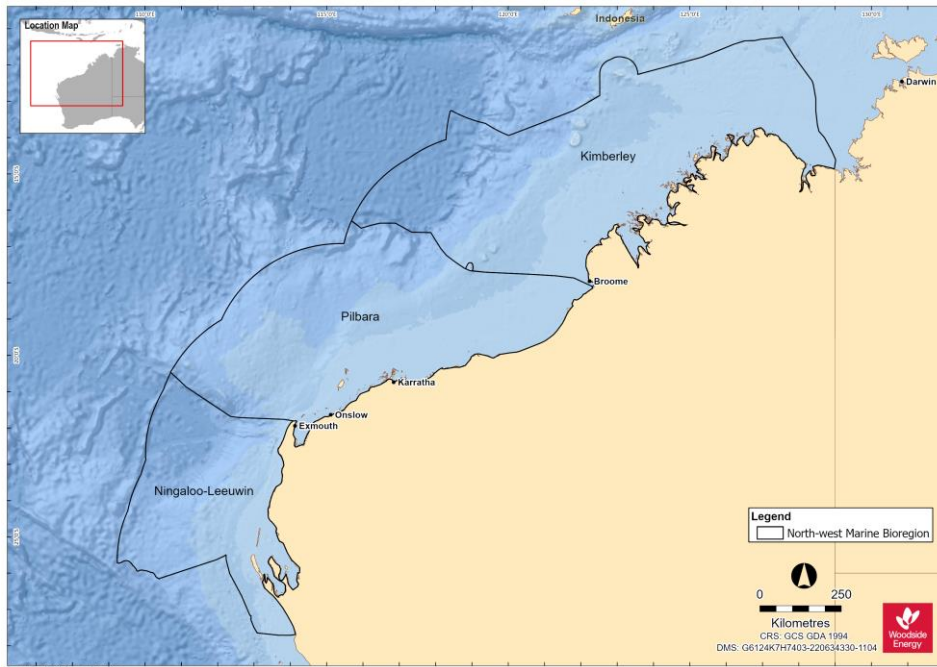
The key physical characteristics of the NWMR, SWMR and NMR are presented in Table 2-1. The remainder of this section then focuses entirely on the NWMR.

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 (NWMR)

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.



Note: Woodside areas align with the marine systems as described in DEWHA (2007a)

Figure 2-1: The marine systems of the NWMR (data source: DEWHA, 2007a)

Table 2-2: Key characteristics of the marine systems of the NWMR

Marine System	Woodside Activity Area	Key Characteristics
Kimberley	Browse	Tropical monsoonal climate Strong influence from Indonesian Throughflow Predominantly tropical Indo-Pacific species Subject to episodic offshore cyclonic activity, rarely crossing the coast Large tidal regimes Freshwater input from terrestrial monsoonal run-off Turbid coastal waters (i.e. light limited systems) Dominated by shelf environments Predominantly hard substrates in inner to mid-shelf environments Includes a number of shelf-edge atolls (i.e. Scott Reef, Rowley Shoals)
Pilbara	North West Shelf (NWS) / Scarborough	Tropical arid climate Transition between Indonesian Throughflow and Leeuwin Current dominated areas Predominantly tropical species High cyclone activity with frequent crossing of the coast Transitional tidal zone Internal tide activity Large areas of shelf and slope Dry coast with ephemeral freshwater inputs
Ningaloo-Leeuwin	North-west Cape	Subtropical arid climate Leeuwin Current consolidates Transitional tropical/temperate faunal area Higher water clarity in near-shore and offshore environments Narrow shelf and slope Marginal tidal range Seasonal wind forcing more dominant influence on marine environment

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 2-2. 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.
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 CSIRO Oceans and Atmosphere database. Refer to Figure 2-5, for the seasonal variation across and within the NWMR.
Currents	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. 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). 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).
Waves	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). 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). 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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 16 of 381

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Receptor	Description
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> <p>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).</p>

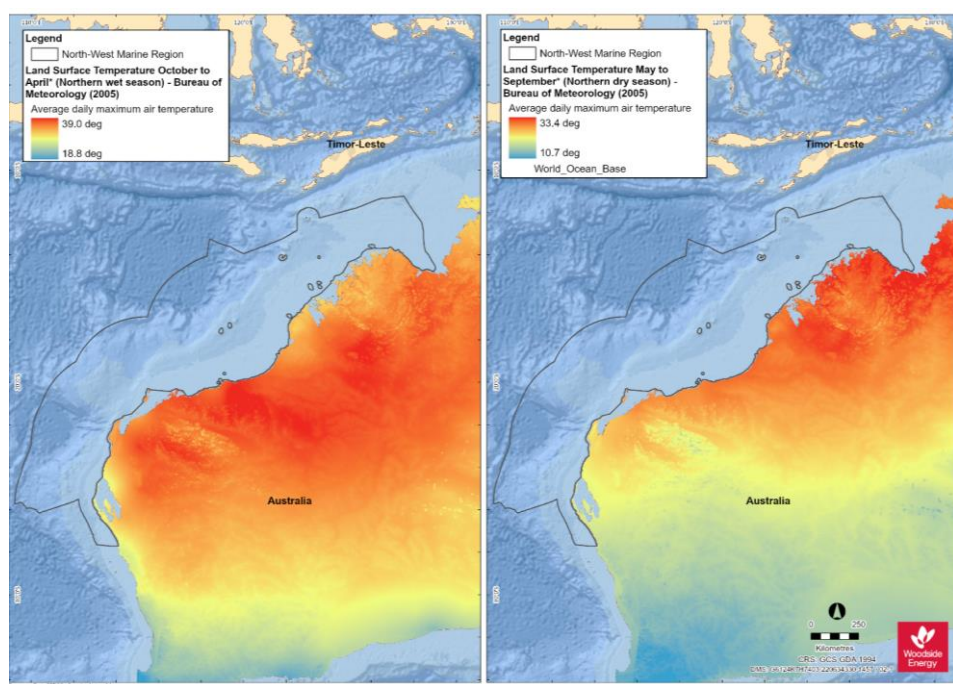


Figure 2-2: Average daily maximum air temperature for land surface adjacent to NWMR: (a) summer (northern wet season) and (b) winter (northern dry season)

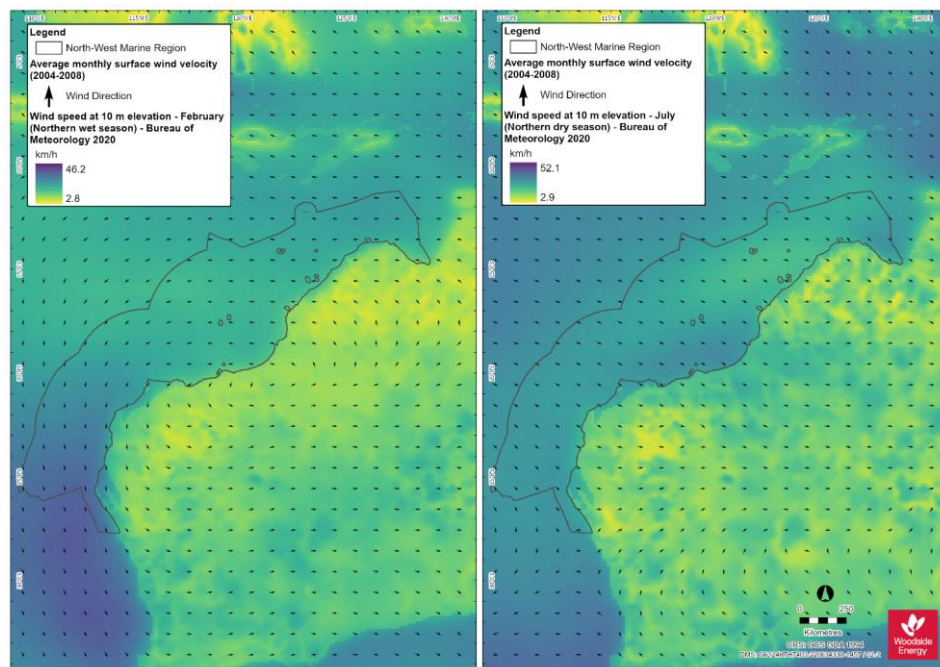


Figure 2-3: Average monthly surface wind direction and velocity for NWMR: (a) summer (February, northern wet season) and (b) winter (July, northern dry season)

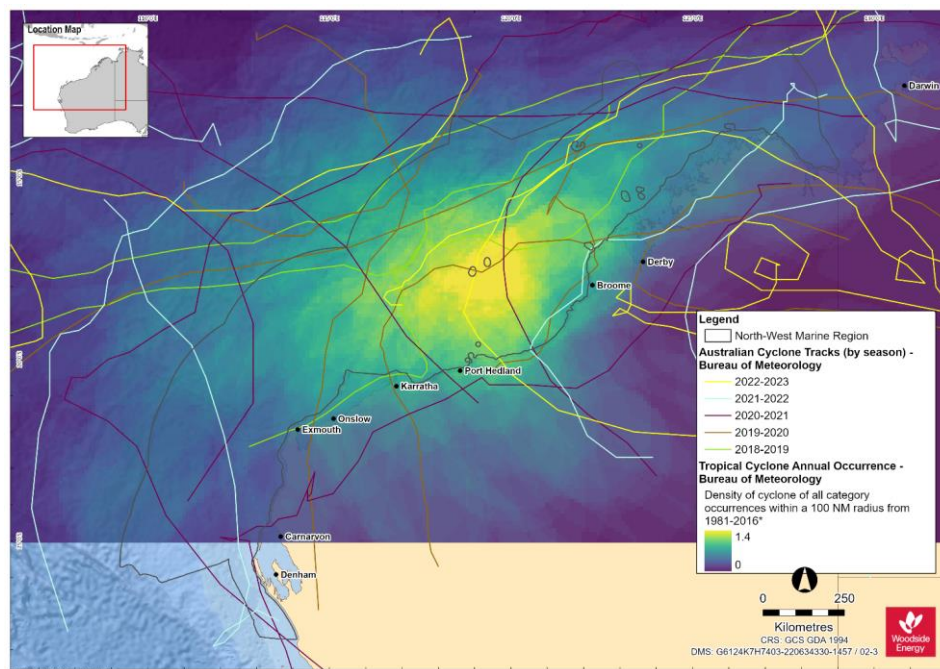


Figure 2-4: Tropical cyclone annual occurrence and cyclone tracks for NWMR

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Revision: 2

Woodside ID: 1401743486

Page 19 of 381

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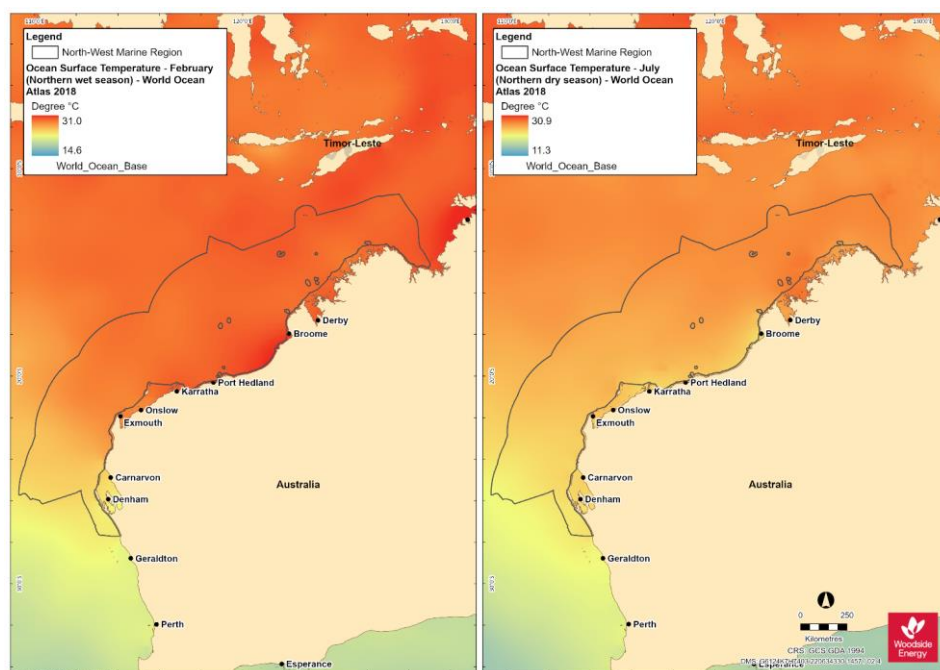


Figure 2-5: Ocean surface temperature for NWMR: (a) summer (February, northern wet season) and (b) winter (July, northern dry season) (data source: Locarnini et al., 2018 in World Ocean Atlas, 2018)

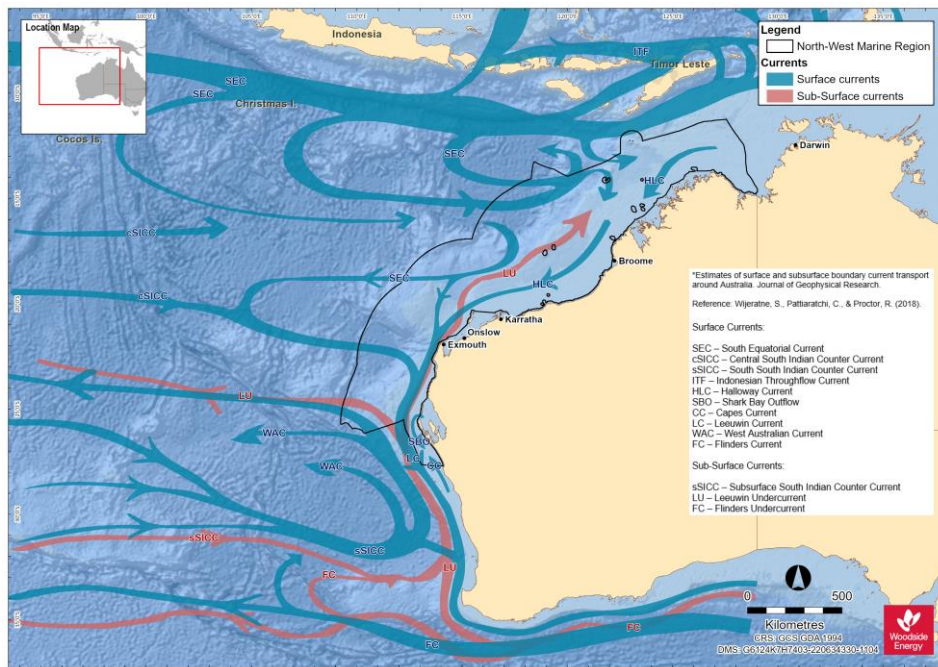


Figure 2-6: Ocean surface and sub-surface currents of the NWMR and wider region (data source: adopted from Wijeratne et al., 2018)

2.3.1 Browse

Table 2-4: Summary meteorology and oceanography for Browse (refer to Error! Reference source not found. 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 Error! Reference source not found. 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 Error! Reference source not found..
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 Error! Reference source not found..
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; Condie et al., 2006).

2.3.3 North-west Cape

Table 2-6: Summary meteorology and oceanography for the North-west Cape (refer to Error! Reference source not found. 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 5 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).

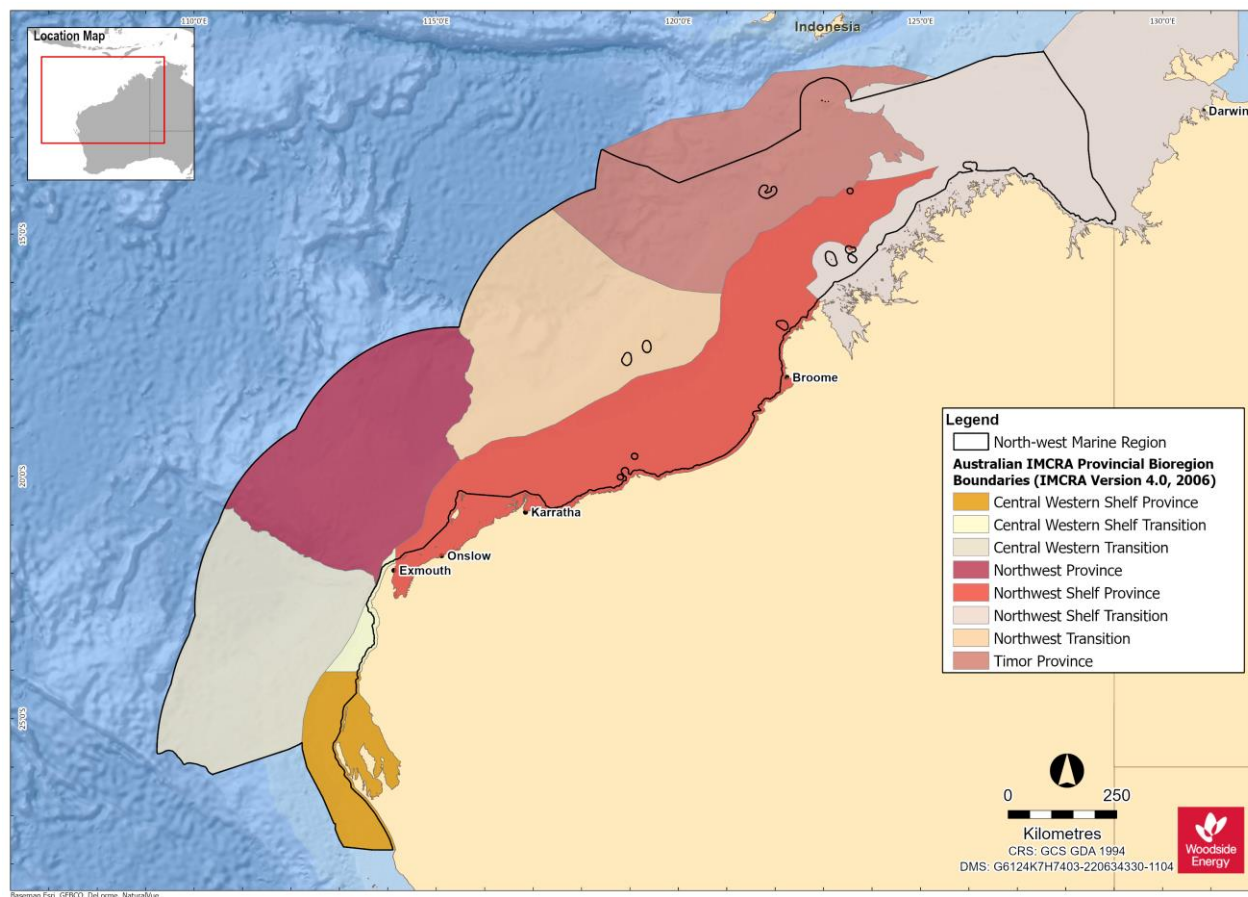


Figure 2-7: The eight Integrated Marine and Coastal Regionalisation of Australia (IMCRA) v4.0 provincial bioregions of the NWMR (GA, 2024)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 25 of 381

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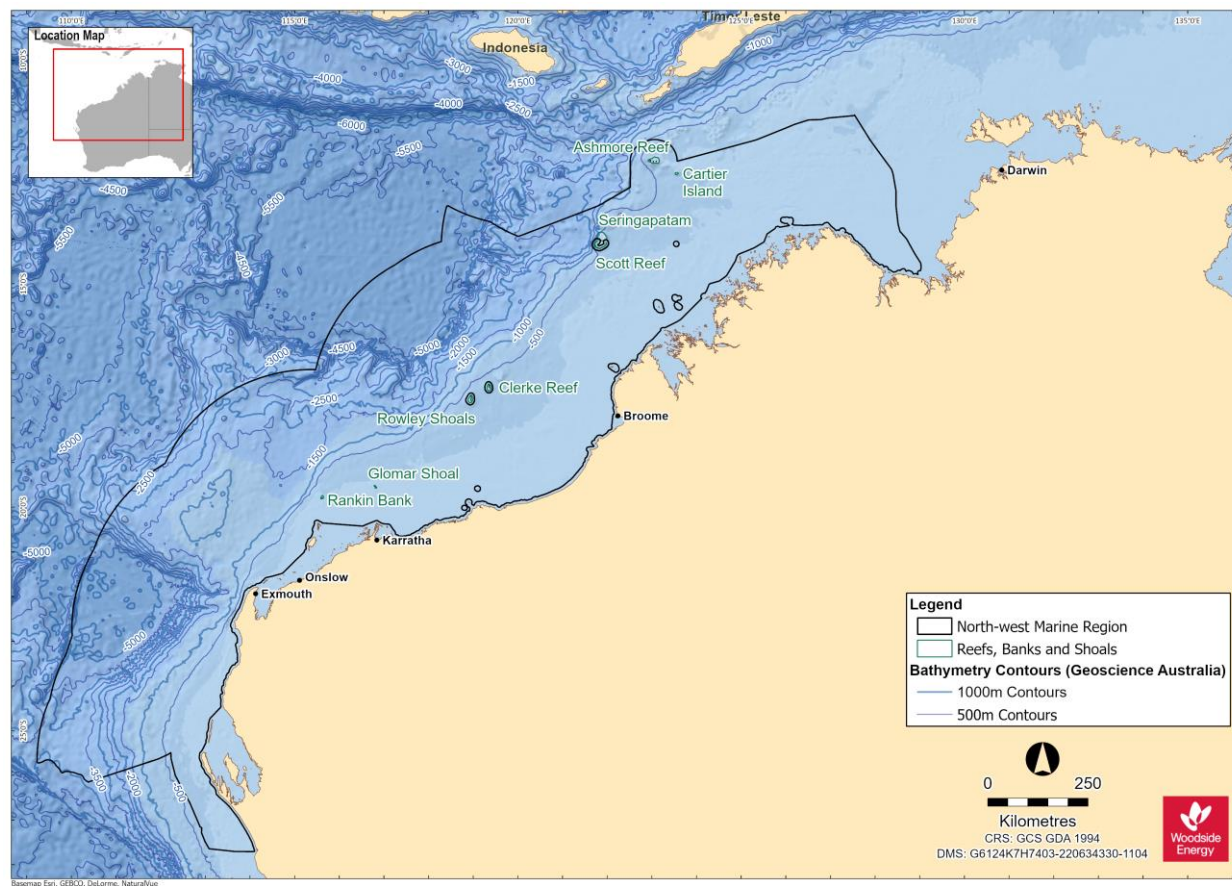


Figure 2-8: Bathymetry of the NWMR (data source: Geoscience Australia)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 26 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

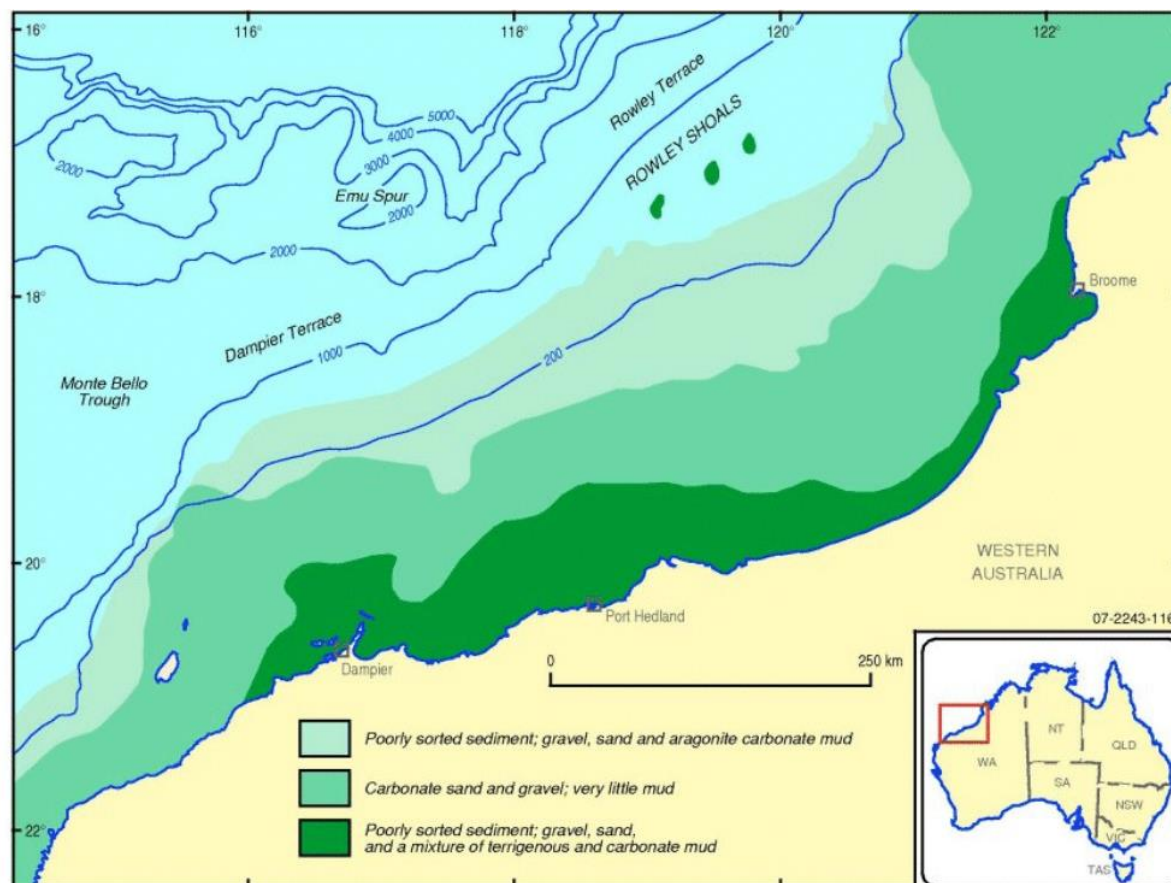


Figure 2-9: Overview of the seabed sediments of the NWMR (data source: Baker et al., 2008)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 27 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

3. MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (EPBC ACT)

3.1 Summary of Matters of National Environmental Significance (MNES)

APPENDIX B 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 (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 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 (PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)	Section 5 to Section 9
Listed Migratory Species	97	Refer NWMR PMST report (PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)	Section 5 to Section 9

Commented [LA1]: These three tables all refer to a Section 0 (I've highlighted them). Please link to the correct section.

Table 3-2: Summary of MNES identified by the EPBC Act 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
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 KEFs AMPs Australian Whale Sanctuary Extended Continental Shelf	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 Kwongan Shrublands of the Southeast Coastal Floristic Province of Western Australia 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	APPENDIX C Refer SWMR PMST report (PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)	N/A
Listed Migratory Species	89	APPENDIX D Refer SWMR PMST report (PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)	N/A

Table 3-3: Summary of MNES identified by the EPBC Act 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 KEFs AMPs Australian Whale Sanctuary Extended Continental Shelf	Section 11
Listed Threatened Ecological Communities	0	N/A	N/A

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 32 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Listed Threatened Species	82	APPENDIX E Refer NMR PMST report (PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)	N/A
Listed Migratory Species	82	APPENDIX F Refer NMR PMST report (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, South-west Marine Region (SWMR) and North Marine Region (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 among the Woodside activity areas with habitat critical for survival (e.g. marine turtles) 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)
- 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).

APPENDIX G 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 (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)
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Controlled Ref No: G2000RH1401743486	Revision: 2 Woodside ID: 1401743486 Page 38 of 381
Uncontrolled when printed. Refer to electronic version for most up to date information.	

Species	EPBC Act Part 13 Statutory Instrument
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)
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, 2023e)
Curlew sandpiper	Conservation Advice <i>Calidris ferruginea</i> curlew sandpiper (DCCEEW, 2023f)
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)

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Species	EPBC Act Part 13 Statutory Instrument
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, 2023g)
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)
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 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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 43 of 381

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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 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 Montebello Islands, 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).

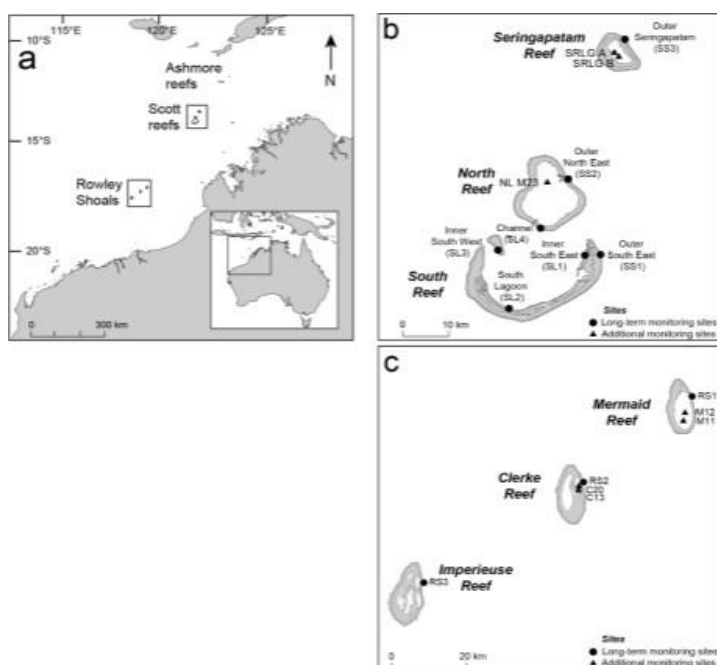


Figure 4-1: The position of Scott Reef, Ashmore and the Rowley Shoals off North-western Australia and location of permanent long-term monitoring sites (source: Gilmour et al., 2023)

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 to 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 to 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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 45 of 381

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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 to 40 km apart. Each atoll covers an area approximately 80 to 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 to 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 to 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) is listed and described in Section 11 and includes the Commonwealth Marine Parks of Ashmore Reef, Cartier Island, Kimberley and Mermaid Reef, and the 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.

4.4.3.1 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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 46 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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).

4.4.3.2 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 to 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 KEF within NWMR, refer to Table 10-1. Protected Area status (Australian Marine Parks and State Marine Parks and Reserves) is described in Section 11 and includes the Commonwealth Marine Park of Montebello, and the State Marine Parks of Montebello Islands and Barrow Island and the Barrow Island marine management area.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 47 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 leeside 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, 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 communities (deep forereef and other deep areas), sand or limestone pavement (lagoon 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 4000 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

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/>

⁴ <https://www.csiro.au/en/research/environmental-impacts/climate-change/state-of-the-climate>

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 (Miller et al., 2015).

Commonwealth waters adjacent to Ningaloo Reef is recognised as a KEF within NWMR, refer to Table 10-1. Protected Area status (Australian Marine Parks and State Marine Parks and Reserves) is described in Section 11 and includes the Commonwealth Marine Parks of Ningaloo and Shark Bay, and the State Marine Parks of Ningaloo Reef, the Muiron Islands marine management area, 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 such as Ningaloo), 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,) influencing the habitat.

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.

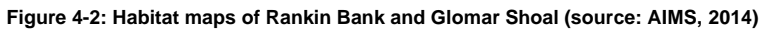


Table 4-1: Habitats and biological communities within the NWMR

Habitat/Community	Browse	NWS / Scarborough	North-west Cape	Reference
<i>Offshore habitats and biological communities</i>				
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

Habitat/Community	Browse	NWS / Scarborough	North-west Cape	Reference
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 systems such as Scott Reef	Glomar Shoal Rankin Bank Ancient coastline at 125 m depth contour KEF	Cape Range canyon system	Section 4.4.1 Section 10 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

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Habitat/Community	Browse	NWS / Scarborough	North-west Cape	Reference
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	
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

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Table 4-2: Habitats within the SWMR

Habitat/Community	Location
<i>Offshore</i>	
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	<p>A unique seafloor feature combining both soft sediment and hard substrates, including outcrops, terraces, continental slope, and escarpments.</p> <p>Perth Canyon Marine Park Ancient coastline at 90 to 120 m depth contour KEF Diamantina Fracture Zone Naturaliste Plateau</p>
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	<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 (DEWR, 2007). Filter feeders generally inhabit deeper habitat (below the photic zone) that have strong currents and hard substratum.</p> <p>Ancient coastline at 90 to 120 m depth Diamantina Fracture Zone Naturaliste Plateau Perth Canyon Marine Park South-west Corner Marine Park</p>
<i>Nearshore</i>	
Coral reef	<p>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.</p> <p>Houtman Abrolhos Islands Rottnest Island</p>

Habitat/Community	Location
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 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

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Table 4-3: Habitats and biological communities within the NMR

Habitat/Community	Location
<i>Offshore habitats and biological communities</i>	
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

Description of the Existing Environment

Habitat/Community	Location
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
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 inhabit areas that have strong currents and hard substratum.
	Cape Helveticus
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). 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.
	Tiwi Islands Darwin Harbour The mainland coastline adjacent to the Daly River
Sandy beaches	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.
	Tiwi Islands Cobourg Peninsula Joseph Bonaparte Gulf

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 57 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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	APPENDIX H <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (as per PMST report PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			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

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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Species Name	Common Name	APPENDIX H <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (as per PMST report PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			<i>Biodiversity Conservation Act 2016 (WA)</i> 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>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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 60 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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).

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5.2 Protected Sharks, Sawfishes and Rays in the NWMR

APPENDIX I The EPBC Act Protected Matters search (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 (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).

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 NWS 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 to 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, broadening their diet as larger sharks to include marine mammals (Last and Stevens, 2009).	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 distribution within the NWMR. No BIAs identified for NWMR.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 63 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species	Preferred Habitat and Diet	Habitat Location
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>	<p>Given the migratory nature of the species, it most likely has a broad distribution within the NWMR. No BIAs identified for NWMR.</p>
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 0–1752 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>	<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)).</p>
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'Alberty 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>	<p>Given the migratory nature of the species, it most likely has a broad distribution within the NWMR. No BIAs identified for NWMR.</p>

Species	Preferred Habitat and Diet	Habitat Location
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). Diet: Shoaling fishes, such as mullet, as well as molluscs and small crustaceans (Cliff and Wilson, 1994).	Shallow coastal waters of the Pilbara and Kimberly coasts (Last and Stevens, 2009).
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).
Large-tooth (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 large-tooth 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 large-tooth (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 Large-tooth (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 (Cobourge 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	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 (Mar–Jul) Foraging northward from Ningaloo along the 200 m isobath (Jul–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 (Jan–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 (Jan–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 Foraging in waters adjacent to Eighty Mile Beach

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 67 of 381

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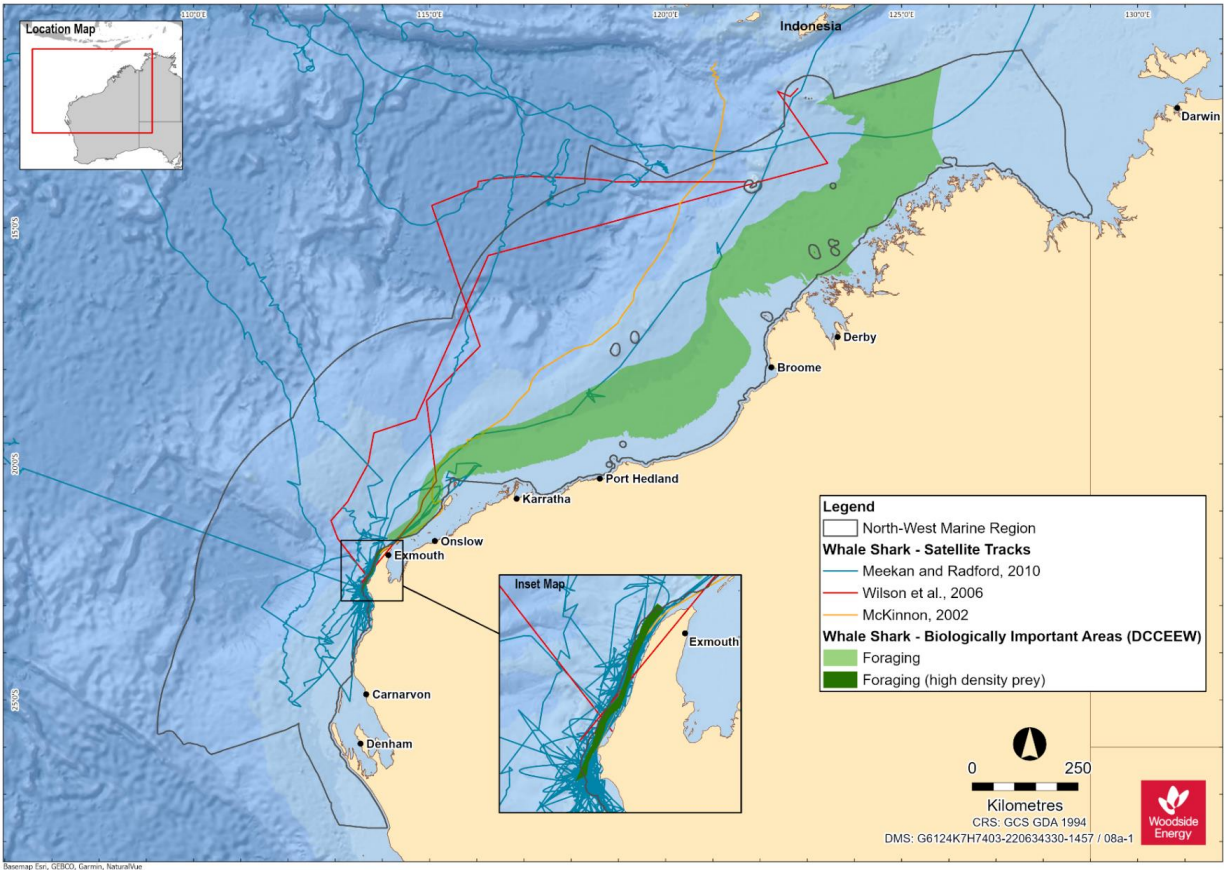


Figure 5-1: Whale shark biologically important areas (BIAs) for the NWMR and tagged whale shark satellite tracks (data source for BIAs: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 68 of 381

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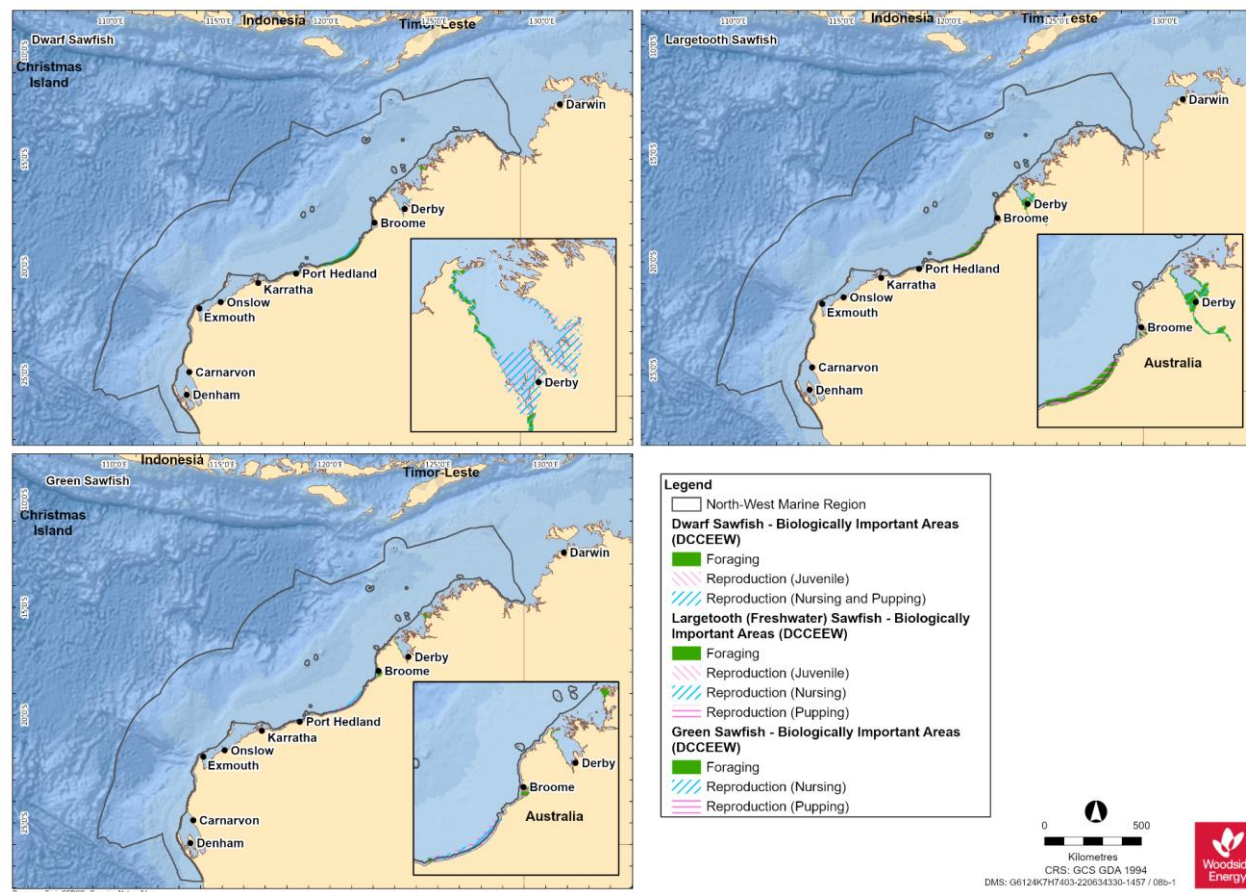


Figure 5-2: Sawfish BIAs for the NWMR (data source: DCCEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 69 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 1431 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 125 m 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, bramid, 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).

5.4.1.1 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).

APPENDIX J 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 (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.

5.4.2 Browse

The proposed Browse activity area includes biologically important habitat for the whale shark and three sawfish species, being:

- 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)
- dwarf sawfish (pupping, nursing and foraging areas).

BIAs for the shark and sawfish species are outlined in Table 5-5 and Figure 5-1.

The proposed Browse activity area has partial overlap with the continental slope demersal fish communities KEF.

5.4.3 North West Shelf / Scarborough

The NWS / Scarborough activity area includes biologically important habitat for the whale shark and three sawfish species, being:

- 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)
- dwarf sawfish (pupping, nursing and foraging areas).

BIAs for the whale shark and sawfish species are outlined in Table 5-5 and Figure 5-1.

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).

5.4.4 North-west Cape

The North-west Cape activity area includes biologically important foraging habitat for the whale shark, being:

- foraging (high density) in Ningaloo Marine Park and adjacent Commonwealth waters (March–July) (Table 9-1)
- 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 5-1. 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.

APPENDIX K 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 PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR

).

APPENDIX L 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 PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR

).

APPENDIX M 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 PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR

).

APPENDIX N Twenty-eight listed sea snake species ‘may’ occur in the NMR, as reported in the Protected Matters report in 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	APPENDIX O <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			<i>Biodiversity Conservation Act 2016</i> (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	Conservation Advice for <i>Varanus mitchelli</i> (Mitchell's water monitor) (DCCEEW, 2023c)
<i>Varanus mitchelli</i>	Mitchell's water monitor	Critically Endangered	N/A	N/A	N/A	Critically Endangered	

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)

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Species Name	Common Name	APPENDIX O <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			<i>Biodiversity Conservation Act 2016</i> (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>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	Endangered	N/A	Marine	N/A	Endangered	Conservation Advice for <i>Aipysurus fuscus</i> (dusky sea snake) (DCCEEW, 2024o)
<i>Crocodylus porosus</i>	Salt-water crocodile	N/A	Migratory	Marine	Migratory	Least Concern	N/A

6.2 Marine Turtles in the NWMR, SWMR and NMR Bioregions

According to the Protected Matters search (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).

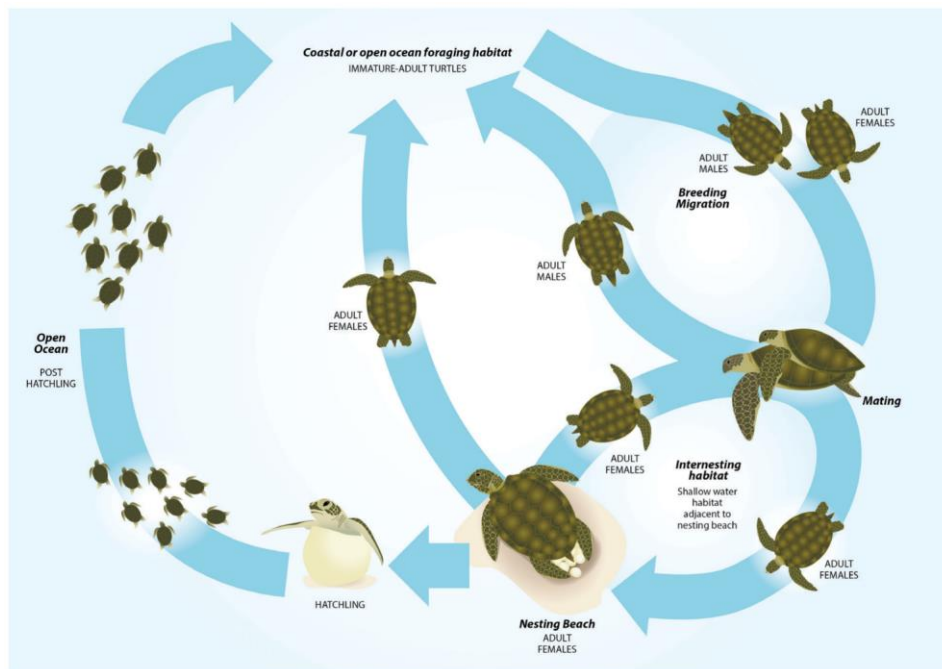


Figure 6-1: Generalised life cycle of marine turtles (Commonwealth of Australia, 2017)

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
- 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	

Species	Woodside Activity Area			Habitat Critical to Survival			
	Browse	NWS/S	NWC	Nesting (*Major Rookery ¹)	Internesting Buffer	Seasonality Nesting	Preferred Habitat ²
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.
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	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 83 of 381

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Description of the Existing Environment

Species	Woodside Activity Area			Habitat Critical to Survival			
	Browse	NWS/S	NWC	Nesting (*Major Rookery ¹)	Internesting Buffer	Seasonality Nesting	Preferred Habitat ²
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	
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)

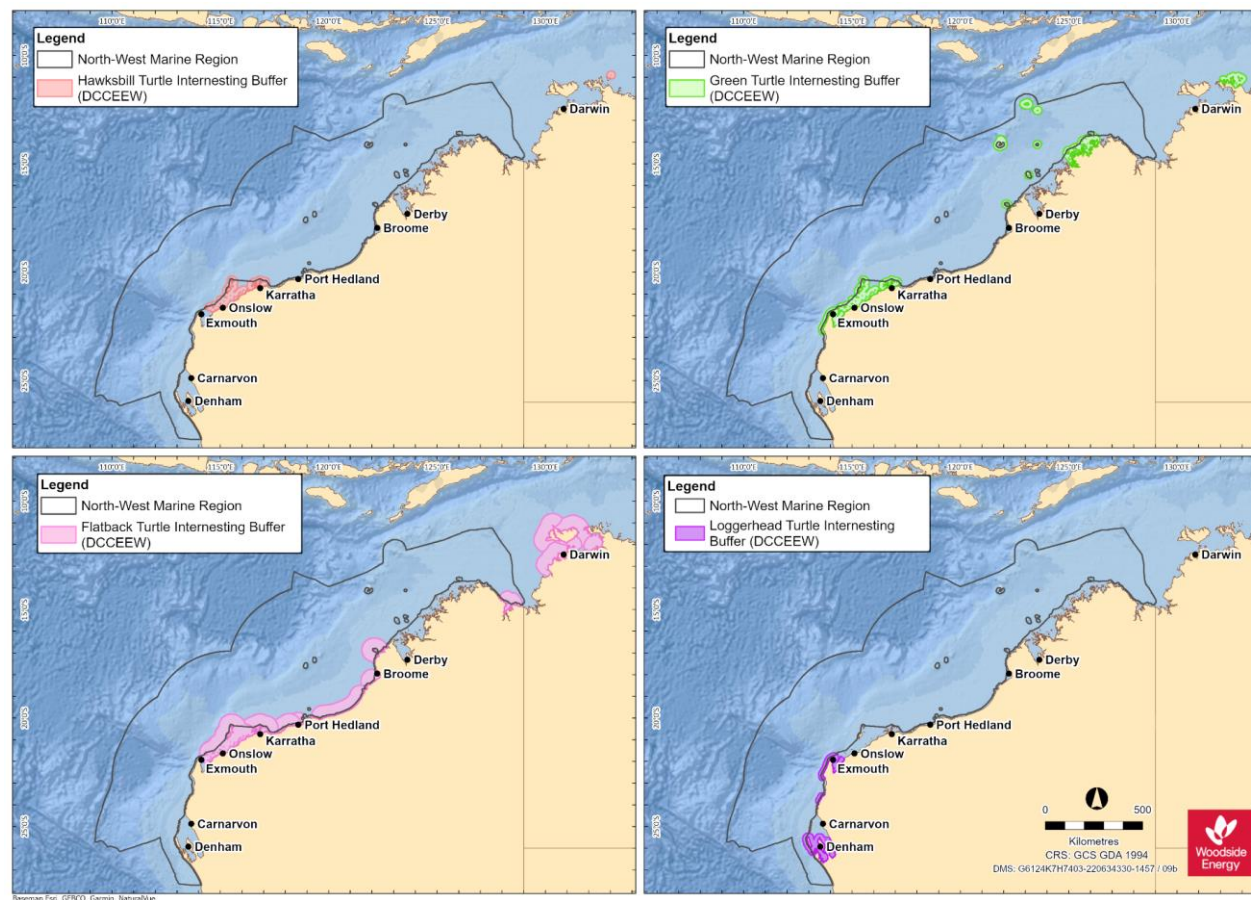


Figure 6-2: Marine turtle species habitat critical to survival (nesting beaches and interesting buffers) for the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 85 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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	Interesting	Foraging	Migration ¹⁰
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 interesting 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 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 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,

¹⁰ 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	Internesting	Foraging	Migration ¹⁰
							Foraging in waters adjacent to James Price Point	including the NT and Queensland.
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 internesting 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 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	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 observed from

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 88 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Mating	Nesting	Internesting	Foraging	Migration ¹⁰
								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	Locations of 80 km internesting buffer BIAs for flatback turtles are described in the Marine Bioregional Plan for the North-west Marine Region (DSEWPAC, 2012a). Year-round and seasonal internesting buffer BIAs of 80 km are located around nesting sites, extending 20 km further than the habitat critical to survival. Habitat critical to survival internesting 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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 89 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Mating	Nesting	Internesting	Foraging	Migration ¹⁰
					Beach) and 80 Mile Beach Lacepede Islands			turtle hatchlings found 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 internesting 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 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 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)

Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Mating	Nesting	Interesting	Foraging	Migration ¹⁰
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: <ul style="list-style-type: none"> the Western Joseph Bonaparte Depression and Gulf Dampier Archipelago (islands to the West of the Burrup Peninsula). 	No migration BIA identified within the NWMR. Migration routes and distances between nesting beaches and foraging areas are not known for Australian olive ridley turtles

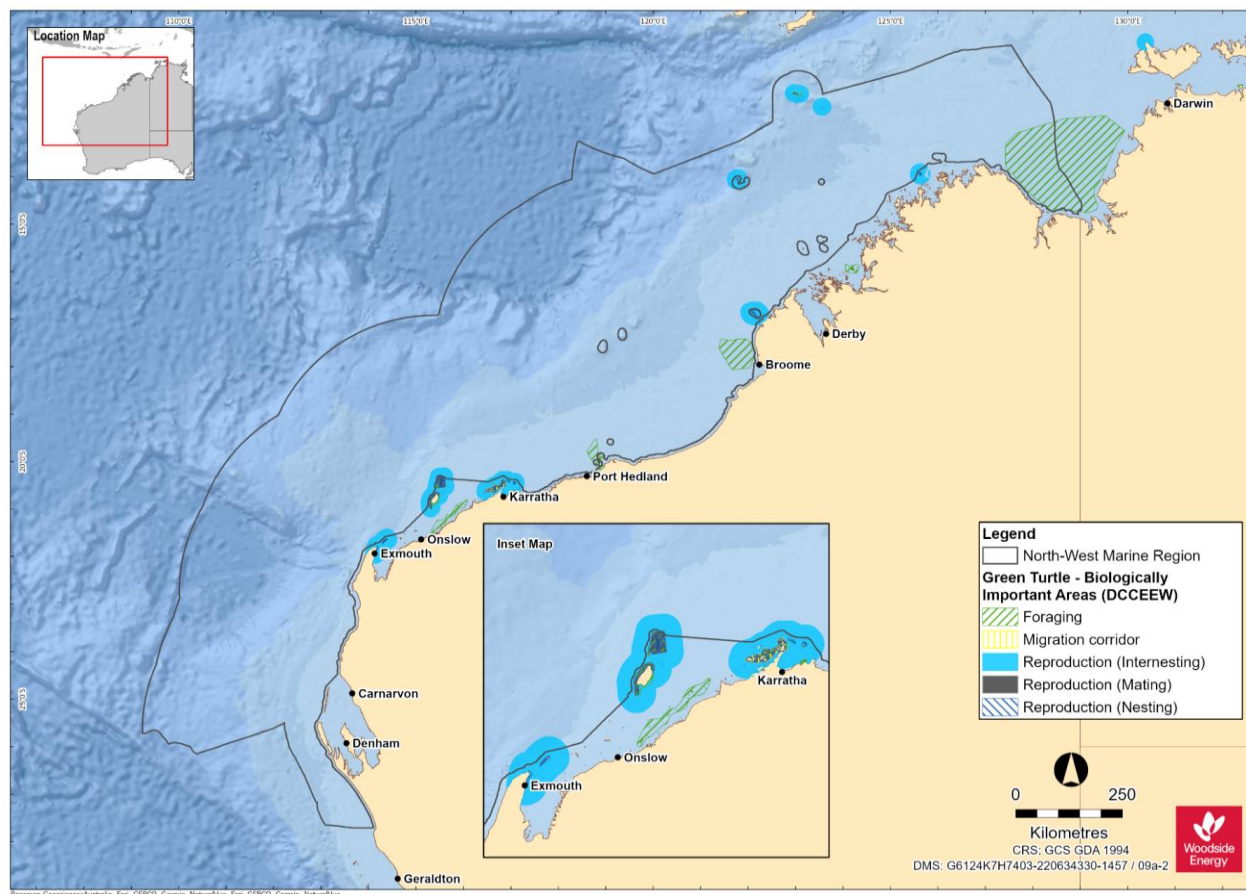


Figure 6-3: Green turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 92 of 381

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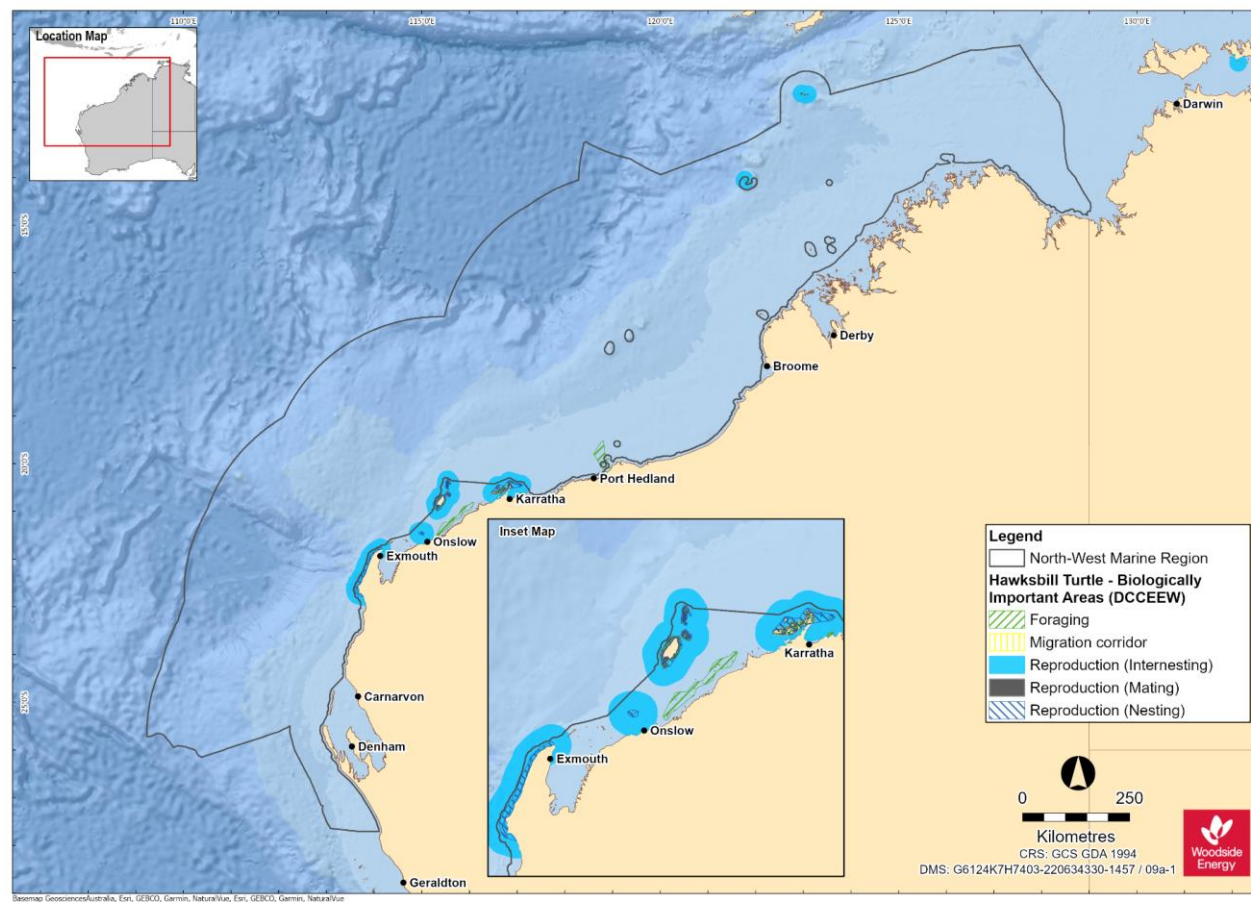


Figure 6-4: Hawksbill turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 93 of 381

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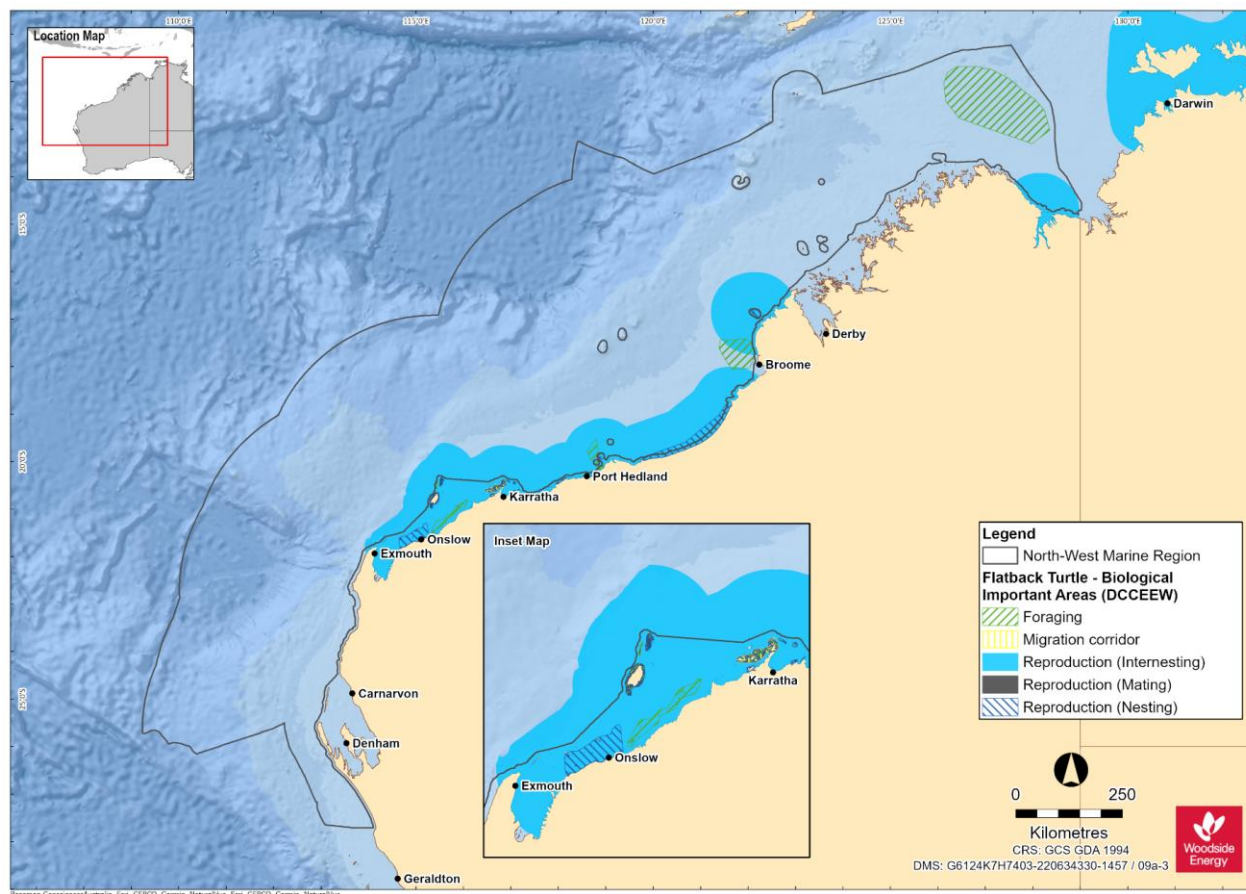


Figure 6-5: Flatback turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 94 of 381

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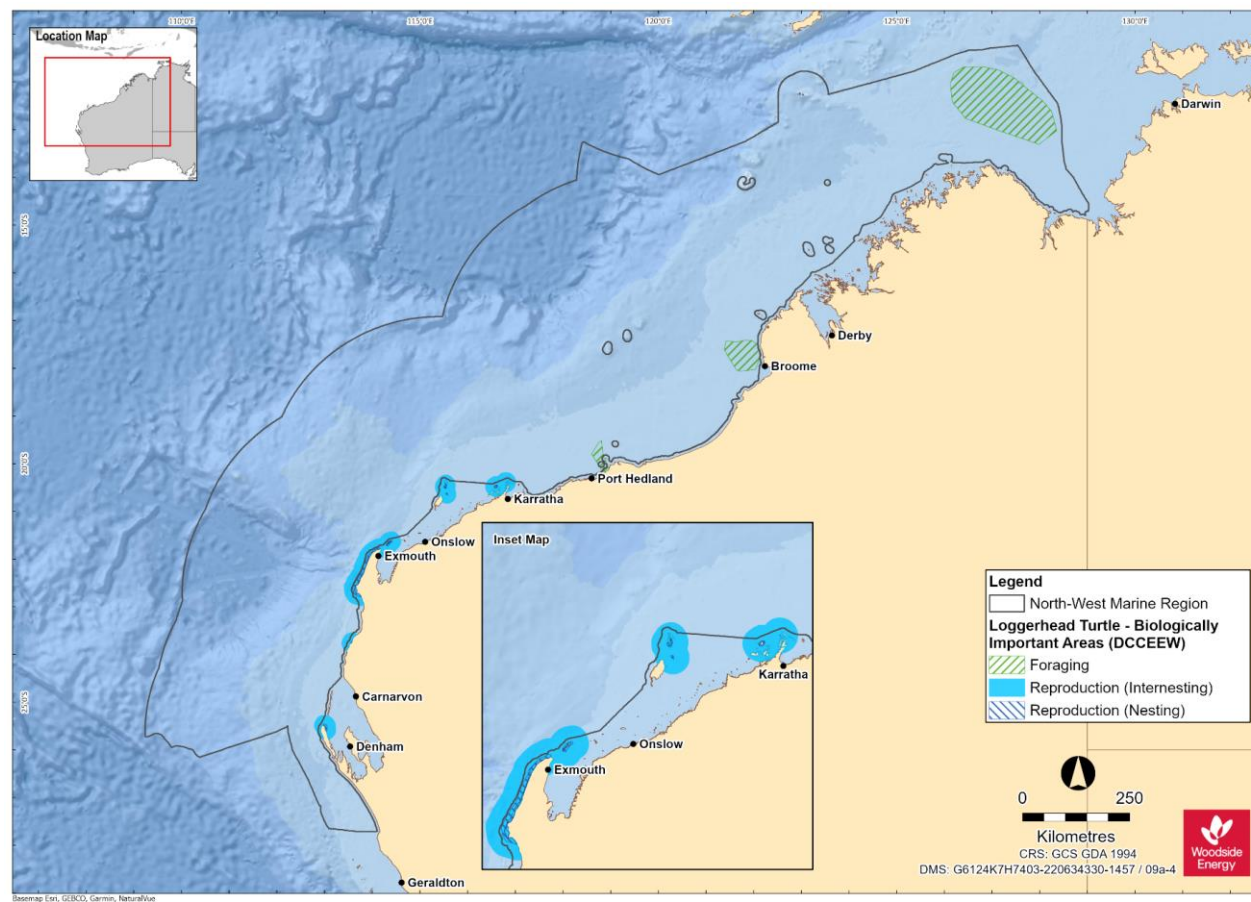


Figure 6-6: Loggerhead turtle BIAs within the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 95 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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)
- 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.

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>
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 3250 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
- 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.

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 et al., 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 to 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> <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>
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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
- the loggerhead turtle, Western Australia genetic stock.

Locations of habitat critical for each of the two species are outlined in Table 6-2, Figure 6-2 and Figure 6-3.

A 2018 survey, including on-beach monitoring of the Muiron Islands and Ningaloo Coast from North-west Cape to Bungleup (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 interesting 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 Gnarlaloo Bay. These areas are designated habitat critical for the stock and include an interesting 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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 100 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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*)
- leaf-scaled sea snake (*Aipysurus foliosquama*).

The short-nosed sea snake, the leaf-scaled sea snake, and the dusky sea snake are listed threatened species (Critically Endangered or Endangered) under the EPBC Act (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 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).
Dusky sea snake	Preferred habitat: The dusky sea snake is a reef specialist that is only known to occur on complex hard coral reefs and shoals – both emergent and subsurface. Has only been recorded at depths of 0–20 m however may occur in deeper areas with less survey effort (DCCEEW, 2024o). Diet: Stomach content analyses have identified benthic gobies, wrasses and occasionally fish eggs (DCCEEW, 2024o).	The dusky sea snake has been recorded sparsely and patchily from reefs and shoals at the outer margin and mid-shelf of the Australian continental shelf, specifically at the Scott Reef complex (Scott Reef, North Scott Reef and Sandy Islet) and nearby Seringapatam Reef, Heywood Shoal, and at Ashmore Reef, Cartier Island and Hibernia Reef. The dusky sea snake has not been detected at Ashmore Reef, Cartier Island or Hibernia Reef since the early 2000s. The species may occur undetected at mid-shelf shoals which comprise the shallowest of sea mounts and banks that occur along a north-easterly crescent from south of Heywood Shoal, past Cartier Island, to Ashmore Reef (DCCEEW, 2024o).

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.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 102 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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	APPENDIX P <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			<i>Biodiversity Conservation Act 2016 (WA)</i> ¹¹	IUCN Red List of Threatened Species (non-statutory) ¹²	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)

¹¹ Threatened and Priority Fauna List – April 2024 - <https://www.dbca.wa.gov.au/management/threatened-species-and-communities> (accessed on 13/08/2024)

¹² 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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Species Name	Common Name	APPENDIX P <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹¹	IUCN Red List of Threatened Species (non-statutory) ¹²	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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	Migratory	Cetacean	N/A	Data Deficient	N/A

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 105 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX P <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			<i>Biodiversity Conservation Act 2016</i> (WA) ¹¹	IUCN Red List of Threatened Species (non-statutory) ¹²	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
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
<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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 106 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX P <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			<i>Biodiversity Conservation Act 2016 (WA)</i> ¹¹	IUCN Red List of Threatened Species (non-statutory) ¹²	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
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 (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

APPENDIX Q The Australian sea lion is listed as a species that may occur or may have habitat within the NWMR (Protected Matters search – 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
<i>Baleen whales (Mysticeti) – Low Frequency hearing</i>	
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 2000 to 3000 individuals in 1991 to between 19,200–33,850 individuals in 2008 (Bannister and Hedley, 2001; Beijder 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., 2017) 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>

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Species	Key Information
	<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; 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 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</p>

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Species	Key Information
	<p>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 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 6000 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>

Species	Key Information
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; 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 two to three 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 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 NM 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>

Species	Key Information
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 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).</p> <p>There are no identified BIAs for this species in the NWMR.</p>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 112 of 381

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Species	Key Information
Omura's whale	<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> <p>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.</p> <p>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> <p>Currently little is known about the ecology and life history 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>

Species	Key Information
Toothed whales (Odontoceti) – High Frequency hearing	
Sperm whale	<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. Twenty-three 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 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.</p> <p>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>

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Species	Key Information
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. sahulensis</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. sahulensis</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 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 DCCCEW, 2023a).</p> <p>Aerial transect surveys conducted in the Kimberley region show the abundance for humpback dolphins was estimated to be 1546 in 2016 and 2690 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> <p>It is also noted that findings reported by Brown et al., (2014) indicated there was evidence of hybridisation of the Australian snubfin and humpback dolphin populations in north-western Australia.</p>

Species	Key Information
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 3713 in 2015, 2638 in 2016 and 1635 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 found that during winter months, presence in coastal lagoons west of the North-west Cape 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 7-8 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 (Bayliss and Hutton, 2017). 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 Ningaloo and Shark Bay areas (Cleguer and Marsh, 2023).</p> <p>Refer Table 7-3 and Figure 7-9 for the location and type of BIAs for dugong in the NWMR.</p>

Species	Key Information
<i>Pinnipeds</i>	
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; Watson et al., 2021 cited in DCCEEW, 2024a). Reproductive areas have been identified as HCTS for the species, because:

- 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
- 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).

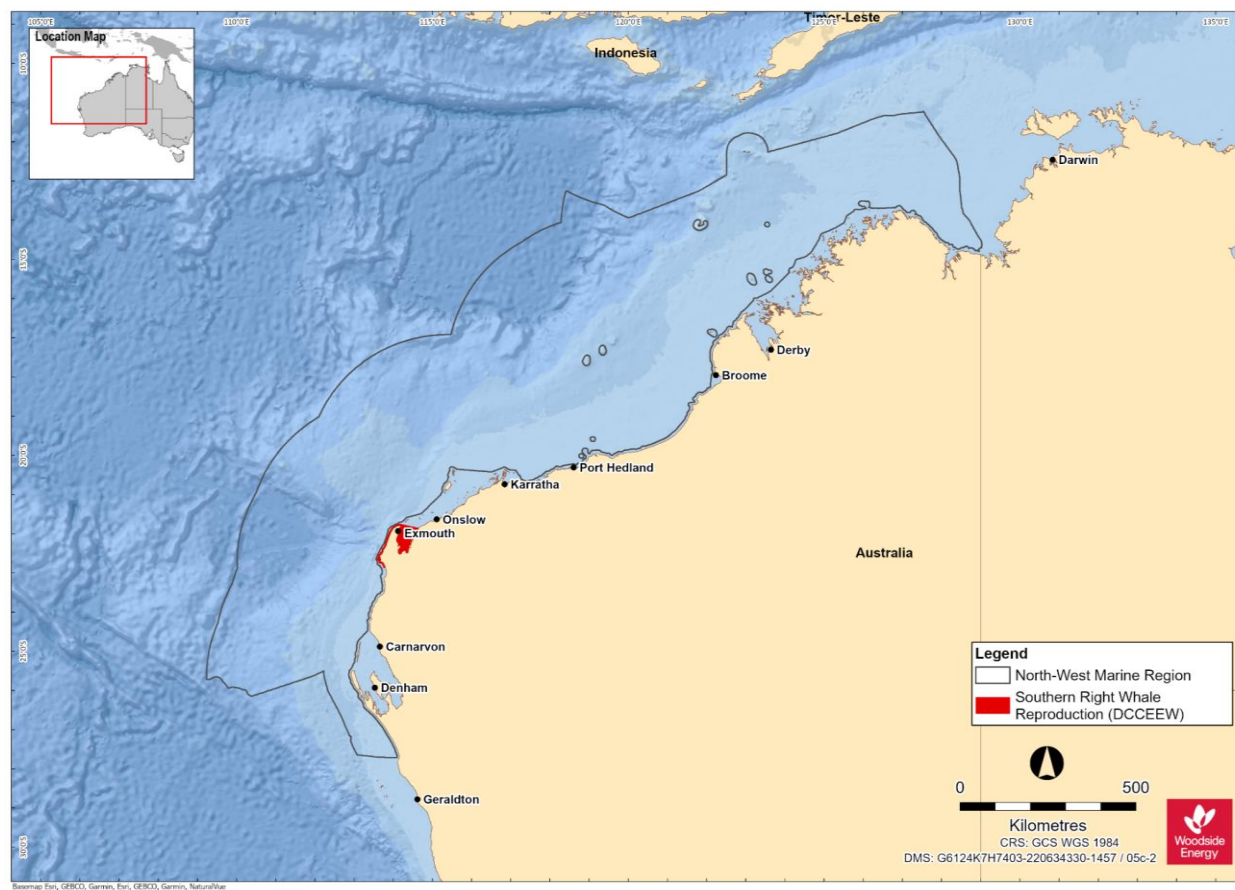


Figure 7-1: Habitat critical to the survival for the southern right whale in the NWMR (DCCEEW, 2024a)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 119 of 381

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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 ¹³	Reproduction		Migration
						Breeding	Calving	
Humpback whale ¹¹	✓	✓	✓	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 ^{14 15}	✓	✓	✓	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 ¹⁶	-	-	✓	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.

¹³ 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.

¹⁴ DSEWPAC (2012a).

¹⁵ Commonwealth of Australia (2015a).

¹⁶ Revised BIAs (October 2023) - <https://www.dcceew.gov.au/environment/marine/bias>.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 121 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Resting	Foraging ¹³	Reproduction		Migration
						Breeding	Calving	
Australian snubfin dolphin ¹¹	✓	✓	-	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.

Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Resting	Foraging ¹³	Reproduction		Migration
						Breeding	Calving	
Indo-Pacific humpback dolphin	✓	✓	-	No resting BIA identified within the NWMR	Roebuck Bay Willie Creek Prince Regent River King Sound (north) Yampi Sound Talbot Bay Walcott Inlet Doubtful Bay Deception Bay Augustus Island Maret Islands Bigge Island King Sound, southern sector Vansittart Bay, Anjo Peninsula	Roebuck Bay Willie Creek Prince Regent River King Sound (north) Yampi Sound Talbot Bay Walcott Inlet Doubtful Bay Deception Bay Augustus Island	Roebuck Bay Willie Creek Prince Regent River	No migration BIA identified within the NWMR.
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 ¹¹	✓	✓	✓	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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Revision: 2

Woodside ID: 1401743486

Page 123 of 381

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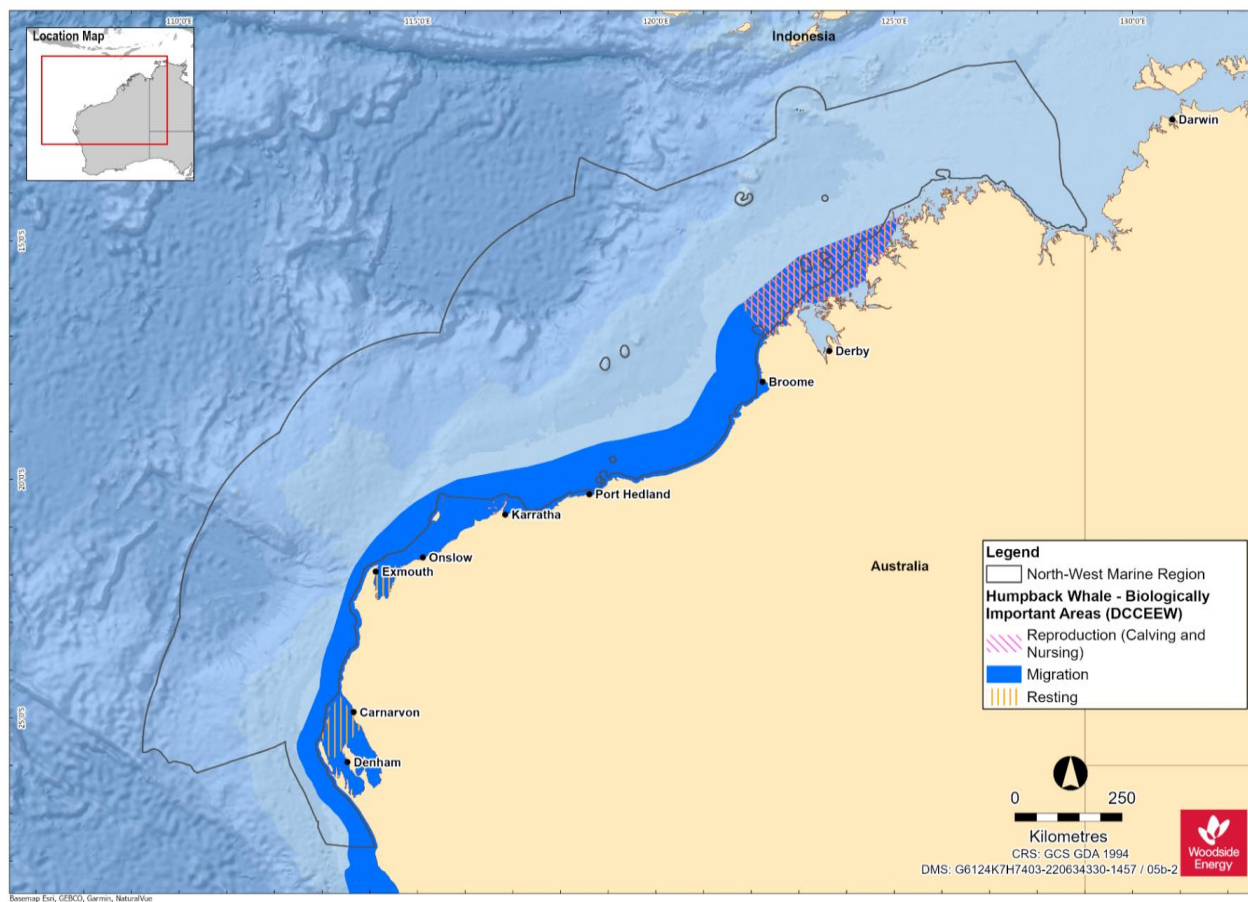


Figure 7-2: Humpback whale BIAs for the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 124 of 381

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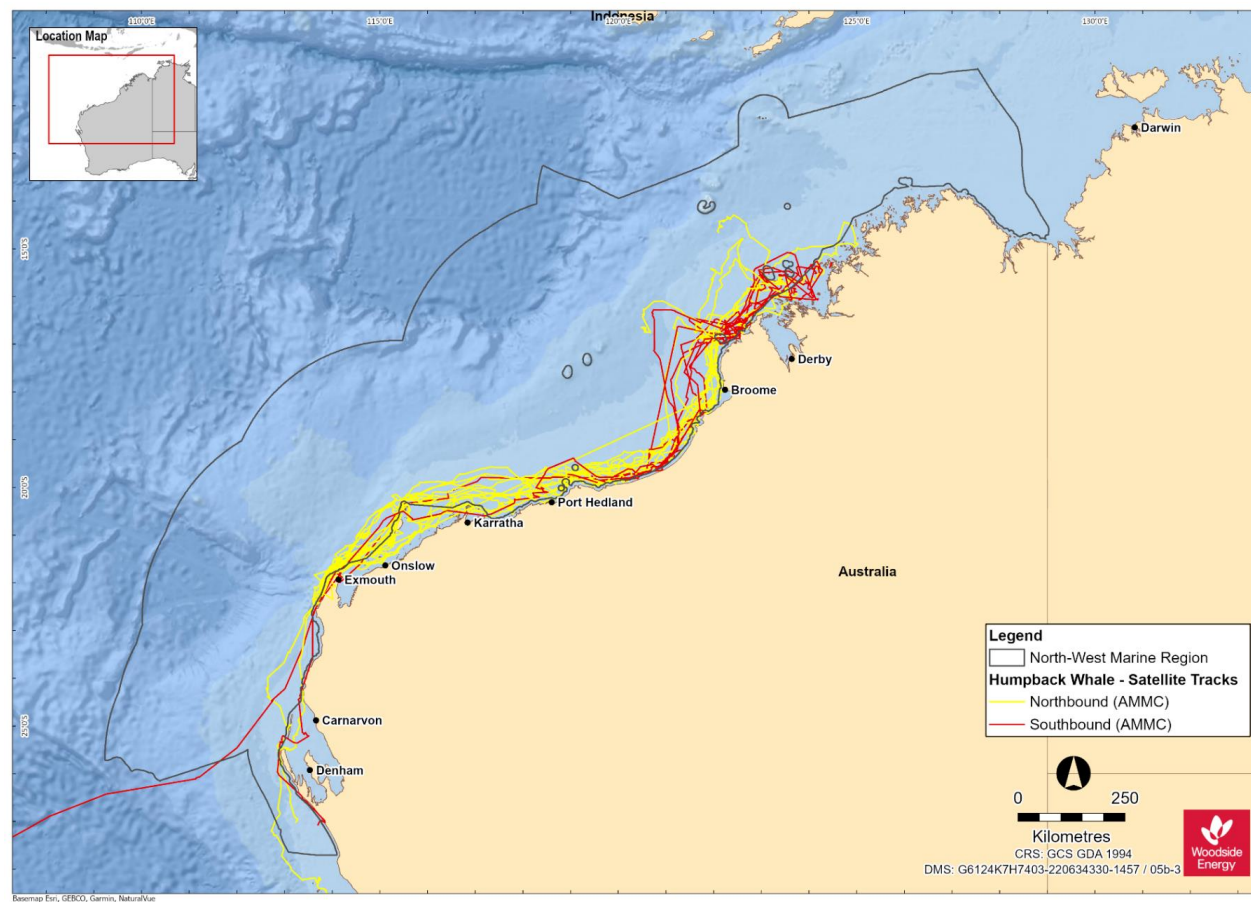


Figure 7-3: Humpback whale tagged tracks for north and south bound migrations (AMMC as published in Double et al. 2010 and 2012)

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Revision: 2

Woodside ID: 1401743486

Page 125 of 381

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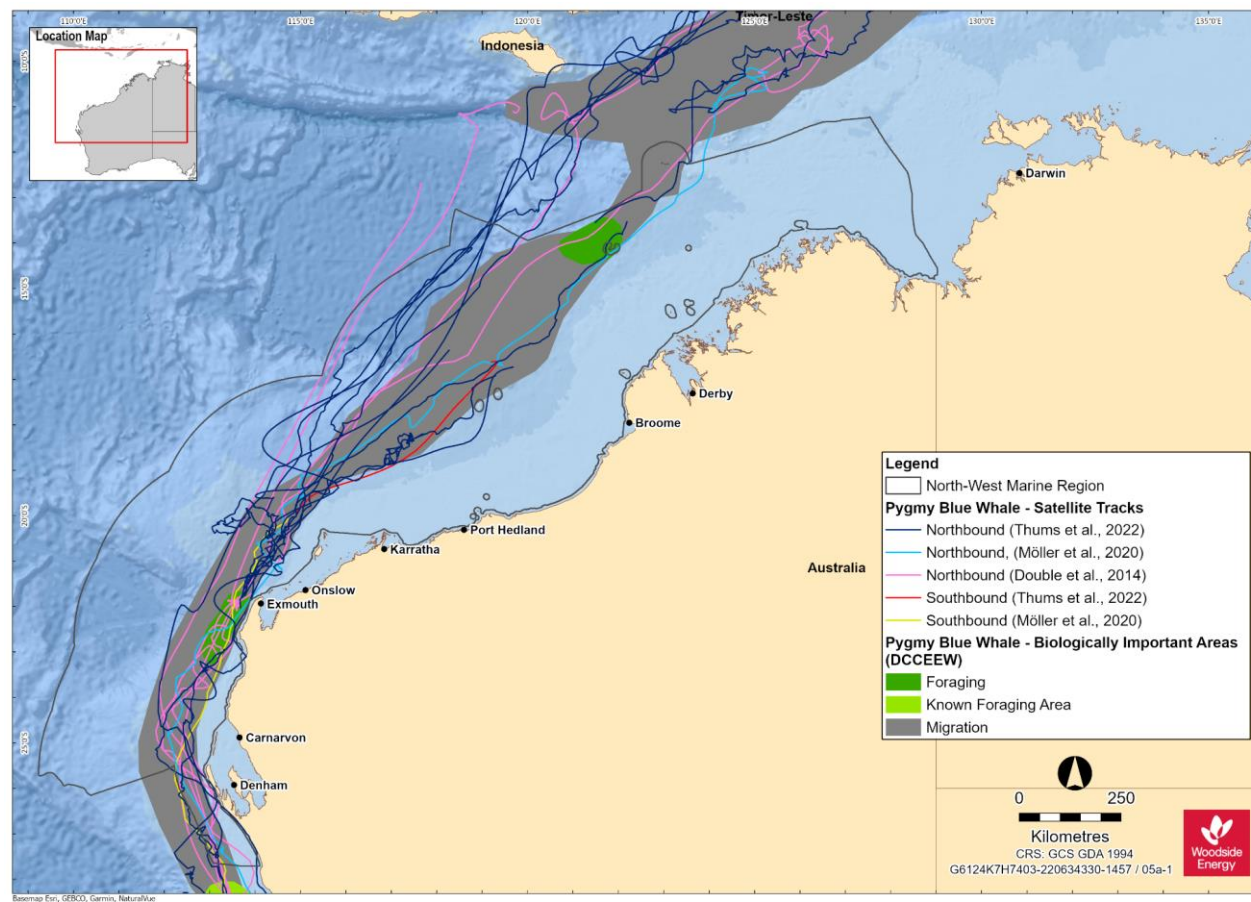


Figure 7-4: Pygmy blue whale BIAs for the NWMR and tagged whale tracks for northbound migration (data source for BIAs: DCCEEW, 2024b)

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Revision: 2

Woodside ID: 1401743486

Page 126 of 381

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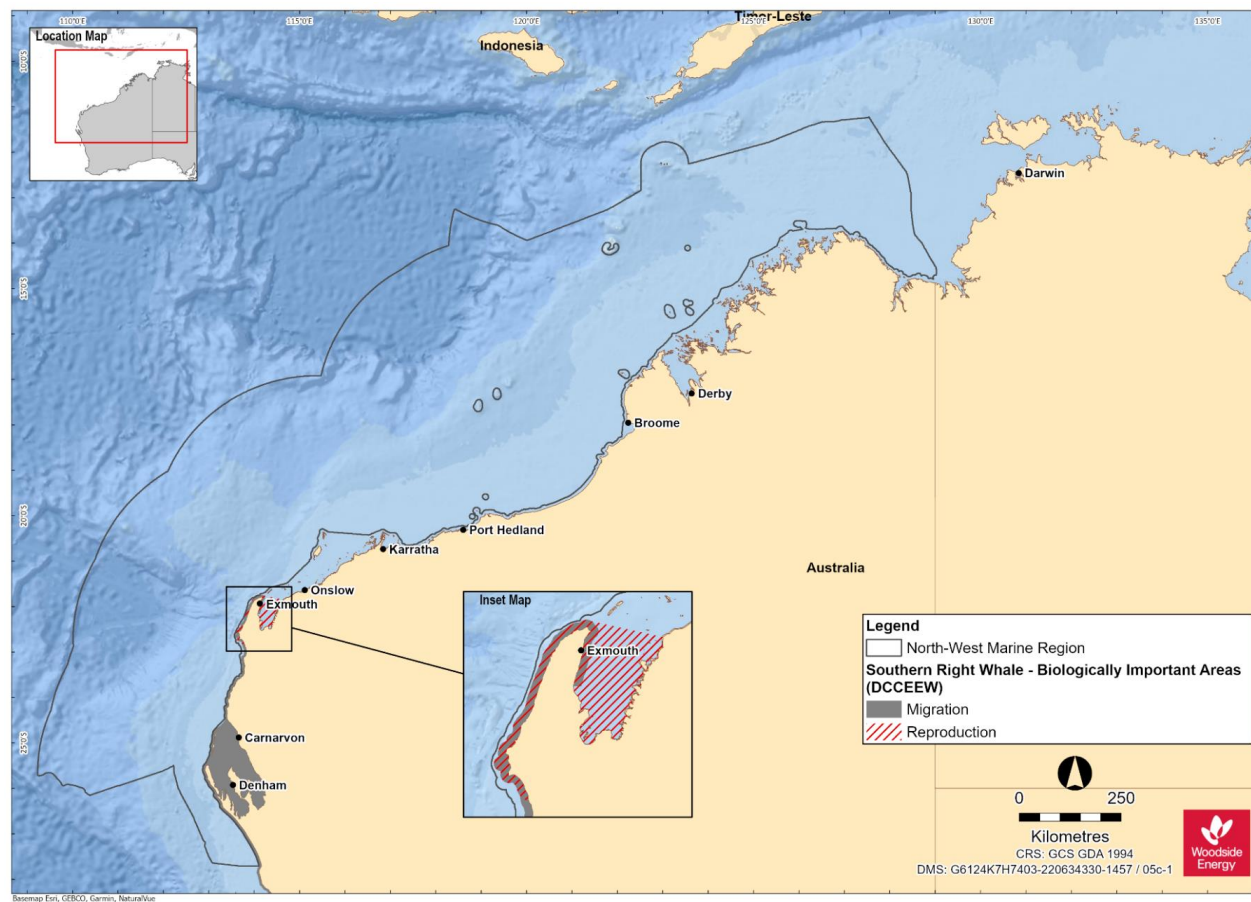


Figure 7-5: Southern right whale BIAs for the NWMR; migration and reproduction BIAs along the coast extend to 3 NM (data source: DCCEW, 2024b)

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Revision: 2

Woodside ID: 1401743486

Page 127 of 381

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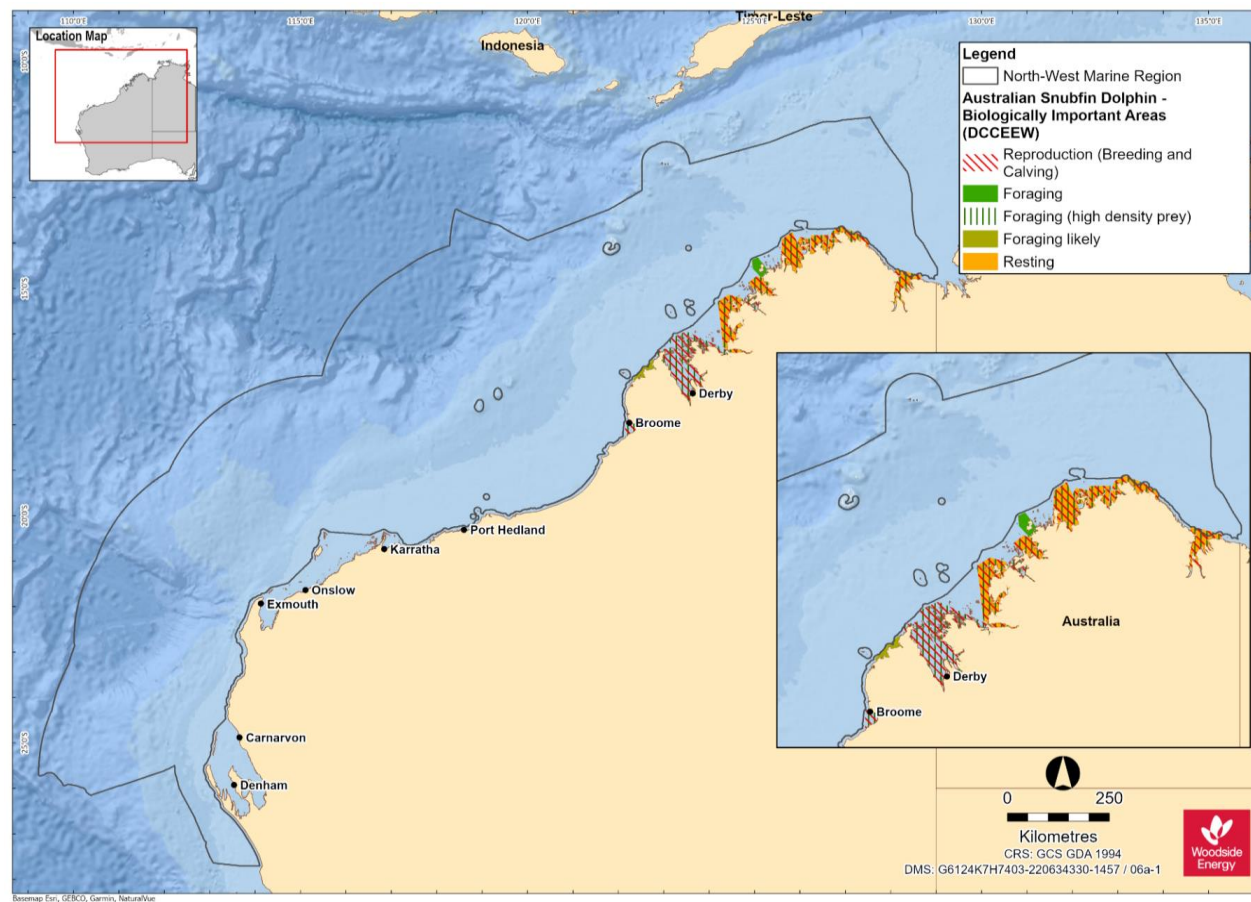


Figure 7-6: Australian snubfin dolphin BIAs for the NWMR (data source: DCCEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 128 of 381

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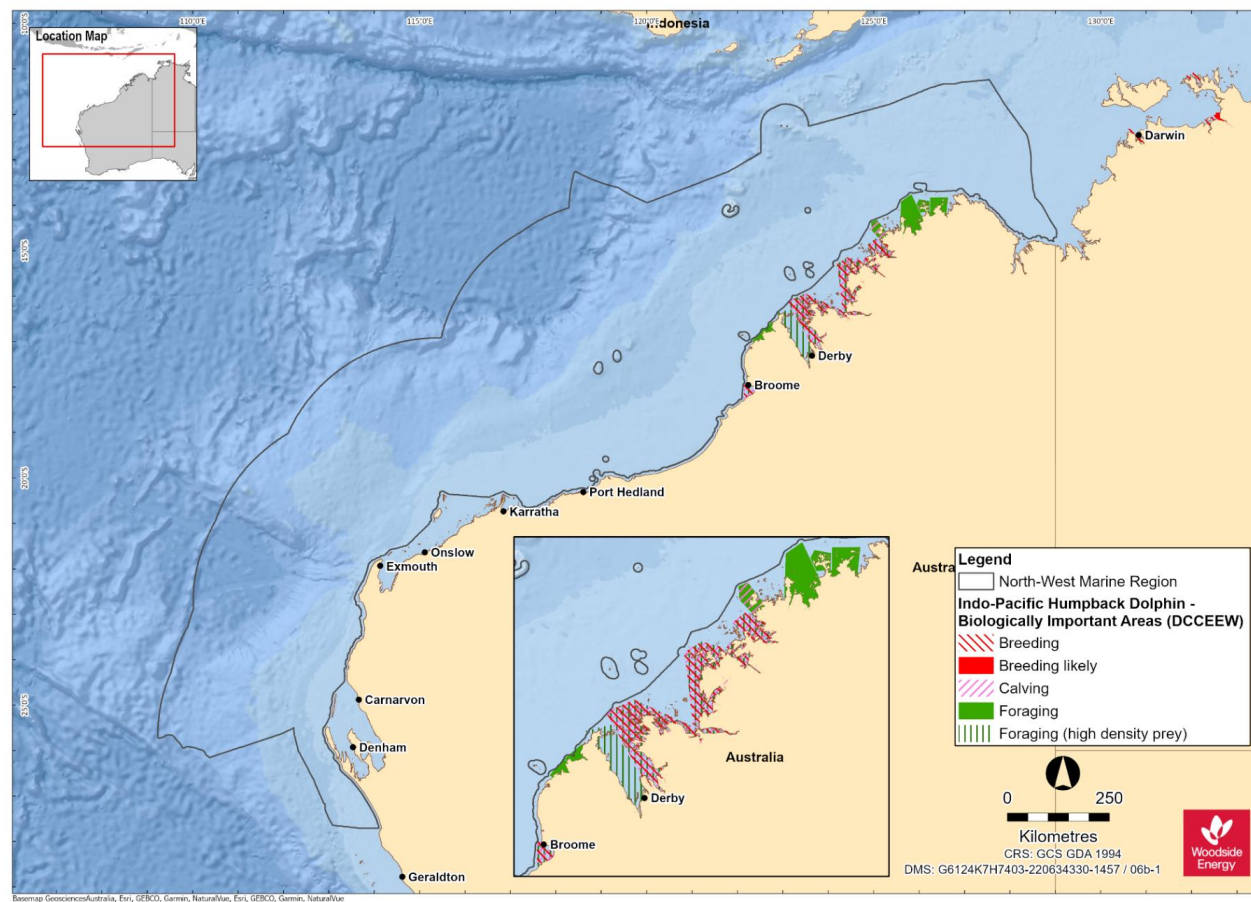


Figure 7-7: Indo-Pacific humpback dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 129 of 381

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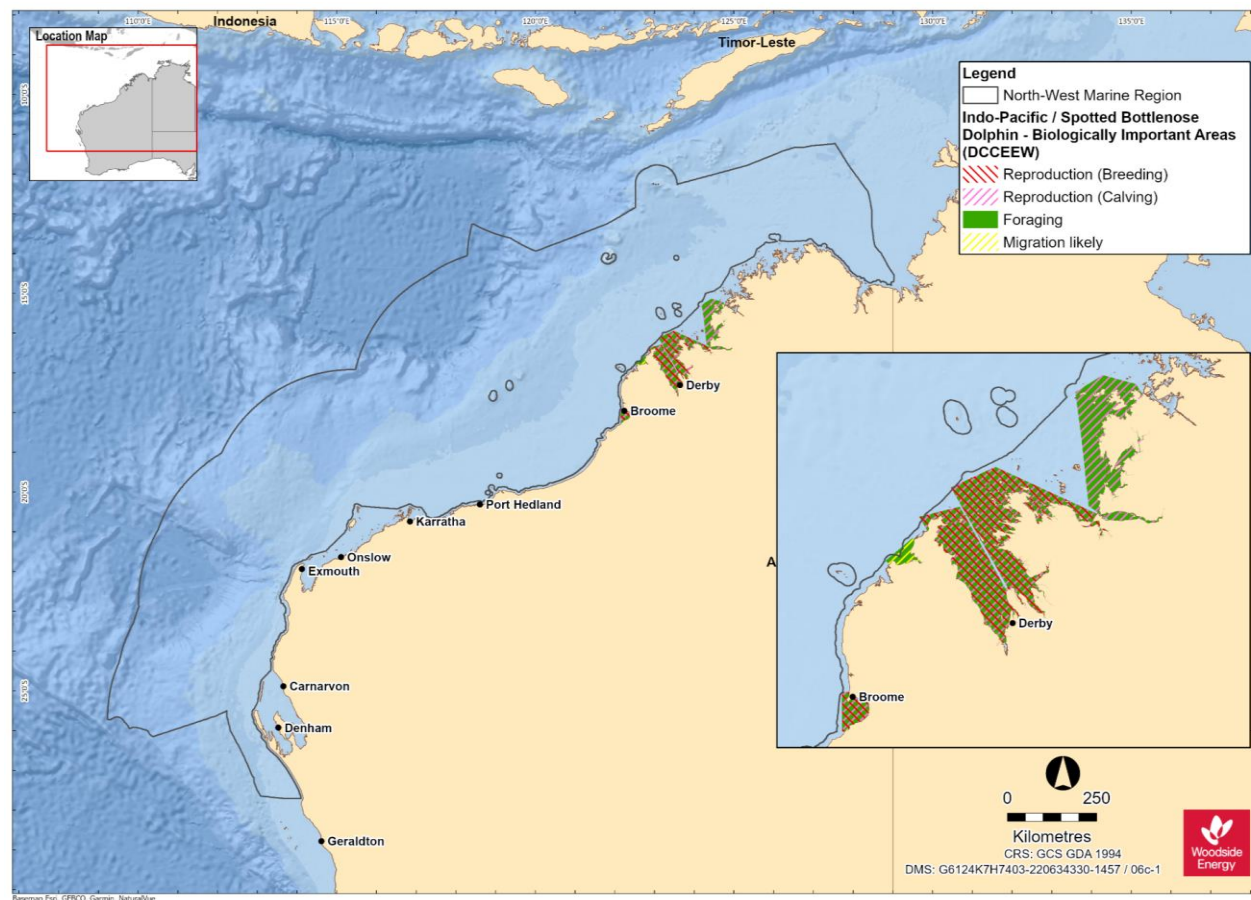


Figure 7-8: Indo-Pacific spotted bottlenose dolphin BIAs for the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 130 of 381

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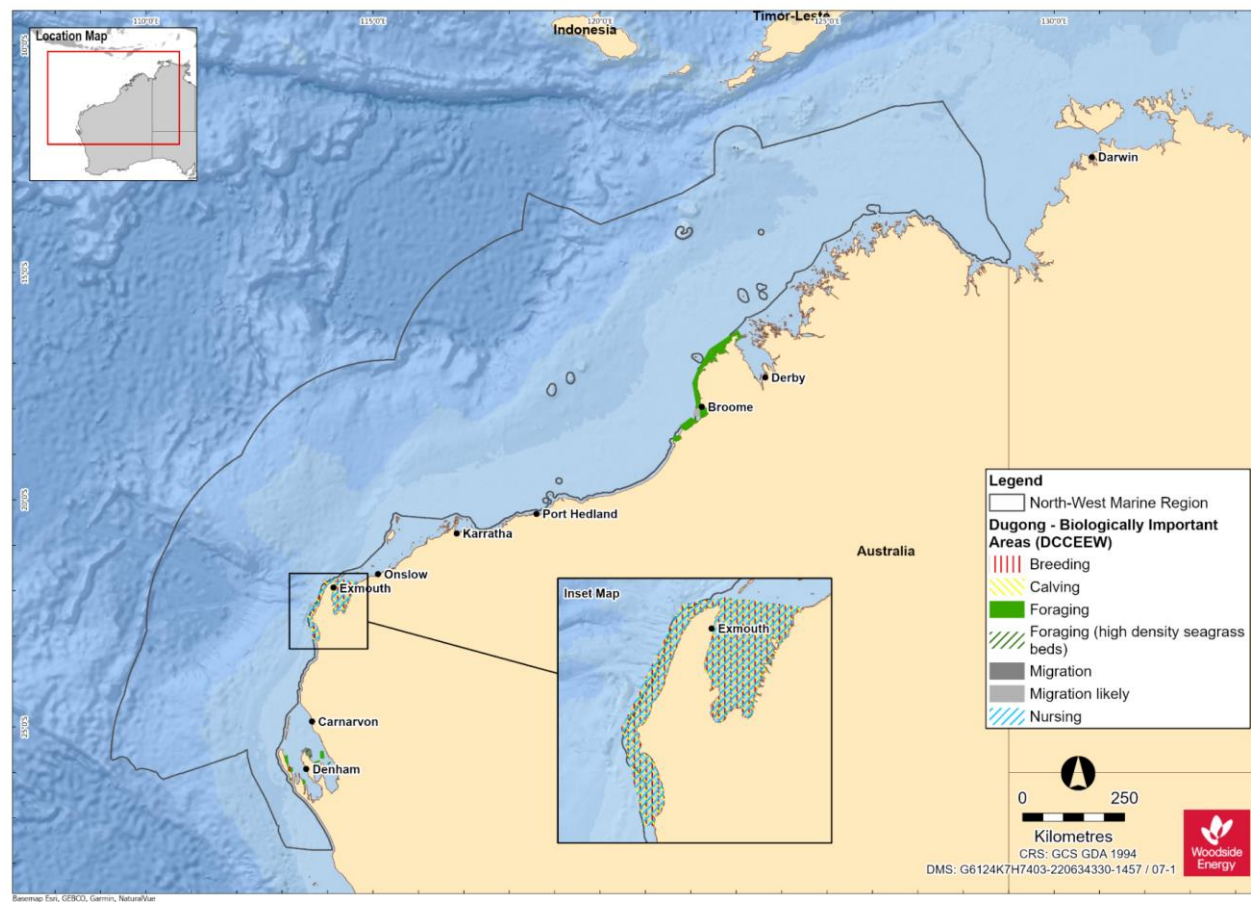


Figure 7-9: Dugong BIAs for the NWMR (data source: DCCEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 131 of 381

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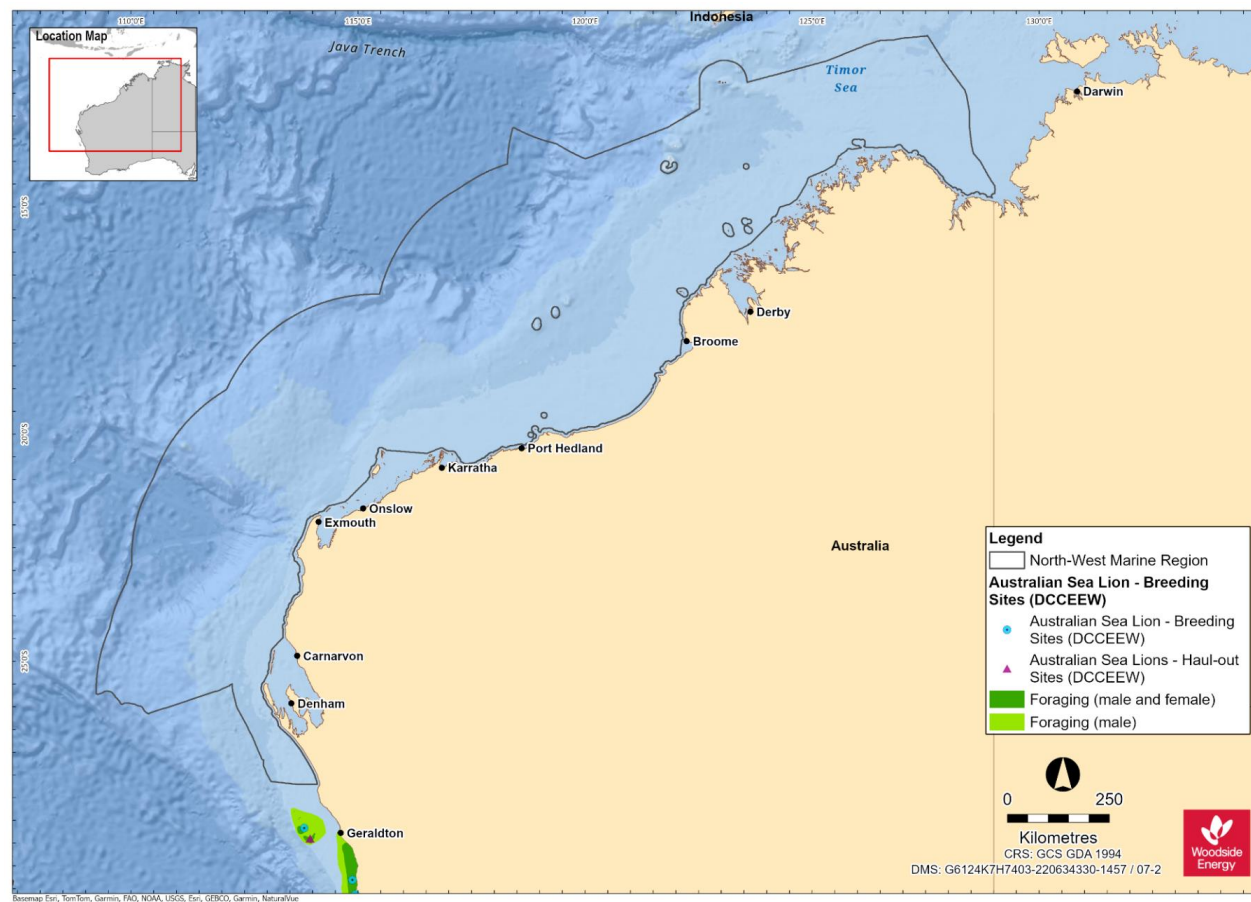


Figure 7-10: Australian sea lion BIAs in the northern extent of the SWMR closest to the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 132 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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)
- 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)
- 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)
- 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 Australia¹⁷), 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.

¹⁷ [https://www.birdlife.org.au/projects/KBA#:~:text=The%20Key%20Biodiversity%20Areas%20\(KBAs,of%20advocacy%20for%20protected%20areas.](https://www.birdlife.org.au/projects/KBA#:~:text=The%20Key%20Biodiversity%20Areas%20(KBAs,of%20advocacy%20for%20protected%20areas.) [Accessed April, 2021]

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	APPENDIX R Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁸	IUCN Red List of Threatened Species (non-statutory) ¹⁹	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)

¹⁸ Threatened and Priority Fauna List – April 2024 - <https://www.dbca.wa.gov.au/management/threatened-species-and-communities> (accessed on 13/08/2024)

¹⁹ 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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		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 136 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX R Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁸	IUCN Red List of Threatened Species (non-statutory) ¹⁹	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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	
<i>Ardenna carneipes</i>	Flesh-footed shearwater	N/A	Migratory	Marine	Vulnerable	Near Threatened	
<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	EPBC Act Threat Abatement Plan for predation by feral cats (DoE, 2015c)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 137 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX R Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁸	IUCN Red List of Threatened Species (non-statutory) ¹⁹	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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>Onychoprion 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	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 138 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX R Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁸	IUCN Red List of Threatened Species (non-statutory) ¹⁹	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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	
<i>Phaethon lepturus</i>	White-tailed tropicbird	N/A	Migratory	Marine	Migratory	Least Concern	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 139 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX R Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁸	IUCN Red List of Threatened Species (non-statutory) ¹⁹	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
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, 2023e)
<i>Calidris ferruginea</i>	Curlew sandpiper	Critically Endangered	Migratory	Marine	Critically Endangered	Near Threatened	Conservation Advice <i>Calidris ferruginea</i> Curlew sandpiper (DCCEEW, 2023f)
<i>Limosa lapponica menzbieri</i>	Bar-tailed godwit (menzbieri)	Endangered	Migratory	Marine	Critically Endangered	Near Threatened	Conservation Advice <i>Limosa lapponica menzbieri</i> Bar-tailed godwit (northern Siberia) (DCCEEW, 2024e)

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		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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, 2023g)
<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)

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		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 143 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX R Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁸	IUCN Red List of Threatened Species (non-statutory) ¹⁹	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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	
<i>Calidris pugnax</i>	Ruff	N/A	Migratory	Marine	Migratory	Least Concern	
<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	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 144 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX R Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁸	IUCN Red List of Threatened Species (non-statutory) ¹⁹	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
<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	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 145 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Species Name	Common Name	APPENDIX R Environment Protection and Biodiversity Conservation Act 1999 (Cth) (as per PMST report in PROTECTED MATTER SEARCH REPORTS FOR NWMR, SWMR AND NMR)			Biodiversity Conservation Act 2016 (WA) ¹⁸	IUCN Red List of Threatened Species (non-statutory) ¹⁹	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	Global Status	
All 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 (DCCEEW, 2023)
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

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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).

8.2.1 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).

8.2.1.1 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 one million pairs breed in Australia, most of which do so on islands in Western Australia between Rottnest 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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 147 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 (1200–1400 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 and 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 and Congdon, 2005; Weimerskirch et al., 2020). While the presence of squid and lanternfish in their diet (Surman and 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 4500 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 6000 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 NWS 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.

8.2.1.2 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 and 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 and Wooller, 1995). The incubation period averaged 34 days and the fledging period 40 days. (Surman and 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 two and four 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.

8.2.1.3 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 (5000 pairs at Middle Island and 3000 pairs at East Island in 2007, Swann, 2005a; Swann, 2005b; Swann, 2005c; Milton, 2005; Clarke, 2010), Bedout Island (1000 pairs) and Adele Island (7500 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 and 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).

8.2.1.4 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 and Herrod, 2016) and Adele Island (14 pairs,

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 149 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Botle et al., 2004). At Ashmore Reef they have been recorded breeding year-round (Clarke and 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 (Wiemerskirch 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 and 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).

8.2.1.5 Masked Booby (Pelagic Seabird)

The masked booby (*Sula dactylatra*) is listed as 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 and 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 and 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 and 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 Lacapade 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.

8.2.1.6 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 and Herrod, 2016). Breeding at Ashmore Reef has been recorded as occurring between April and November (Clark and 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.

8.2.1.7 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 Lacapède 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.

8.2.1.8 Frigate Birds (Pelagic Seabirds)

The lesser (*Fregata ariel*) and great frigatebirds (*Fregata minor*) are both listed migratory under the EPBC 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 and Herrod, 2016). In addition to the Ashmore Reef and Adele Island, the lesser frigatebird also nests at Cartier Island, the Lacapède 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 and 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).

8.2.1.9 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 6000 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 and up to three nesting pairs; Clark, 2010; Burbidge et al., 1996, respectively). Breeding can occur year-round (Clarke and Herrod, 2016).

Pennycuik 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 south-east 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 and Higgins, 1990).

There are breeding BIAs associated with nesting occurring at the Rowley Shoals and Ashmore Reef within the NWMR (Figure 8-5).

8.2.1.10 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 (1400–2000 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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 152 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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.

8.2.1.11 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 2500 km 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.

8.2.1.12 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.

8.2.1.13 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 and Nicholson, 2009). Large colonies breed within the Lowendal Island and Montebello Island region where there is a stronghold for this species (Higgins and Davies, 1996). A large breeding colony has also been recorded on Goodwyn Island on the Dampier Archipelago (Higgins and 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 and 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 and 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).

8.2.1.14 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 and 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.

8.2.1.15 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 and 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 and 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.

8.2.2 Moderate-occurrence Key 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	NWMR 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–Jun	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: Jun–Dec	Diurnal and nocturnal Dipping, surface-seizing	Crustaceans, fish
Common tern	Non-breeding: Aug–Mar	Diurnal Surface-plunging, dipping	Fish

8.2.3 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 nearest BIA to the NWMR	Dampier Archipelago, Montebello, Lowendal and Barrow Island Groups, south Ningaloo and barrier island of Shark Bay	Eighty Mile Beach
White-tailed tropicbird	✓	✓	-	-	-	Rowley Shoals Ashmore Reef	-

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 156 of 381

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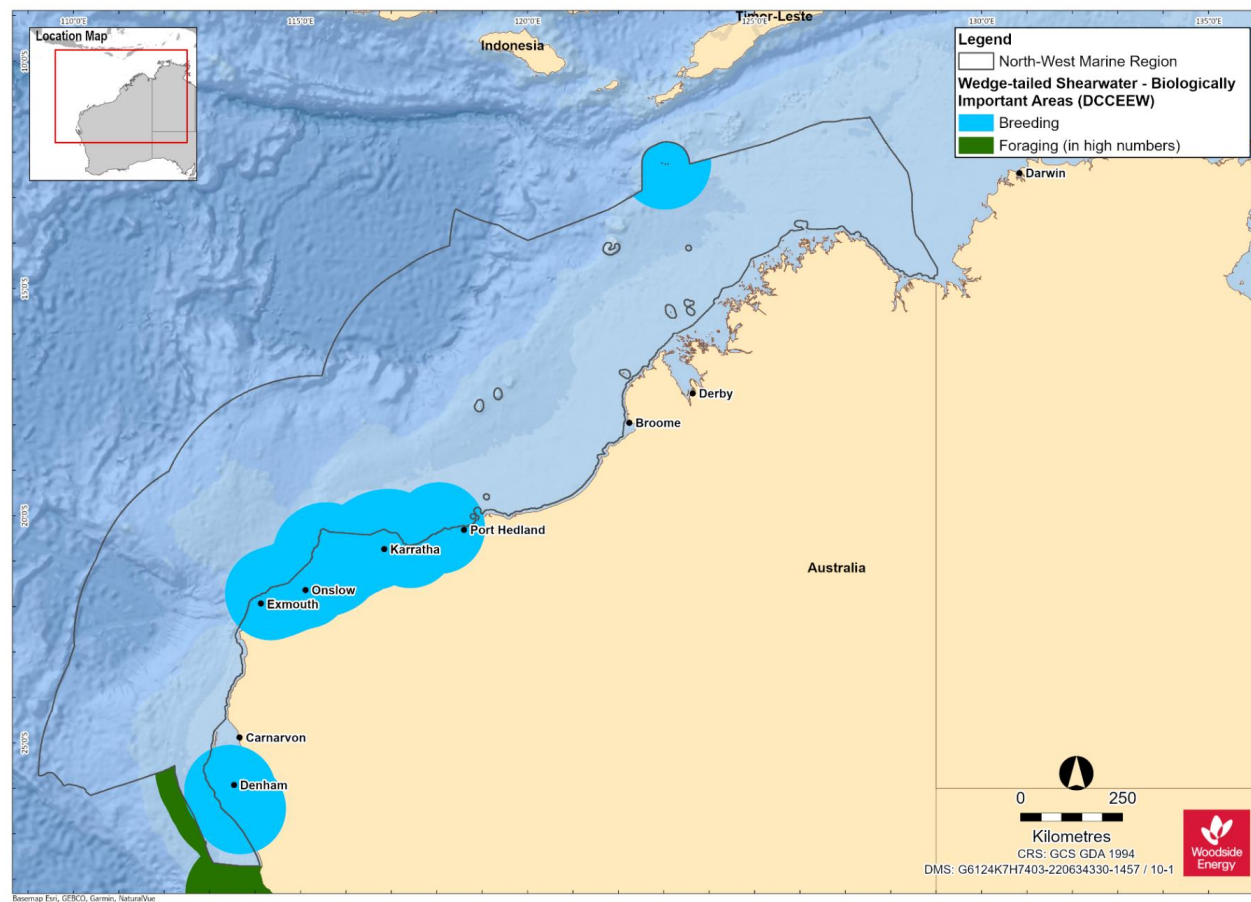


Figure 8-1: Wedge-tailed shearwater BIAs for the NWMR (data source: DCCEEW, 2024b)

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Revision: 2

Woodside ID: 1401743486

Page 157 of 381

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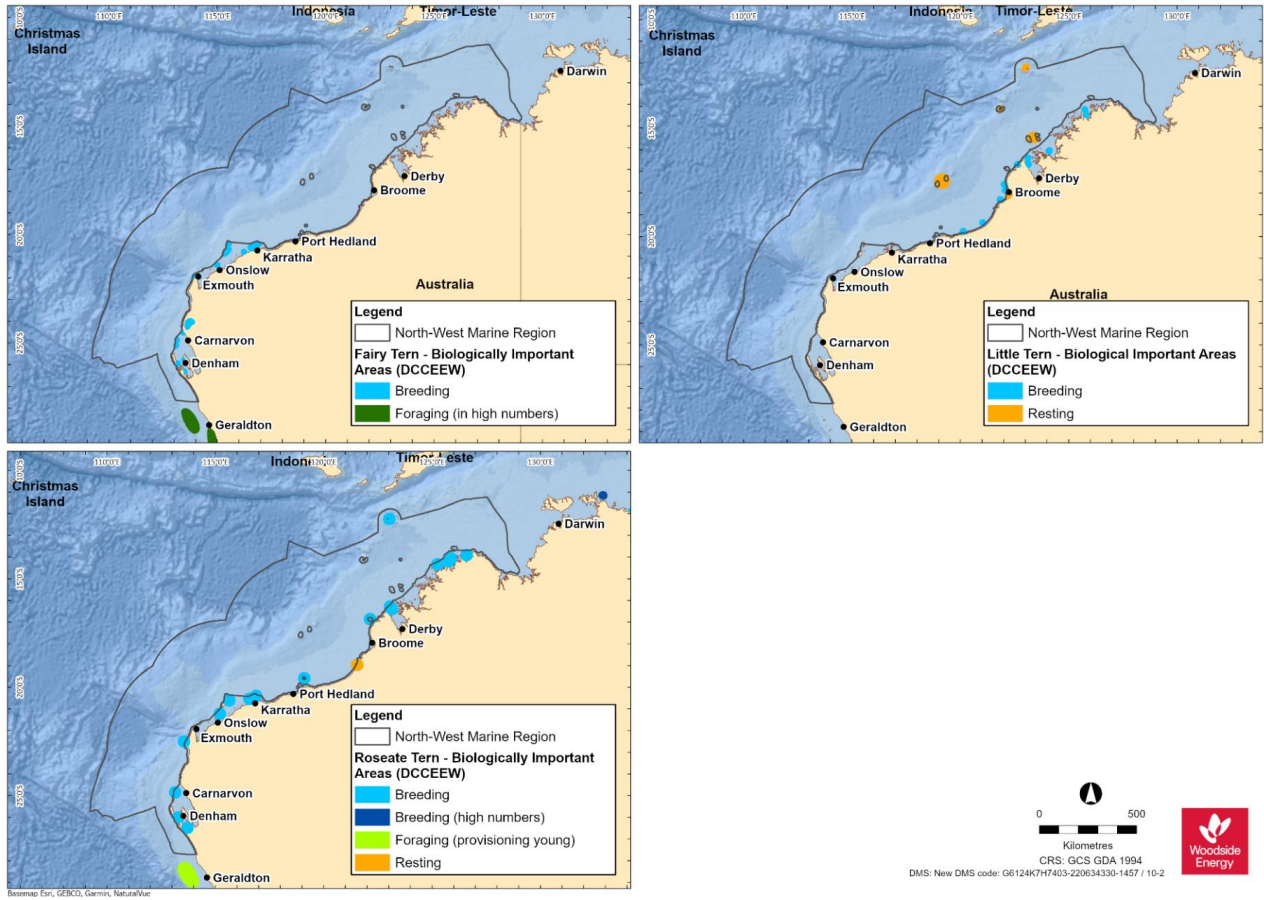


Figure 8-2: Tern species BIAs for the NWMR (data source: DCCEEW, 2024b)

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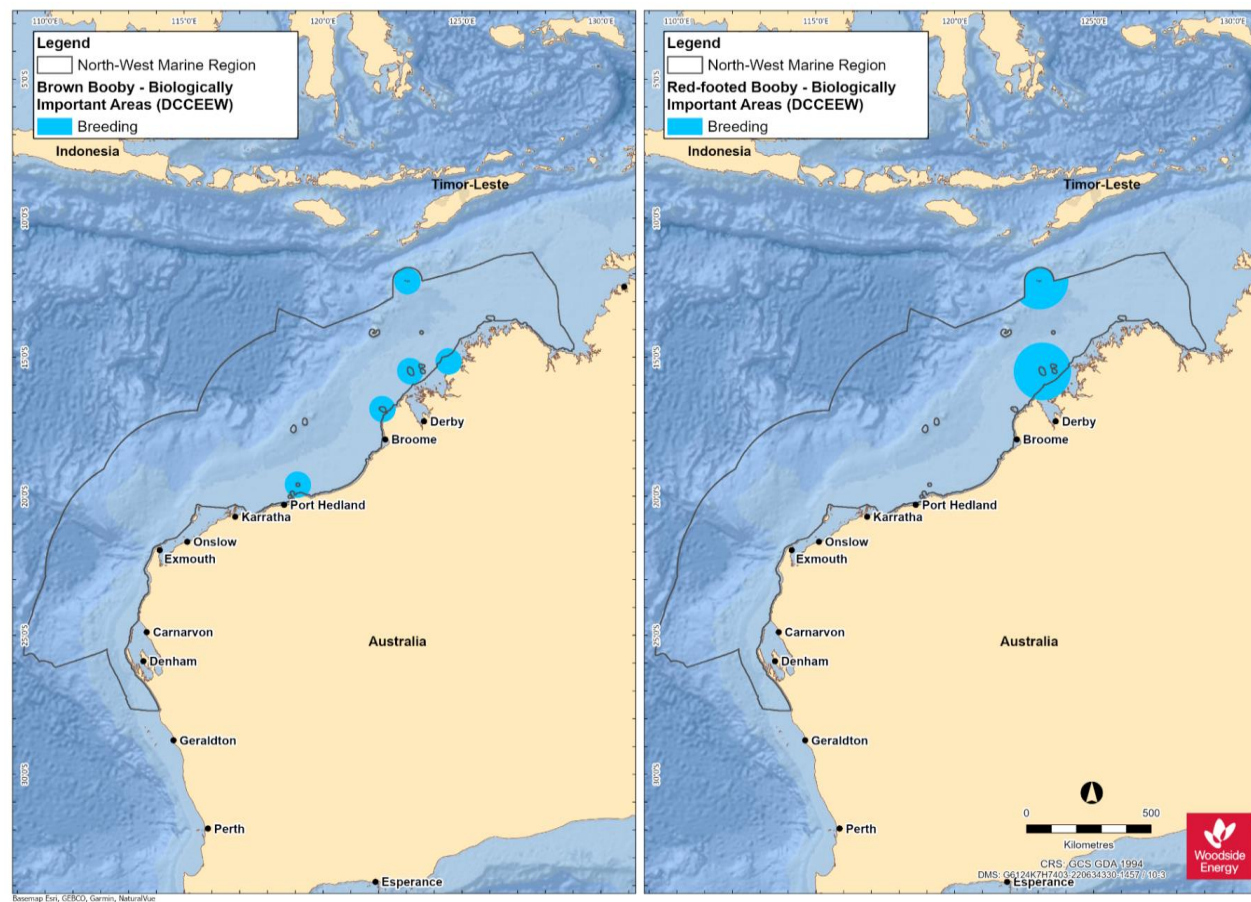


Figure 8-3: Red-footed and brown booby BIAs for the NWMR (data source: DCCEEW, 2024b)

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Revision: 2

Woodside ID: 1401743486

Page 159 of 381

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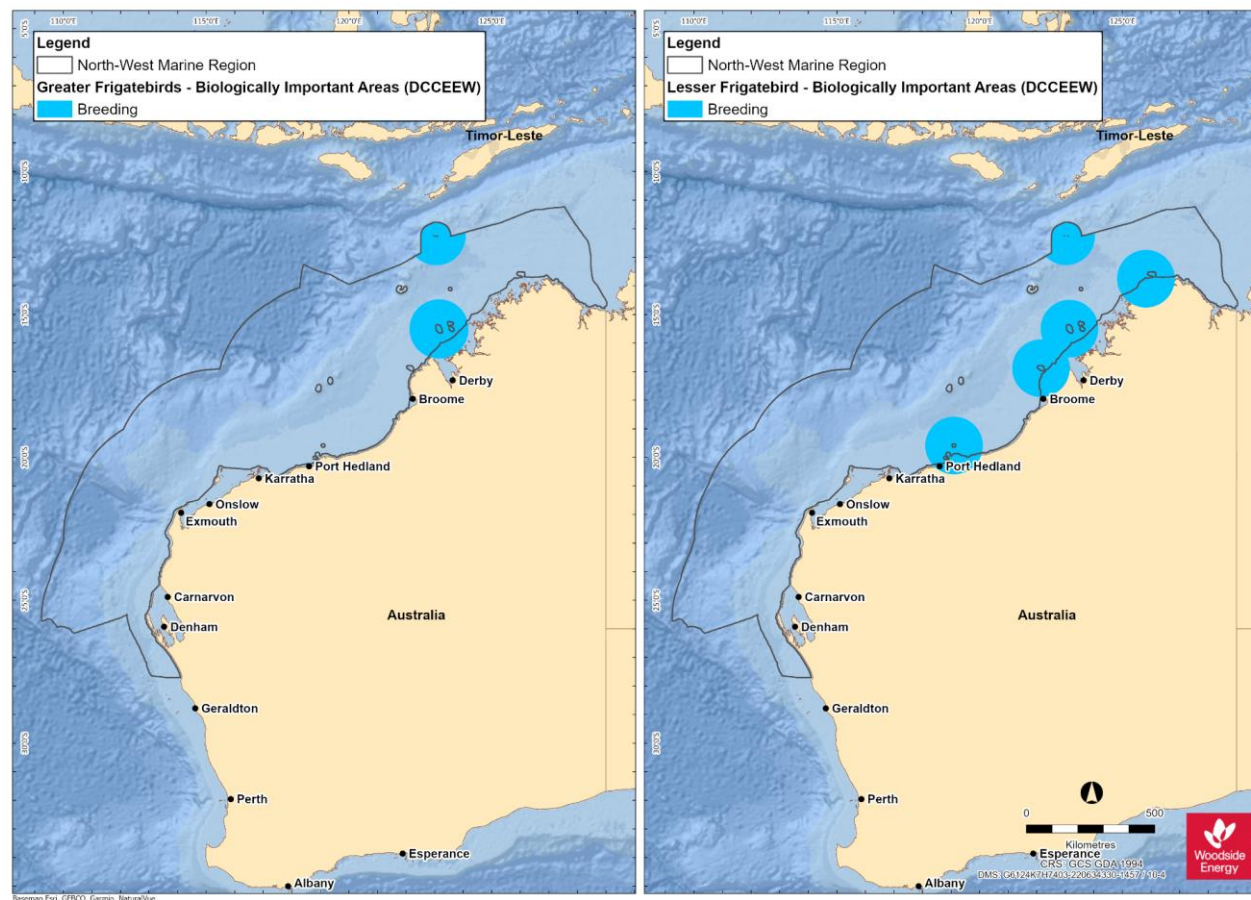


Figure 8-4: Greater and lesser frigatebird BIAs for the NWMR (data source: DCCEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 160 of 381

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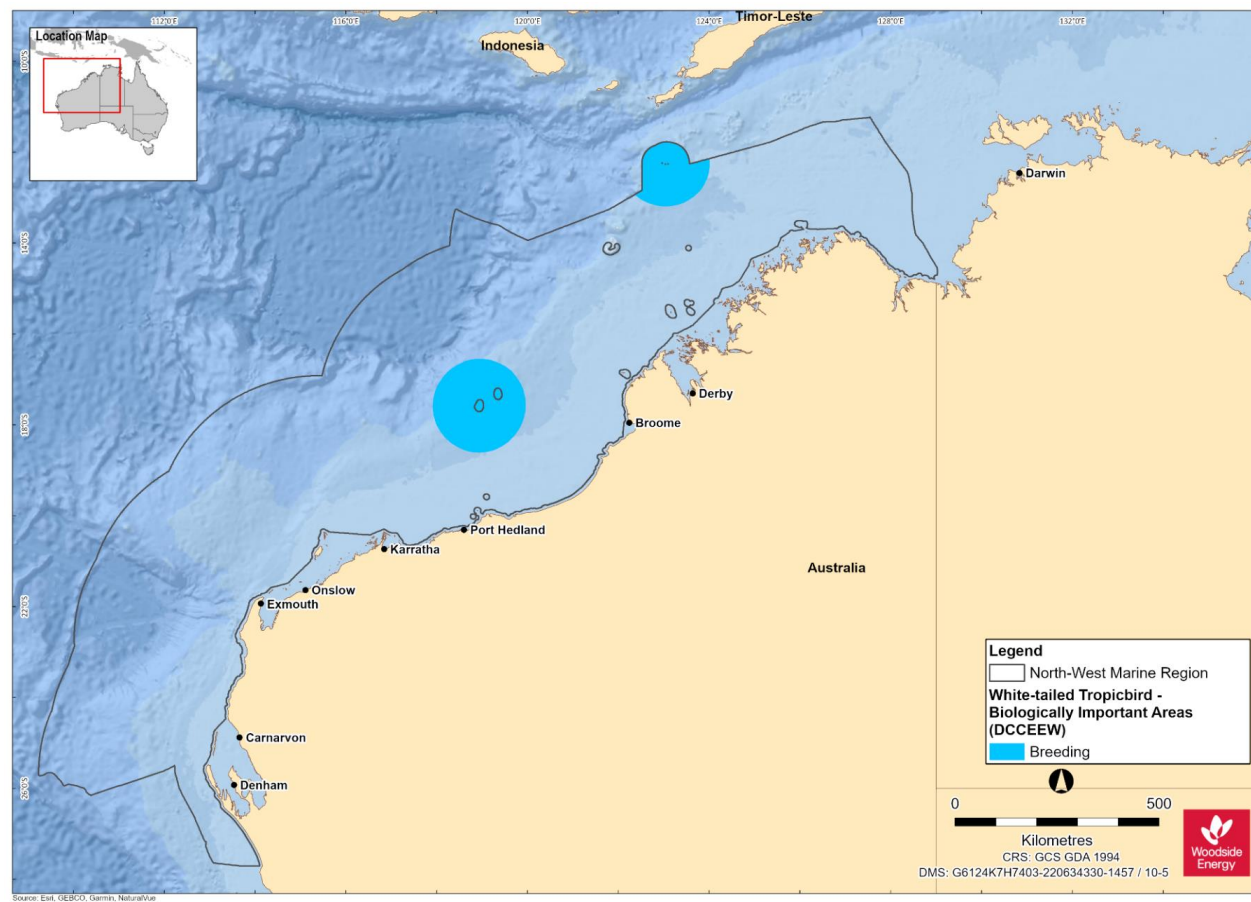


Figure 8-5: White-tailed tropicbird BIAs for the NWMR (data source: DCCEEW, 2024b)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 161 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

8.2.4 Seabird Summary for NWMR

8.2.4.1 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)
- white-tailed tropicbird (breeding).

BIAs for the seabird species are outlined in Table 8-3.

8.2.4.2 North West Shelf / 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)
- roseate tern (breeding and resting).

BIAs for the seabird species are outlined in Table 8-3.

8.2.4.3 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)
- roseate tern (breeding and resting).

BIAs for the seabird species are listed and described in Table 8-3.

8.3 Shorebirds

APPENDIX S 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 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.

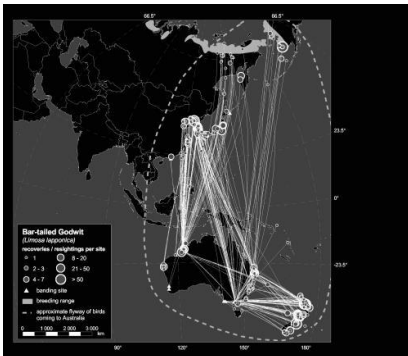
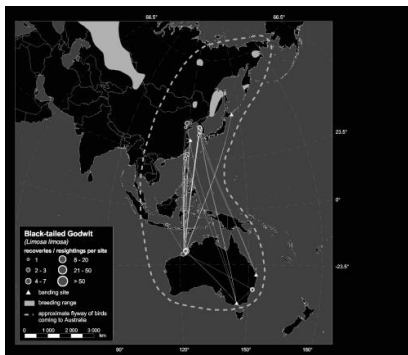
Due to differences in coastal or wetland habitat requirements between roosting and foraging behaviours, areas used most by migratory shorebirds usually comprise networks of foraging and roosting habitats. Shorebirds move between areas of this network depending on the time of day, availability of resources, 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 ²⁰	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	
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	

²⁰ Nominate species *Limosa lapponica*. Subspecies which may occur includes *L. l. menzbieri*, which is listed Critically Endangered under the EPBC Act. Specific information on *L. l. menzbieri* is lacking, but information regarding habitat use and diet for the nominate species is considered applicable.

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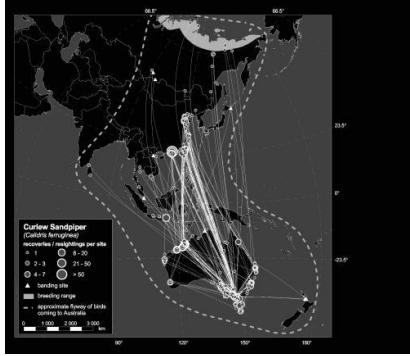
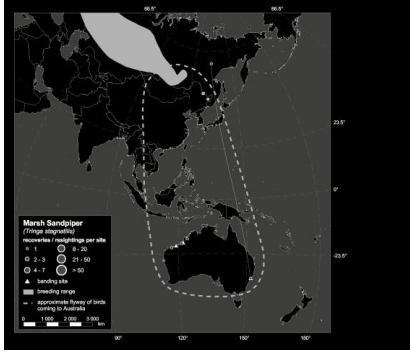
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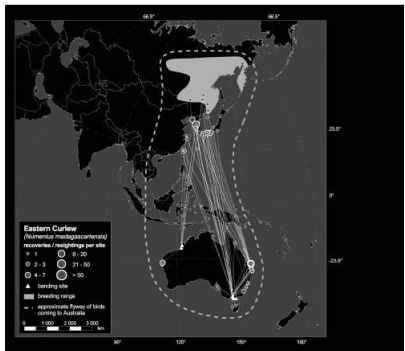
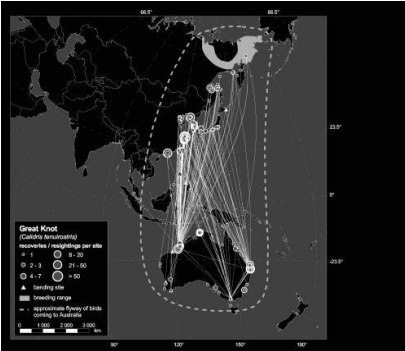
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Page 164 of 381

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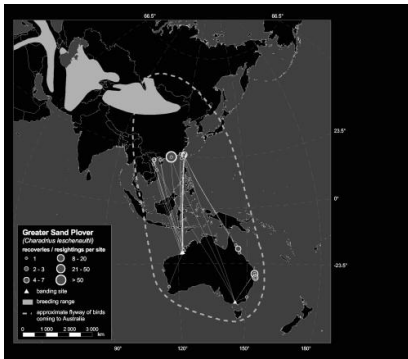
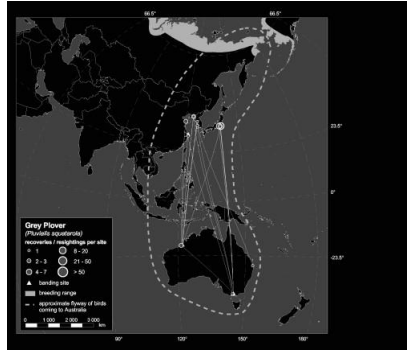
Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Broad billed sand piper	Regular visitor to coasts of the Pilbara and Kimberley between Onslow and Broome <i>Internationally important site:</i> <ul style="list-style-type: none"> Port Hedland Saltworks 	Sheltered sandy, shelly or shingly beaches	Mudflats, mangroves	Worms, including polychaetes, molluscs, crustaceans, insects and seeds	<p>The map shows the distribution of Broad-billed Sandpipers in Australia. A dashed line outlines the breeding range from Onslow in Western Australia to Broome in Northern Territory. Various symbols indicate roosting sites and their international importance. A legend explains the symbols: a circle with a dot for roosting sites, a circle with a cross for internationally important roosting sites, and a circle with a plus sign for internationally important foraging sites. It also shows the breeding range and the approximate timing of birds arriving in Australia.</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

Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Curlew sandpiper	Widespread around coastal and subcoastal plains Non-breeding one year old birds may remain in Australia rather than migrating north <i>Internationally important site:</i> <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	
Marsh sandpiper	Widespread, notable areas include Eighty Mile Beach, Port Hedland Saltworks	Tidal mudflats	Mudflats, marshy vegetation	Molluscs, crustaceans and insects	

Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
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	
Great knot	Common on the coasts of the Pilbara and Kimberley, from the Dampier Archipelago to the Northern Territory border <i>Internationally important site:</i> <ul style="list-style-type: none"> Eighty Mile Beach Roebuck Bay 	Roosts in large groups in open areas, often at the water's edge or in shallow water close to feeding grounds	Sheltered coastal habitats with large intertidal mudflats or sandflats	Bivalves, gastropods, crustaceans and other invertebrates	

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Description of the Existing Environment

Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Greater sand plover	Widespread between North-west Cape and Roebuck Bay <i>Internationally important site:</i> <ul style="list-style-type: none"> Eighty Mile Beach Roebuck Bay 	Sand-spits and banks on beaches or in tidal lagoons	Surface of wet sand or mud on open intertidal flats of sheltered embayments, lagoons or estuaries	Molluscs, worms, crustaceans and insects	 <p>The map shows the migration routes of the Greater Sand Plover (Charadrius dominicensis) from its breeding grounds in East Asia (primarily Japan and Korea) to its wintering grounds in Australia. The routes are indicated by dashed lines with arrows pointing south. The map includes a legend for roosting sites (circles of varying sizes representing different counts) and a scale bar. The title of the map is 'Greater Sand Plover (Charadrius dominicensis) roostsites / nightstays per site'.</p>
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	 <p>The map shows the migration routes of the Grey Plover (Pluvialis australis) from its breeding grounds in East Asia (primarily Japan and Korea) to its wintering grounds in Australia. The routes are indicated by dashed lines with arrows pointing south. The map includes a legend for roosting sites (circles of varying sizes representing different counts) and a scale bar. The title of the map is 'Grey Plover (Pluvialis australis) roostsites / nightstays per site'.</p>

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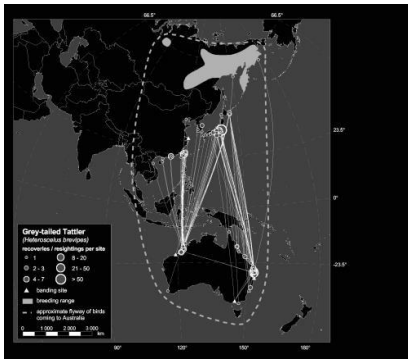
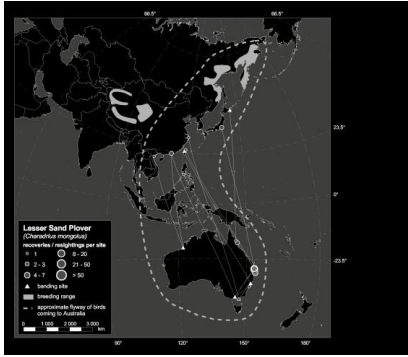
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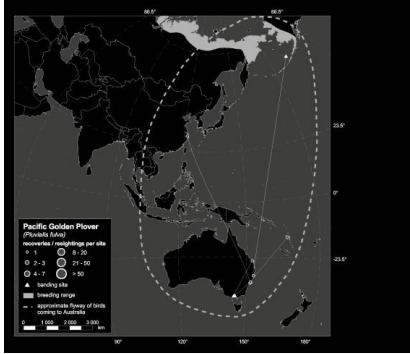
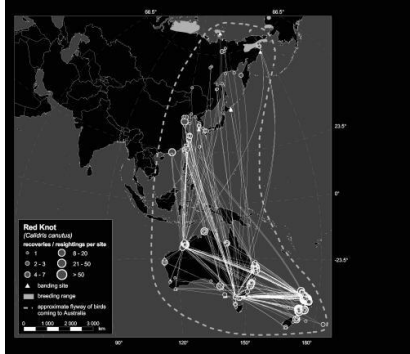
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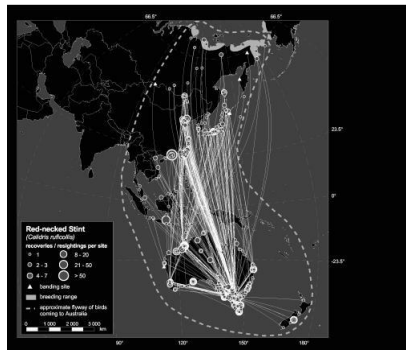
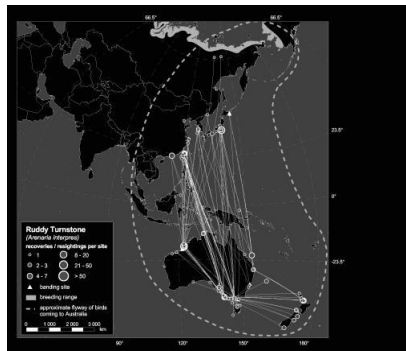
Page 168 of 381

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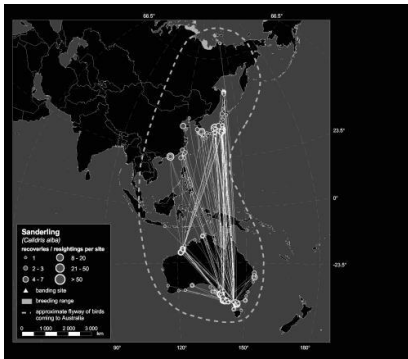
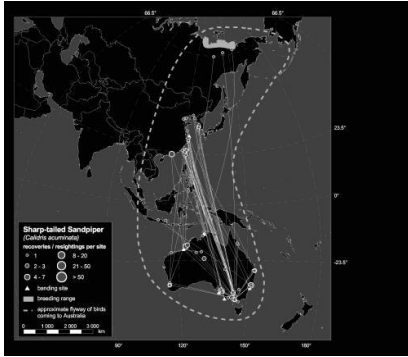
Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Grey-tailed tattler	Widespread from Houtman Abrolhos and the mainland adjacent to the Kimberley <i>Internationally important site:</i> <ul style="list-style-type: none"> Barrow Island Roebuck Bay Eighty 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	 <p>Grey-tailed Tattler (Heteroscolopax brevipes) Roostsites / nightingales per site</p> <ul style="list-style-type: none"> ● 1 ● 10-20 ○ 2-3 ○ 21-50 ○ 4-7 ○ 51-100 <p>▲ breeding site --- breeding range --- approximate flow of birds moving to Australia</p>
Lesser Sand Plover	<i>Widespread, internationally important site:</i> <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	 <p>Lesser Sand Plover (Charadrius dominicus) Roostsites / nightingales per site</p> <ul style="list-style-type: none"> ● 1 ● 10-20 ○ 2-3 ○ 21-50 ○ 4-7 ○ 51-100 <p>▲ breeding site --- breeding range --- approximate flow of birds moving to Australia</p>

Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
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
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

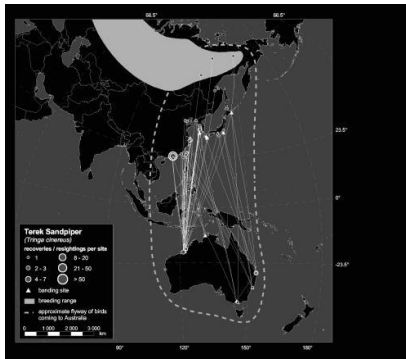
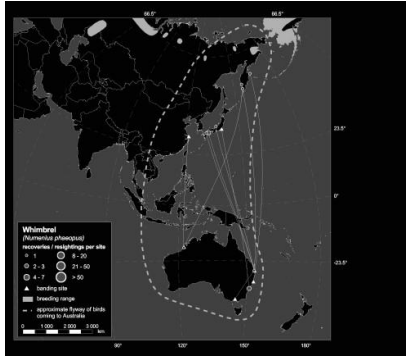
Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Pacific golden plover	Widespread along the coasts of the Pilbara and Kimberley <i>Nationally important site:</i> <ul style="list-style-type: none">Eighty Mile Beach	Sandy beaches and spits, rocky points, 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	
Red knot	Large numbers regularly recorded in north-west Australia <i>Internationally important site:</i> <ul style="list-style-type: none">Eighty Mile BeachRoebuck 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	

Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Red-necked stint	Widespread in coastal areas across Australia <i>Internationally important site:</i> <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	
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 Circles showing roosts / nightstays per site: 1-1 2-3 4-7 Triangles showing breeding sites Dashed lines showing approximate flow of birds moving 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 Circles showing roosts / nightstays per site: 1-1 2-3 4-7 Triangles showing breeding sites Dashed lines showing approximate flow of birds moving to Australia</p>

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Species	Presence in NWMR	Roosting habitat	Foraging habitat	Diet	Migration From Minton et al (2006)
Terek sandpiper	The species is widespread in the Pilbara and Kimberley, from Dampier to Wyndham, with occasional records around Shark Bay <i>Internationally important site:</i> <ul style="list-style-type: none"> Eighty Mile Beach Roebuck Bay 	In or among mangroves, may perch in branches or roots up to 2 m from the ground, or in shade beneath	Soft wet intertidal mudflats or in sheltered estuaries, embayments, harbours or lagoons	Crustaceans, insects, seeds, molluscs and arachnids	 <p>Terek Sandpiper (Thalasseus)</p> <p>Roostsites / nightings per site</p> <ul style="list-style-type: none"> 1 1 1-20 2-3 2-3 21-50 4-7 4-7 >50 <p>Roosting site</p> <p>Breeding range</p> <p>Approximate Range of birds roosting in Australia</p>
Whimbrel	Widespread from Carnarvon to the north-east Kimberley Primarily coastal distribution. There are also scattered inland records of Whimbrels in all regions <i>Internationally important site:</i> <ul style="list-style-type: none"> Roebuck Bay 	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.	Intertidal mudflats, muddy banks of estuaries and in coastal lagoons, open unvegetated areas or among mangroves. Occasionally on sandy beaches or among rocks	Annelids, crustaceans and, rarely, vertebrates (e.g. small fish, little tern chicks)	 <p>Whimbrel (Numenius phaeopus)</p> <p>Roostsites / nightings per site</p> <ul style="list-style-type: none"> 1 1 1-20 2-3 2-3 21-50 4-7 4-7 >50 <p>Roosting site</p> <p>Breeding range</p> <p>Approximate Range of birds roosting in 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 • 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
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

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Page 175 of 381

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Species	NWMR Presence	Roosting Habitat	Foraging Habitat	Diet
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
Swinhoe's snipe	Recorded in the Pilbara, Kimberley, Mount Goldsworthy, 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	<i>Non-breeding:</i> Oct–Apr 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	Aerial forager, flying anywhere from 1 m to 300 m above the ground to forage Typically feed in flocks ranging from 10 to 1000 birds	Insectivorous
Osprey	<i>Breeding:</i> April to February, though depends on latitude. NWMR individuals breeding early in season compared to SWMR <i>Non-breeding:</i> remain in breeding territories Continuous distribution of the species around the coast except for a possible gap at Eighty Mile Beach	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	Fish, especially mullet where available Rarely take molluscs, crustaceans, insects, reptiles, birds and mammals

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 176 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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												
Largetooth (freshwater) sawfish – reproduction (pupping) ⁵												
Largetooth (freshwater) sawfish – foraging												
Green sawfish (reproduction)												
Green sawfish (foraging)												
Marine Reptiles – MarineTurtle Nesting [note: hatchling emergence is generally 6-8 weeks post-nesting activity]												
Green Turtle												
Ashmore Reef Stock (G-AR) ⁶												
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												
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Controlled Ref No: G2000RH1401743486	Revision: 2	Woodside ID: 1401743486	Page 177 of 381									
Uncontrolled when printed. Refer to electronic version for most up to date information.												

Species	January	February	March	April	May	June	July	August	September	October	November	December
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												
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												
Great frigatebird – breeding / foraging <small>*possibly present in NWMR in non-breeding and foraging in breeding season</small>	*	*	*	*	*	*	*	*	*			

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Description of the Existing Environment

Species	January	February	March	April	May	June	July	August	September	October	November	December
Lesser frigatebird – breeding / foraging <small>*possibly present in NWMR in non-breeding and foraging in breeding season</small>	*	*	*	*	*	*	*	*	*			
Brown booby – presence in NWMR (breeding / foraging) <small>Present NWMR year-round (breeding at Ashmore Reef, Adele Island, Lacepedes between Jan-Mar (protracted through to Oct at Ashmore Reef)</small>												
Red-footed booby – presence in NWMR (breeding / foraging) <small>Breed at Ashmore Reef and Adele Island, recorded breeding year-round at Ashmore Reef</small>												
Little tern – breeding / foraging <small>maybe present in NWMR outside breeding season – foraging and resting</small>												
Roseate tern – breeding												
Caspian tern – breeding <small>Dampier Archipelago and North-west Cape</small>												
Greater crested tern												
White-tailed and red-tailed tropicbird – breeding <small>largest breeding populations on Christmas Island</small>												
	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											

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).

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).

³Dwarf sawfish reproduction- potential to occur in all seasons (DCCEEW, 2024b¹⁵).

⁴Dwarf sawfish foraging- potential to occur in all seasons (DCCEEW, 2024b¹⁵).

⁵Large tooth (freshwater) sawfish pupping occurs from January to May (DCCEEW, 2024b¹⁵).

⁶Green turtle nesting Ashmore Reef Stock – year-round (peak: December–January) (CoA, 2017).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 179 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

⁷Green turtle nesting Scott Reef-Browse Island Stock November–March (CoA, 2017).

⁸Green turtle nesting NWS Stock November–March (CoA, 2017).

⁹Hawskbill turtle nesting Western Australia Stock October–February (CoA, 2017).

¹⁰Flatback turtle nesting Cape Domett Stock – year-round (peak July–September) (CoA, 2017).

¹¹Flatback turtle nesting South-west Kimberley Stock – October–March (CoA, 2017).

¹² Flatback turtle nesting Pilbara Stock – October–March (CoA, 2017).

¹³Unknown stock nesting Kimberley May–July (CoA, 2017).

¹⁴Loggerhead turtle nesting Western Australia stock November–May.

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).

¹⁶Humpback whale northern migration. Range June–September (DCCEEW, 2024b15; TSSC, 2015b; DSEWPac, 2012a). Peak July–August (Salgado Kent et al., 2012).

¹⁷Humpback whale southern migration. Range July–November. Peak August- October. (TSSC, 2015b; Irvine and Salgado Kent, 2019; Salgado Kent et al., 2012; DSEWPac, 2012a)

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).

²Pygmy blue whale northern migration April–August (DCCEEW, 2024b15; DSEWPac, 2012a; McCauley et al., 2018; CoA, 2015a). Peak April–July (Thums et al., 2022) refers to Western Australia from the Perth Canyon (April/May) to the North West Shelf (June/July).

²¹Pygmy 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).

²²Southern right whale calving and migratory presence in Exmouth Gulf (NWMR) June to September with peak months July and August (DCCEEW, 2024a) All seabird seasonality information derived from BIA metadata, scientific publications and expert opinion (Worley, 2024).

¹⁹Limited data however sightings reported year-round (Cerchio et al., 2019).

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 criteria of:

- 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.

APPENDIX T Thirteen KEFs are designated within the NWMR, 12 KEFs within the SWMR and eight KEFs within the NMR. These KEFs have been identified in the Protected Matters search (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 10-2 and Figure 10-3.

Table 10-1: Key Ecological Features (KEFs) 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.</p> <p>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.</p> <p>aggregations of planktivorous and predatory fish, seabirds, and foraging turtles (DSEWPAC, 2012a, 2012c).</p>

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Ashmore Reef and Cartier Island and surrounding Commonwealth waters	✓	-	-	High productivity, biodiversity and aggregation of marine life that apply to both the benthic and pelagic habitats within the feature	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 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).

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Continental slope demersal fish communities	✓	✓	✓	High biodiversity of demersal fish assemblages, including high levels of endemism	<p>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.</p> <p>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)</p>

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>

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Glomar Shoal	-	✓	-	An area of high productivity and aggregations of marine life including commercial and recreational fish species	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 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.
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 (Done et al., 1994).

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
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 fish, sharks, toothed whales and dolphins	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.
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.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 188 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Description of the Existing Environment

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
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).

¹Values 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.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 189 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

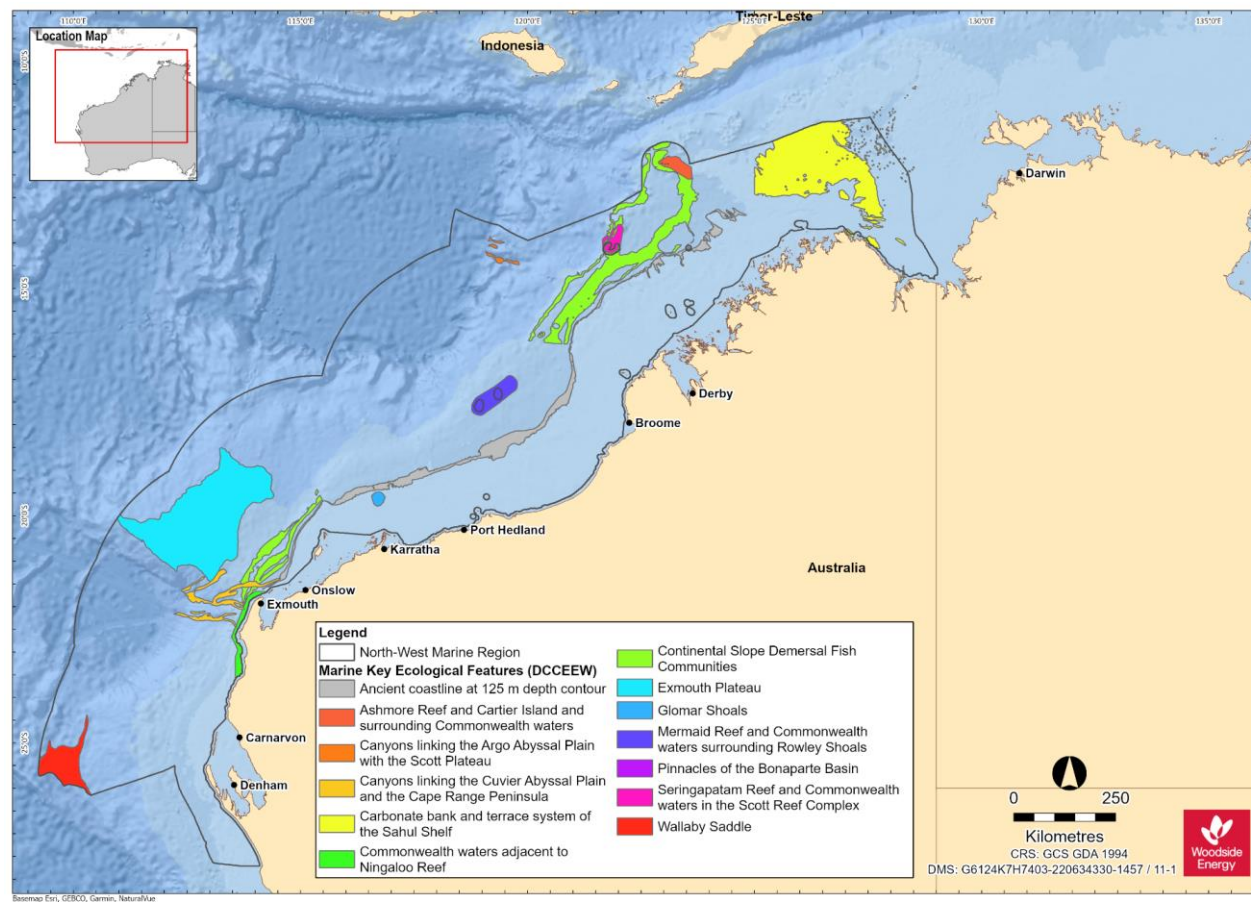


Figure 10-1: KEFs within the NWMR (data source: DCCEEW, 2024d)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 190 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Table 10-2: Key Ecological Features (KEFs) 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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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 191 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Description of the Existing Environment

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.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 192 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

KEF Name	Values ¹	Description
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.

¹Values description sourced from Marine bioregional plan for the South-west Marine Region (DSEWPAC, 2012b) and the DAWE SPRAT database.

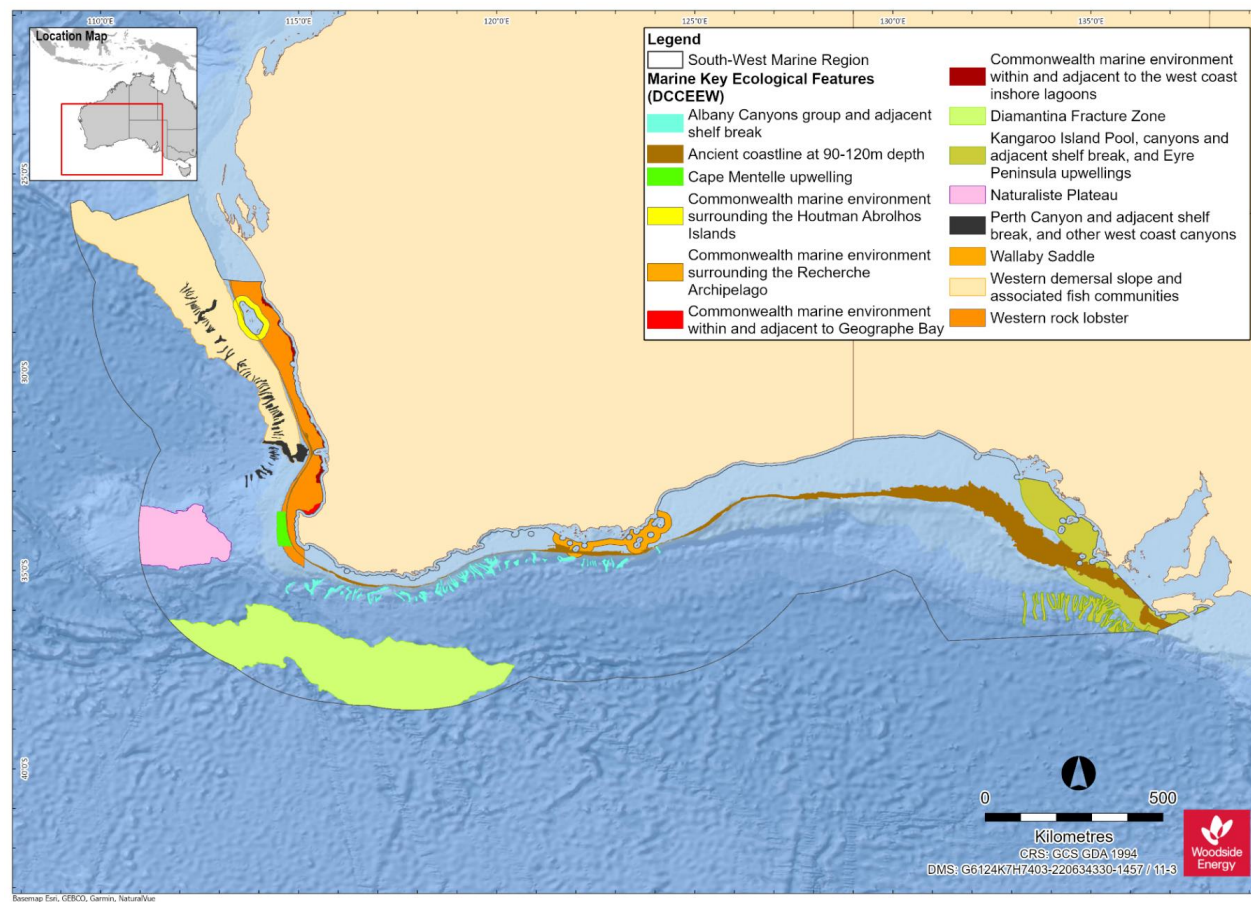


Figure 10-2: KEFs within the SWMR (data source: DCCEEW, 2024d)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 194 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Table 10-3: Key Ecological Features (KEFs) 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.
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.

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Description of the Existing Environment

KEF Name	Values ¹	Description
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.

¹Values description sourced from Marine bioregional plan for the North Marine Region (DSEWPAC, 2012c) and DAWE SPRAT database.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 196 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

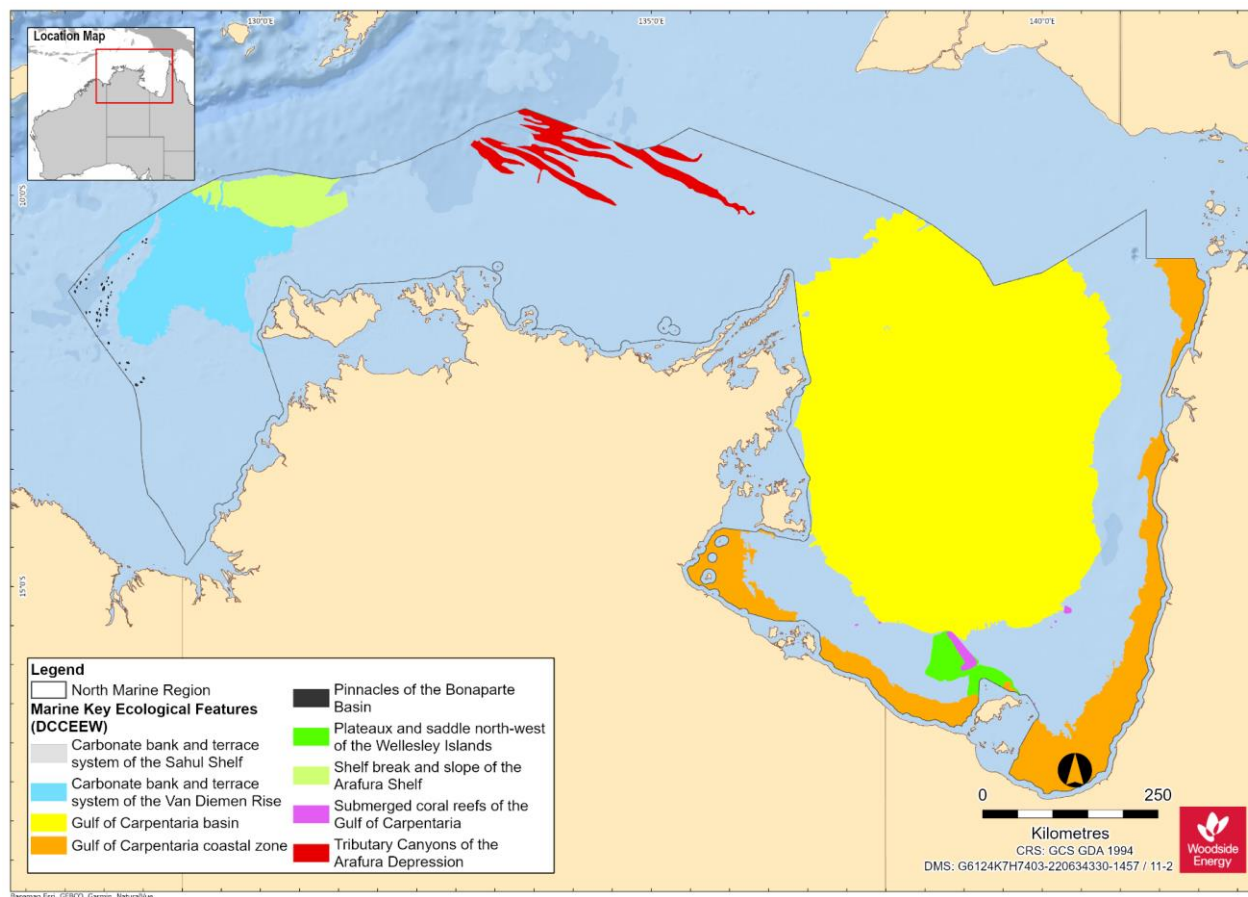


Figure 10-3: KEFs within the NMR (data source: DCCEEW, 2024d)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 197 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 (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 11-2, 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 11-5, 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 (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 (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 11-8) 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 (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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 198 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 (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, Figure 11-2 and Figure 11-3, 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)	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 km ² 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.
		Natural values The marine park includes ecosystems representative of: <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. Key ecological features are: <ul style="list-style-type: none"> canyons linking the Argo Abyssal Plain with the Scott Plateau Mermaid Reef and Commonwealth waters surrounding Rowley Shoals. 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.
		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).
		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).

North West Marine Park Network	IUCN Zones	Description and Values
		Social and economic values Socio-economic values of this marine park include commercial fishing and mining.
Ashmore Reef Marine Park	Sanctuary (Ia) Recreational Use (IV)	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 km ² and water depths from less than 15 m to 500 m. 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 5920 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 interbreeding 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 are: <ul style="list-style-type: none"> Ashmore Reef and Cartier Island and surrounding Commonwealth waters continental slope demersal fish communities—an area of high-diversity demersal fish assemblages. 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.

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North West Marine Park Network	IUCN Zones	Description and Values
		Heritage values Ashmore Reef is a Commonwealth Heritage listed site, meeting criteria A, B and C.
		Social and economic values Tourism, recreation and scientific research are important activities in this marine park.
Carnarvon Canyon Marine Park	Habitat Protection (IV)	Description The Carnarvon Canyon Marine Park is located approximately 300 km north-west of Carnarvon. It covers an area of 6177 km ² and a water depth range of 1500–6000 m.
		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.
		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.
		Heritage values No international, Commonwealth or national heritage listings apply to the marine park.
		Social and economic values Commercial fishing is an important activity in the marine park.
Cartier Island Marine Park	Sanctuary (Ia)	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 km ² and water depths from less than 15 m to 500 m.

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Natural values</p> <p>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.</p> <p>Key ecological features are:</p> <ul style="list-style-type: none"> Ashmore Reef and Cartier Island and surrounding Commonwealth waters continental slope demersal fish communities. <p>There are two distinct demersal fish communities of the continental slope: one on the upper slope, the other mid slope.</p> <p>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.</p> <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, interbreeding, nesting and foraging habitat for marine turtles and foraging habitat for whale sharks.</p> <p>This marine park is internationally significant for its abundance and diversity of sea snakes.</p> <p>Cultural values</p> <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. 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</p> <p>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</p> <p>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</p> <p>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>

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Natural values</p> <p>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, interesting habitat for marine turtles and a migratory pathway for humpback whales.</p> <p>Cultural values</p> <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.</p> <p>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.</p> <p>The Yamatji Marpa Aboriginal Corporation is the Native Title Representative Body for the Pilbara and Yamatji regions.</p> <p>Heritage values</p> <p>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</p> <p>Port activities, commercial fishing and recreation, including fishing, are important activities in this marine park.</p>
Eighty Mile Beach Marine Park	Multiple Use (VI)	<p>Description</p> <p>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</p> <p>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.</p> <p>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, interesting and nesting habitat for marine turtles, foraging, nursing and pupping habitat for sawfish and a migratory pathway for humpback whales.</p>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 204 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Cultural values</p> <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.</p> <p>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.</p> <p>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.</p> <p>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</p> <p>This marine park contains three known shipwrecks listed under the Historic Shipwrecks Act 1976: <i>Lorna Doone</i> (wrecked in 1923), <i>Nellie</i> (wrecked in 1908), and <i>Tifera</i> (wrecked in 1923).</p> <p>No international, Commonwealth or national listings apply to the marine park.</p> <p>Social and economic values</p> <p>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</p> <p>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 6000 m.</p>

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Natural values</p> <p>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 • Northwest Province—an area of continental slope comprising diverse and endemic fish communities. <p>Key ecological features are:</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 • Exmouth Plateau. <p>Ecosystems represented in this Marine Park are influenced by the interaction of the Leeuwin Current, Leeuwin Undercurrent and the Ningaloo Current.</p> <p>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, interesting habitat for marine turtles, a migratory pathway for humpback whales, and foraging habitat and migratory pathway for pygmy blue whales.</p> <p>Cultural values</p> <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 Gnulli people have responsibilities for sea country in this marine park. The Yamatji Marpa Aboriginal Corporation is the Native Title Representative Body for the Yamatji region.</p>

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Heritage values</p> <p><i>World heritage</i></p> <p>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.</p> <p><i>Commonwealth heritage</i></p> <p>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.</p> <p><i>National heritage</i></p> <p>The Ningaloo Coast meets the national heritage listing criteria A, B, C, D, and F and is adjacent to the marine park.</p> <p><i>Historic shipwrecks</i></p> <p>The marine park contains more than five known shipwrecks listed under the Historic Shipwrecks Act 1976.</p> <p>Social and economic values</p> <p>Commercial fishing, mining and recreation are important activities in this marine park.</p>
Kimberley Marine Park	Habitat Protection (IV) National Park (II) Multiple Use (VI)	<p>Description</p> <p>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 adjacent to the Western Australian Lalanggarra/Camden Sound Marine Park and the North Kimberley Marine Park. This marine park covers an area of 74,469 km² and water depths from less than 15 m to 800 m.</p>

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Natural Values</p> <p>This marine park includes ecosystems representative of:</p> <ul style="list-style-type: none"> • 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 an ancient coastline thought to be an important seafloor feature and migratory pathway for humpback whales. • Northwest Shelf Transition—straddles the North-west and North Marine Regions and in the Northwest includes shelf break, continental slope, and the majority of the Argo Abyssal Plain and is subject to a high incidence of cyclones. Benthic biological communities in the deeper parts of the bioregion have not been extensively studied, although high levels of species diversity and endemism occur among demersal fish communities on the continental slope. • Timor Province—water depths (of the bioregion) ranging from about 200 m near the shelf break to 5920 m over the Argo Abyssal Plain. The reefs and islands of the bioregion are regarded as biodiversity hotspots. Endemism in demersal fish communities of the continental slope is high; two distinct communities have been identified on the upper and mid slopes. <p>Key ecological features are:</p> <ul style="list-style-type: none"> • ancient coastline at the 125 m depth contour • continental slope demersal fish communities. <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 nesting habitat for marine turtles, breeding, calving and foraging habitat for inshore dolphins, calving, migratory pathway and nursing habitat for humpback whales, migratory pathway for pygmy blue whales, foraging habitat for dugong and foraging habitat for whale sharks.</p>

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Cultural values</p> <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.</p> <p>The Wunambal Gaambera, Dambimangari, Mayala, Bardi Jawi and the Nyul Nyul people's sea country extends into the Kimberley Marine Park. The Wunambal Gaambera people's country includes daagu (deep waters), with about 3400 km² of their sea country located in this marine park. The Wunambal Gaambera, Dambimangari, Mayala, Bardi Jawi and the Nyul Nyul people have an unbroken connection to their sea country, having deep spiritual connection through Wunggurr (creator snakes) that still live in the sea.</p> <p>Staple foods of living cultural value 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.</p> <p>The national heritage listing for the West Kimberley recognises the following key cultural heritage values:</p> <ul style="list-style-type: none"> • Wanjina Wunggurr Cultural Tradition which incorporates many sea country cultural sites • log-raft maritime tradition, which involved using tides and currents to access warruru (reefs) far offshore to fish • interactions with Makassan traders around sea foods over hundreds of years • important pearl resources that were used in traditional trade through the wunan and in contemporary commercial agreements. <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</p> <p>This Marine Park contains more than 40 known shipwrecks listed under the Historic Shipwrecks Act 1976.</p> <p>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</p> <p>Tourism, commercial fishing, mining, recreation, including fishing and traditional use, are important activities in this marine park.</p>

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North West Marine Park Network	IUCN Zones	Description and Values
Mermaid Reef Marine Park	National Park (II)	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 km ² and water depths from less than 15 m to 500 m. 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 NWS, and may also provide an upstream source for recruitment to reefs further south.
		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. 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.
		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).
		Heritage values No international or national listings apply to this marine park. Mermaid Reef–Rowley Shoals was established on the Commonwealth Heritage List in 2004, meeting Commonwealth heritage listing criteria A, B, C and D. This marine park contains one known shipwreck listed under the Historic Shipwrecks Act 1976: <i>Lively</i> (wrecked in 1810).
		Social and economic values Tourism, recreation, and scientific research are important activities in this marine park.
Montebello Marine Park	Multiple Use (VI)	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 km ² and water depths from less than 15 m to 150 m.

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North West Marine Park Network	IUCN Zones	Description and Values
		<p>Natural values</p> <p>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.</p> <p>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</p> <p>The Yamatji Marlpa Aboriginal Corporation is the Native Title Representative Body for the Pilbara region.</p> <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. 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</p> <p>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.</p> <p>This marine park contains two known shipwrecks listed under the Historic Shipwrecks Act 1976: <i>Trial</i> (wrecked in 1622), the earliest known shipwreck in Australian waters and <i>Tanami</i> (unknown date).</p> <p>Social and economic values</p> <p>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</p> <p>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 2435 km² and a water depth range of 30 m to more than 500 m.</p> <p>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>

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Natural values</p> <p>This marine park includes examples of ecosystems representative of:</p> <ul style="list-style-type: none"> • Central Western Shelf Transition—continental shelf of 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, and benthic slope communities comprising tropical and temperate species • Northwest Province—an area of continental slope comprising diverse and endemic fish communities • 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. <p>Key ecological features are:</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. <p>Ecosystems represented in this marine park are influenced by interaction of the Leeuwin Current, Leeuwin Undercurrent and the Ningaloo Current.</p> <p>This marine park supports a range of species listed under the EPBC Act. Biologically important areas within this marine park include breeding and/or foraging habitat for seabirds, interesting habitat for marine turtles, a migratory pathway for humpback whales, foraging habitat and migratory pathway for pygmy blue whales, breeding, calving, foraging and nursing habitat for dugong and foraging habitat for whale sharks.</p> <p>Cultural values</p> <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 Gnulli people have responsibilities for sea country in this marine park.</p> <p>The Yamatji Marpa Aboriginal Corporation is the Native Title Representative Body for the Yamatji region.</p>

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Heritage values</p> <p><i>World heritage</i></p> <p>This marine park is within the Ningaloo Coast World Heritage Property, meeting world heritage listing criteria vii and x. The area is valued for high terrestrial species endemism, marine species diversity and abundance, and the interconnectedness of large-scale marine, coastal and terrestrial environments. The area connects the limestone karst system and fossil reefs of the ancient Cape Range to the nearshore reef system of Ningaloo Reef, to the continental slope and shelf in Commonwealth waters.</p> <p><i>National heritage</i></p> <p>The Ningaloo Coast overlaps this marine park, meeting the national heritage listing criteria A, B, C, D, and F.</p> <p><i>Commonwealth heritage</i></p> <p>The Ningaloo Marine Area (Commonwealth waters) meets Commonwealth heritage listing criteria A, B and C. The Ningaloo Marine Area overlaps this marine park.</p> <p><i>Historic shipwrecks</i></p> <p>This marine park contains more than 15 known shipwrecks listed under the Historic Shipwrecks Act 1976.</p> <p>Social and economic values</p> <p>Tourism and recreation, including fishing, are important activities in this marine park.</p>
Roebuck Marine Park	Multiple Use (VI)	<p>Description</p> <p>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.</p> <p>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</p> <p>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.</p> <p>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 internesting habitat for marine turtles, a migratory pathway for humpback whales and foraging habitat for dugong.</p>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 213 of 381

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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. 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>
Shark Bay Marine Park	Multiple Use (VI)	<p>Description 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>

North West Marine Park Network	IUCN Zones	Description and Values
		<p>Natural values</p> <p>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 • 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.</p> <p>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, 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</p> <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 Gnulli and Malgana people have responsibilities for sea country in this marine park.</p> <p>The Yamatji Marpa Aboriginal Corporation is the Native Title Representative Body for the Yamatji region.</p> <p>Heritage values</p> <p>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.</p> <p>The marine park contains approximately 20 known shipwrecks listed under the Historic Shipwrecks Act 1976.</p> <p>Social and economic values</p> <p>Tourism, commercial fishing, mining and recreation, including fishing, are important activities in the marine park.</p>

11.5.2 Indian Ocean Territory

Table 11-2 describes the values of the Indian Ocean territory Australian Marine Parks (Commonwealth of Australia, 2021).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 215 of 381

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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)	Description Christmas Island Marine Park covers an area of 277,016 km ² 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, 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.
		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.
		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.
		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.
Cocos (Keeling) Islands Marine Park	National Park (II) Habitat Protection (IV)	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 km ² 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.

Indian Ocean Territory Marine Park	IUCN Zones	Values
		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.
		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.
		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.

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 AMPs 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)	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 km ² and a water depth range between less than 15 m and 6000 m.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 217 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

South West Marine Park Network	IUCN Zones	Natural Values
		<p>Natural values</p> <p>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. • 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 are:</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 • Wallaby Saddle. <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>

South West Marine Park Network	IUCN Zones	Natural Values
		<p>Cultural values</p> <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.</p> <p>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 Marlpa Aboriginal Corporation is the Native Title Representative Body for the Yamatji region.</p>
		<p>Heritage values</p> <p>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.</p> <p>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.</p> <p>This marine park contains 11 known shipwrecks listed under the Historic Shipwrecks Act 1976. 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</p> <p>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</p> <p>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 4472 km² and water depths from 15 m to 5000 m.</p>

South West Marine Park Network	IUCN Zones	Natural Values
		<p>Natural values</p> <p>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 5900 m, and is characterised by a long continental slope incised by numerous, well-developed submarine canyons • 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 are:</p> <ul style="list-style-type: none"> • Albany Canyon group and adjacent shelf break • 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, 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</p> <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.</p> <p>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.</p> <p>The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.</p> <p>Heritage values</p> <p>No international, Commonwealth or national heritage listings apply to this marine park.</p> <p>Social and economic values</p> <p>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</p> <p>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 6000 m.</p>
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South West Marine Park Network	IUCN Zones	Natural Values
		<p>Natural values</p> <p>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. • 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 are:</p> <ul style="list-style-type: none"> • mesoscale eddies • ancient coastline between 90 m and 120 m depth • Commonwealth marine environment surrounding the Recherche Archipelago. <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</p> <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.</p> <p>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.</p> <p>The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.</p> <p>Heritage values</p> <p>No international, Commonwealth or national heritage listings apply to this marine park.</p> <p>This marine park contains two known shipwrecks listed under the Historic Shipwrecks Act 1976—<i>Rodondo</i> (wrecked in 1894) and <i>Start</i> (wrecked in 1879).</p> <p>Social and economic values</p> <p>Tourism, commercial fishing, mining and recreation, including fishing, are important activities in this marine park.</p>
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South West Marine Park Network	IUCN Zones	Natural Values
Geographe Marine Park	National Park Zone (II) Habitat Protection (IV) Multiple Use (VI) Special Purpose (Mining Exclusion Zone) (VI)	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 km ² , extending from the Western Australian State water boundary, and a water depth range between 15 m and 70 m.
		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 are: <ul style="list-style-type: none"> • Commonwealth marine environment within and adjacent to Geographe Bay • western rock lobster. 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.
		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. The South West Aboriginal Land and Sea Council is the Native Title Service Provider for the South-west region.
		Heritage values No international, Commonwealth or national heritage listings apply to this marine park. This marine park contains eight known shipwrecks listed under the Historic Shipwrecks Act 1976.
		Social and economic values Tourism, commercial fishing and recreation, including fishing, are important activities in the marine park.

South West Marine Park Network	IUCN Zones	Natural Values
Great Australian Bight Marine Park	National Park Zone (II) Multiple Use Zone (VI) Special Purpose Zone (Mining Exclusion) (VI) Special Purpose Zone (VI)	<p>Description</p> <p>The Great Australian Bight Marine Park is located approximately 12 km south-east of Eucla and 174 km west of Ceduna, adjacent to the South Australian Far West Coast and Nuyts Archipelago marine parks. This marine park covers an area of 45,822 km², extending from South Australian State water boundary to the edge of Australia's exclusive economic zone, and a water depth range between less than 15 m and 6000 m.</p> <p>Natural values</p> <p>This marine park includes examples of ecosystems representative of:</p> <ul style="list-style-type: none"> 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 the threatened southern right whale and the Australian sea lion. Southern Province—includes the deepest ocean areas of the Australian exclusive economic zone, reaching depths of around 5,900 m, and that is characterised by a long continental slope, numerous, well-developed submarine canyons, and extensive mid-slope terraces such as the Ceduna Terrace. <p>Key ecological features are:</p> <ul style="list-style-type: none"> ancient coastline between 90 m and 120 m depth benthic invertebrate communities of the eastern Great Australian Bight small pelagic fish of the South-west Marine Region. <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 area, migratory pathway and large aggregation area for southern right whales.</p> <p>Cultural values</p> <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.</p> <p>The Mirning and Wirangu people have responsibilities for sea country in this marine park. The far west coast region of South Australia includes over 1000 km of coastline along the Nullarbor Cliffs of the Great Australian Bight and the Nuyts Archipelago, and supports a sea-based tradition and culture.</p> <p>The Mirning people have a strong connection to land and sea country of the Nullarbor, and the Wirangu people have a strong connection to land and sea country across the remainder of the far west coastal region. Fishing is woven into the beliefs and values of this region, through the use of resources such as shellfish, periwinkles, abalone and razorfish; and the sharing of traditional fishing knowledge, catch and meals. The care and protection of these waters, the coastline, marine life and resources correspond directly with cultural stories, sites and knowledge.</p> <p>South Australian Native Title Services is the native title service provider for the South Australian region.</p>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 223 of 381

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South West Marine Park Network	IUCN Zones	Natural Values
		Heritage values No international, Commonwealth or national heritage listings apply to this marine park.
		Social and economic values Tourism, commercial fishing, and mining are important activities in this marine park.
Jurien Marine Park	National Park Zone (II) Special Purpose (VI)	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 km ² of continental shelf, extending from the Western Australian State water boundary, and a water depth range between 15 m and 220 m.
		Natural values This marine park includes ecosystems representative of: <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. • 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. Key ecological features are: <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 • western rock lobster. 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.
		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.

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South West Marine Park Network	IUCN Zones	Natural Values
Murat Marine Park	National Park Zone (II)	Heritage values No international, Commonwealth or national heritage listings apply to this marine park. This marine park contains two known shipwrecks listed under the Historic Shipwrecks Act 1976— <i>SS Cambewarra</i> (wrecked in 1914) and <i>Oleander</i> (wrecked in 1884).
		Social and economic values Tourism, commercial fishing, mining and recreation, including fishing, are important activities in this marine park.
		Description The Murat Marine Park is located 86 km off the west coast south-west of Ceduna, south of the South Australian Nuyts Archipelago Marine Park. This marine park covers an area of 938 km ² and is relatively shallow, with water depths between less than 15 m and 70 m.
		Natural values This marine park includes examples of ecosystems representative of the 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 the threatened southern right whale and the Australian sea lion. Key ecological features are: <ul style="list-style-type: none"> • benthic invertebrate communities of the eastern Great Australian Bight • small pelagic fish of the South-west Marine Region. 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.
		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 people have a strong attachment to land and sea country of the Nullarbor, while the Wirangu people have a strong attachment to land and sea country across the remainder of the far west coast region. The care and protection of the waters, coastline, marine creatures, marine environments and sea resources correspond directly with cultural stories and important cultural sites and knowledge. South Australian Native Title Services is the native title service provider for the South Australian region.
		Heritage values No international, Commonwealth or national heritage listings apply to this marine park.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 225 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

South West Marine Park Network	IUCN Zones	Natural Values
		Social and economic values The remoteness of this marine park makes access difficult with most recreational and tourism activities confined to State waters. Commercial ships may pass through this Marine Park to and from the port of Ceduna.
Perth Canyon Marine Park	National Park (II) Habitat Protection (IV) Multiple Use (VI)	Description The Perth Canyon Marine Park is located approximately 52 km west of Perth and approximately 19 km west of Rottnest Island. This marine park covers an area of 7409 km ² and water depths range between 120 m and 5000 m.
		Natural values This marine park includes examples of ecosystems representative of: <ul style="list-style-type: none"> Central Western Province—characterised by a narrow continental slope incised by many submarine canyons, including Perth Canyon, 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 the Perth Canyon. South-west Shelf Province—marine life in this area is diverse and influenced by the warm waters of the Leeuwin Current. 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. 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. Key ecological features are: <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 mesoscale eddies. 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.

South West Marine Park Network	IUCN Zones	Natural 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.</p> <p>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.</p> <p>A key ecological feature of this marine park is the Kangaroo Island Pool, canyons and adjacent shelf break, and Eyre Peninsula upwellings.</p> <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>
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South West Marine Park Network	IUCN Zones	Natural Values
		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.
South-west Corner Marine Park	National Park (II) Habitat Protection (IV) Multiple Use (VI) Special Purpose (VI) Special Purpose (Mining Exclusion)	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 km ² and a water depth range from less than 15 m to 6400 m.
		Natural values This marine park includes ecosystems representative of: <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. Key ecological features are: <ul style="list-style-type: none"> Albany Canyon group and adjacent shelf break Cape Mentelle upwelling Diamantina Fracture Zone Naturaliste Plateau western rock lobster ancient coastline between 90 m and 120 m depth. 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.

South West Marine Park Network	IUCN Zones	Natural 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.</p> <p>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.</p> <p>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.</p> <p>This marine park contains 10 known shipwrecks listed under the Historic Shipwrecks Act 1976.</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 4641 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.</p> <p>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.</p> <p>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
Two Rocks Marine Park	Multiple Use (VI)	Heritage values No international, Commonwealth or national heritage listings apply to this marine park.
		Social and economic values Tourism and commercial and recreational fishing are important activities in this marine park.
		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 km ² , extending from the Western Australian State water boundary, and a water depth range from 15 m to 120 m.
		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 are: <ul style="list-style-type: none"> • Commonwealth marine environment within and adjacent to the west-coast inshore lagoons • western rock lobster • ancient coastline between 90 m and 120 m depth. 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.
		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.
		Heritage values No international, Commonwealth or national heritage listings apply to this marine park.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 230 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

South West Marine Park Network	IUCN Zones	Natural Values
		Social and economic values Tourism, commercial fishing, recreation, including fishing, and scientific research are important activities in this marine park.
Western Eyre Marine Park	National Park Zone (II) Multiple Use Zone (VI) Special Purpose Zone (VI) Special Purpose Zone (Trawl) (VI)	Description The Western Eyre Marine Park is located approximately 123 km ² 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 km ² , 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 6000 m. Natural values This marine park includes ecosystems representative of: <ul style="list-style-type: none"> • 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 very diverse seafloor communities, productivity hotspots and aggregations of marine life associated with seasonal upwellings of nutrient-rich water. • 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 the threatened southern right whale and the Australian sea lion. • 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 such as the Ceduna Terrace. Key ecological features are: <ul style="list-style-type: none"> • ancient coastline between 90 m and 120 m depth • Kangaroo Island Pool, canyons and adjacent shelf break, and Eyre Peninsula upwellings • mesoscale eddies • benthic invertebrate communities of the eastern Great Australian Bight • small pelagic fish of the South-west Marine Region. This marine park provides connectivity between deeper offshore waters and the adjacent South Australian Investigator, West Coast Bays and Nuyts Archipelago Marine Parks. Waters surrounding the Nuyts Archipelago and Investigator Group form part of the ecologically important offshore islands that protect the coastline. This marine park is a hotspot for productivity, with feeding aggregations of marine mammals, sharks and seabirds. 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, foraging habitat for Australian sea lions, white sharks and pygmy blue and sperm whales, and a calving buffer area for southern right whales.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 231 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

South West Marine Park Network	IUCN Zones	Natural Values
		<p>Cultural values</p> <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.</p> <p>The far west coast region of South Australia includes over 1000 km of coastline along the Nullarbor Cliffs of the Great Australian Bight and the Nyuts Archipelago, and supports a sea-based tradition and culture.</p> <p>The Mirning people have a strong connection to land and sea country of the Nullarbor, and the Wirangu people have a strong connection to land and sea country across the remainder of the far west coastal region. Fishing is woven into the beliefs and values of this region, through the use of resources such as shellfish, periwinkles, abalone and razorfish; and the sharing of traditional fishing knowledge, catch and meals. The care and protection of these waters, the coastline, marine life and resources correspond directly with cultural stories, sites and knowledge.</p> <p>South Australian Native Title Services is the Native Title Service Provider for the South Australian region.</p> <p>Heritage values</p> <p>No international, Commonwealth or national heritage listings apply to this marine park.</p> <p>Social and economic values</p> <p>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</p> <p>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 2335 km² and water depths range between 15 m and 165 m.</p> <p>Natural values</p> <p>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.</p> <p>Key ecological features are:</p> <ul style="list-style-type: none"> the ancient coastline between 90 m and 120 m depth 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>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 232 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

South West Marine Park Network	IUCN Zones	Natural 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. 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 AMPs for the North Marine Park Network

North Marine Park Network	IUCN Zones	Values
Arafura Marine Park	Multiple Use Zone (VI) Special Purpose Zone (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>

North Marine Park Network	IUCN Zones	Values
	Special Purpose Zone (Trawl) (VI)	<p>Natural values</p> <p>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.</p> <p>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</p> <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.</p> <p>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</p> <p>No international, Commonwealth or national heritage listings apply to this marine park.</p> <p>Social and economic values</p> <p>Commercial fishing, tourism, and recreation, including fishing, are important activities in this marine park.</p>
Arnhem Marine Park	Special Purpose Zone (VI)	<p>Description</p> <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 7125 km² and water depth ranges from less than 15 m to 70 m.</p>

North Marine Park Network	IUCN Zones	Values
		<p>Natural values</p> <p>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>
Gulf of Carpentaria Marine Park	National Park Zone (II) Special Purpose Zone (Trawl) (VI)	<p>Description</p> <p>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</p> <p>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.</p> <p>Key ecological features are:</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 • 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>

North Marine Park Network	IUCN Zones	Values
		<p>Cultural values</p> <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.</p> <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.</p> <p>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</p> <p>This marine park contains four known shipwrecks listed under the Historic Shipwrecks Act 1976—<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).</p> <p>No international, Commonwealth or national heritage listings apply to this marine park.</p> <p>Social and economic values</p> <p>Commercial fishing, tourism, and recreation, including fishing, are important activities in this marine park.</p>
Limmen Marine Park	Habitat Protection Zone (IV)	<p>Description</p> <p>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 1399 km² and water depths range from less than 15 m to 70 m.</p>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 236 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

North Marine Park Network	IUCN Zones	Values
		<p>Natural values</p> <p>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.</p> <p>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.</p> <p>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> <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.</p> <p>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</p> <p>No international, Commonwealth or national heritage listings apply to this marine park.</p> <p>Social and economic values</p> <p>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</p> <p>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 5908 km² and water depths between 15 m and 70 m.</p>

North Marine Park Network	IUCN Zones	Values
		<p>Natural values</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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 interesting and foraging habitat for marine turtles.</p> <p>Cultural values</p> <p>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.</p> <p>The Yolngu people have responsibilities for sea country in this marine park. This marine park contains sites which are registered under the Northern Territory Aboriginal Sacred Sites Act 1989 (NT). The Northern Land Council is the Native Title Representative Body for the Northern Territory's northern region.</p> <p>Heritage values</p> <p>No international, Commonwealth or national heritage listings apply to this marine park.</p> <p>Social and economic values</p> <p>Commercial fishing, tourism, and recreation, including fishing, are important activities in this marine park.</p>
West Cape York Marine Park	National Park Zone (II) Habitat Protection Zone (IV) Special Purpose Zone (VI)	<p>Description</p> <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>

North Marine Park Network	IUCN Zones	Values
		<p>Natural values</p> <p>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 are:</p> <ul style="list-style-type: none"> Gulf of Carpentaria basin 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, interesting and foraging habitat for marine turtles and dugong, and foraging, breeding and calving habitat for dolphins.</p> <p>Cultural values</p> <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.</p> <p>Torres Strait Islanders and coastal First Nations people of the west coast of Cape York have responsibilities for sea country in this marine park.</p> <p>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</p> <p>No international, Commonwealth or national heritage listings apply to the marine park.</p> <p>The marine park contains one known shipwreck listed under the Historic Shipwrecks Act 1976.</p> <p>Social and economic values</p> <p>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)	<p>Description</p> <p>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.</p> <p>The marine park covers an area of 71,743 km² and water depths from less than 15 m to 500 m.</p>

North Marine Park Network	IUCN Zones	Values
	Habitat Protection (IV)	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. Key ecological features are: <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 • shelf break and slope of the Arafura Shelf. 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.
		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.
		Heritage values No international, Commonwealth or national heritage listings apply to this marine park.
		Social and economic values Commercial fishing and mining are important activities in this marine park.
Joseph Bonaparte Gulf Marine Park	Multiple Use Zone (VI) Special Purpose Zone (VI) (NMR only)	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 8597 km ² and water depth ranges between less than 15 m and 100 m.

North Marine Park Network	IUCN Zones	Values
		<p>Natural values</p> <p>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.</p> <p>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.</p> <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 marine turtles and the Australian snubfin dolphin.</p> <p>Cultural values</p> <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 Miriuwung, Gajerrong, Doolboong, Wardenybeng 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 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</p> <p>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</p> <p>Tourism, commercial fishing, mining, and recreation including fishing, are important activities in this marine park.</p>

11.6 Threatened Ecological Communities

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 242 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPENDIX U 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 (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, Goolaraballoo, 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		

Threatened Ecological Communities in the SWMR		
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>

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)
- 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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 245 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					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).
The Ningaloo Coast	-	-	✓		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). 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).
The West Kimberley	✓	✓	-		Description The West Kimberley National Heritage Place covers an area of around 192,000 km ² 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). 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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 246 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Commonwealth Heritage Places – Natural					
Mermaid Reef – Rowley Shoals	-	✓	-		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).
					Conservation Values The Mermaid Reef-Rowley Shoals Commonwealth Heritage Place is regionally important for the diversity of its fauna and together with Clerke 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	✓	-	-		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).
					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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 247 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Scott Reef and Surrounds – Commonwealth Area	✓	-	-		<p>Description</p> <p>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</p> <p>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.</p> <p>Scott Reef is recognised as important for scientific research and benchmark studies due to its age, the extensive documentation of its 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).</p>
Ashmore Reef National Nature Reserve	✓	-	-		<p>Description</p> <p>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</p> <p>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.</p> <p>Ashmore Reef is an important scientific reference area for migratory seabirds, sea snakes and marine invertebrates.</p> <p>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>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 248 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Scott Reef and Surrounds – Commonwealth Area	✓	-	-		<p>Description</p> <p>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</p> <p>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.</p> <p>Scott Reef is recognised as important for scientific research and benchmark studies due to its age, the extensive documentation of its 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).</p>
Ningaloo Marine Area – Commonwealth Waters	-	-	✓		<p>Description</p> <p>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</p> <p>The Ningaloo Marine Area Commonwealth Heritage Place provides a migratory pathway for humpback whales and foraging habitat for whale shark.</p> <p>The place is an important breeding area for billfish and manta ray.</p> <p>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</p> <p>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>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 249 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					<p>Conservation Values</p> <p>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.</p> <p>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</p> <p>Located along the Ningaloo coastline, the Learmonth Air Weapons Range Facility was one of Australia's most active bombing ranges until 1990. It is of considerable importance in documenting sea level and landform changes since the late Cenozoic period (DCCEEW, n.d.-b).</p> <p>Conservation Values</p> <p>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.</p> <p>The Learmonth Air Weapons Range Facility meets the Commonwealth heritage listing criteria a,b,c (DCCEEW, n.d.-b).</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Wetlands of International Importance (Ramsar)					
Ashmore Reef National Nature Reserve	✓	-	-	Ramsar	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).
					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).
					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).
Eighty Mile Beach	-	✓	-	Ramsar	Description The Eighty Mile Beach Ramsar site covers an area of 1250 km ² , located along a long section of the Western Australian coastline adjacent to the Eighty Mile Beach AMP (refer below) (CALM, 2003a).
					Conservation Values The Eighty Mile Beach Ramsar site includes saltmarsh and a raised peat bog more than 7000 years old. 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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 251 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Roebuck Bay	-	✓	-	Ramsar	<p>Description</p> <p>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</p> <p>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.</p> <p>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</p> <p>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</p> <p>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.</p> <p>In addition, the False Mouths of the Ord are the most extensive mudflat and tidal waterway complex in Western Australia (DCCEEW, 2019a).</p>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 252 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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	✓	-	-		Description Ashmore Reef is a shelf-edge platform reef located among the Sahul Banks of north-western Australia. It covers an area of 583 km ² and consists of three islets surrounded by intertidal reef and sand flats (DCCEEW, 2019b).
					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).
Mermaid Reef	-	✓	-		Description Mermaid Reef Marine Park covers an area of around 540 km ² , located ~280 km west north-west of Broome, and is the most north-easterly atoll of the Rowley Shoals (DCCEEW, 2019b).
					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).
Exmouth Gulf East	-	-	✓		Description Exmouth Gulf East covers an area of 800 km ² and includes wetlands in the eastern part of Exmouth Gulf, from Giralia Bay; to Urala Creek, Locker Point (DCCEEW, 2019b).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 253 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					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. 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	-	-	✓		Description Hamelin Pool covers an area of 900 km ² in the far south-east part of Shark Bay (DCCEEW, 2019b).
					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).
Shark Bay East	-	-	✓		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).

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					<p>Conservation Values</p> <p>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.</p> <p>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.</p> <p>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</p> <p>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> <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 1000 islands and is home to listed species such as dugongs, marine turtles, and sawfishes (DPAW, 2016a).</p>
					<p>Social and Economic Values</p> <p>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</p> <p>The Wunambal Gaambara, 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>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 255 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Rowley Shoals Marine Park	-	✓	-	Sanctuary, Recreation and General Use Zones	<p>Description</p> <p>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</p> <p>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).</p> <p>Further offshore, the seafloor slopes away to the abyssal plain, some 6000 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</p> <p>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>
Yawuru Nagulagun / Roebuck Bay Marine Park	-	✓	-	Special Purpose Zone	<p>Description</p> <p>Yawuru Nagulagun / Roebuck Bay Marine Park is a series of intertidal flats lying on the coast to the south-east of Broome.</p> <p>Conservation Values</p> <p>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).</p> <p>Social and Economic Values</p> <p>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).</p>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 256 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					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).
					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).

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
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</p> <p>The Montebello Islands Marine Park, Barrow Island Marine Park and Barrow Island Marine Management Area are located off the north-west coast of WA, ~1600 km north of Perth, and cover areas of ~583 km², 42 km² and 1,147 km², respectively (DEC, 2007b).</p> <p>Conservation Values</p> <p>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.</p> <p>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</p> <p>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</p> <p>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>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Ningaloo Marine Park and Muiron Islands Marine Management Area (jointly managed)	-	-	✓	Sanctuary, Recreation, General Use and Special Purpose Zones	Description The Ningaloo Marine Park and Muiron Islands Marine Management Area are located off the North-west Cape, ~1200 km north of Perth, and cover areas of ~2633 km ² and 286 km ² respectively (CALM, 2005a).
					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).
					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).
					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).

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Shark Bay Marine Park and Hamelin Pool Marine Nature Reserve (jointly managed)	-	-	✓	Sanctuary, Recreation, General Use and Special Purpose Zones	<p>Description</p> <p>The Shark Bay Marine Park and Hamelin Pool Marine Nature Reserves are located 400 km north of Geraldton, covering areas of ~7487 km² and 1270 km², respectively (CALM, 1996).</p> <p>Conservation Values</p> <p>Seagrass covers over 4000 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> <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</p> <p>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</p> <p>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>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 260 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
Bardi Jawi Gaarra Marine Park	✓	-	-	Sanctuary, Recreation, Special Purpose Zones (biocultural conservation and cultural protection), and General use	<p>Description</p> <p>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 ~2040 km².</p> <p>Conservation Values</p> <p>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</p> <p>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</p> <p>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>
Lalang-gaddam Marine Park	✓	-	-	Sanctuary, Recreation, General Use and Special Purpose Zones	<p>Description</p> <p>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.</p> <p>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>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 261 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
					<p>Conservation Values</p> <p>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.</p> <p>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).</p> <p>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.</p> <p>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.</p> <p>Approximately 500 pairs of crested terns also nest on the island (DBCA, 2022b).</p> <p>Social and Economic Values</p> <p>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> <p>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).</p>

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description and Values
	Browse	NWS/S	NW Cape		
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 ~3150 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>

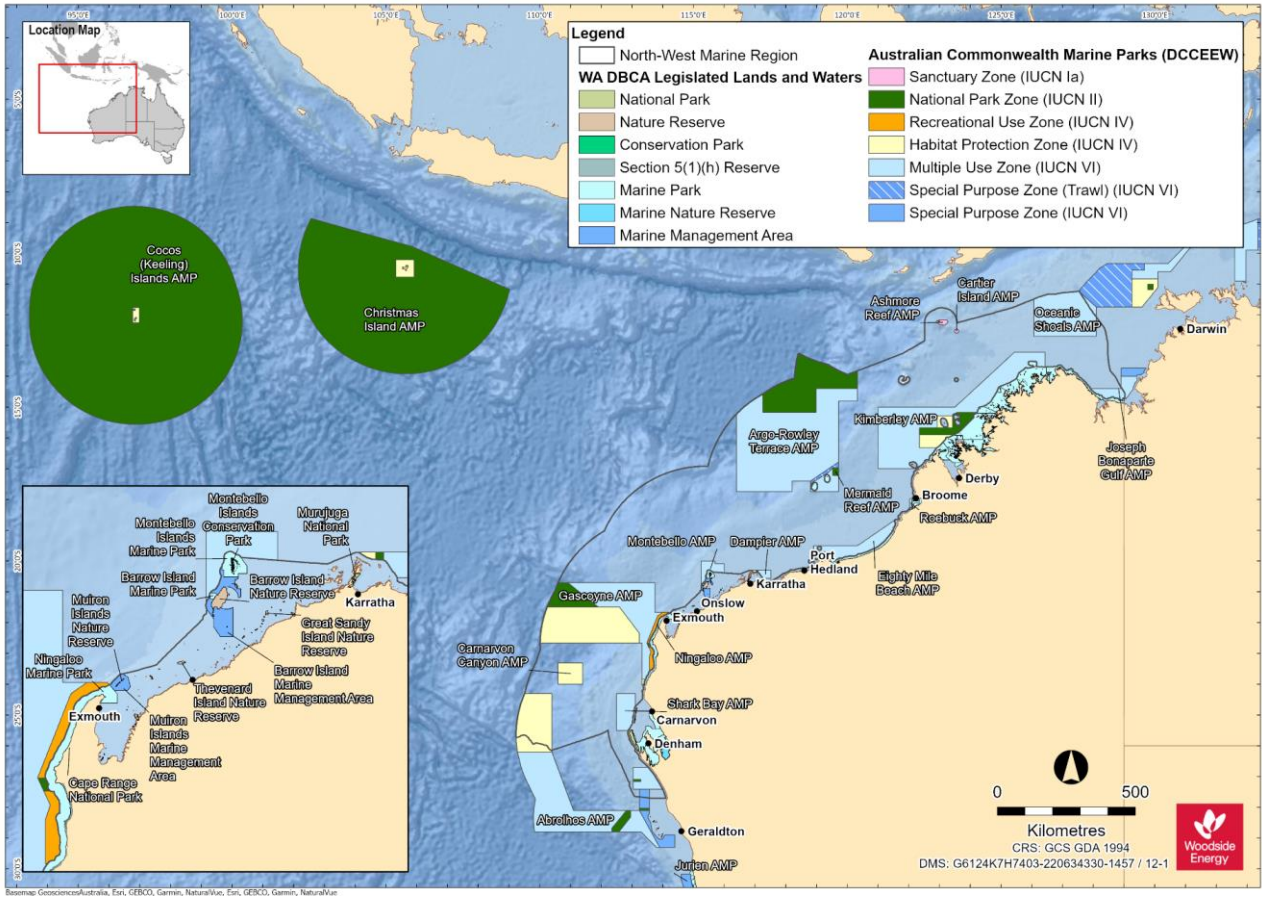


Figure 11-1: Commonwealth and State Marine Protected Areas for the NWMR and Indian Ocean Territories (data source: GA, 2024)

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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)		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).
		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).
National Heritage Places-- Natural		
N/A		
Commonwealth Heritage Places-- Natural		
Garden Island		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).
		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).
Wetlands of International Importance (Ramsar)		
Becher Point Wetlands	Ramsar	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 km ² . The site was listed under the Ramsar Convention in 2001 (DPAW, 2014b).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 265 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>Conservation Values</p> <p>The wetlands support sedgelands, herblands, grasslands, open-shrublands and low open-forests. The sedgelands that occur within the linear wetland depressions of the Ramsar site are a nationally listed threatened environmental community.</p> <p>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.</p> <p>The site meets criteria 1 and 2 of the Ramsar Convention (DPAW, 2014b).</p>
Forrestdale and Thomsons Lakes	Ramsar	<p>Description</p> <p>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.</p> <p>The site was listed under the Ramsar Convention in 1990 (CALM, 2003c).</p>
		<p>Conservation Values</p> <p>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.</p> <p>These lakes are the best remaining examples of brackish, seasonal lakes with extensive fringing sedgeland, typical of the Swan Coastal Plain.</p> <p>The site meets criteria 1, 3, 5 and 6 of the Ramsar Convention (CALM, 2003c).</p>
Peel-Yalgorup System	Ramsar	<p>Description</p> <p>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.</p> <p>The site was listed under the Ramsar Convention in 1990 (CALM, 2003d).</p>
		<p>Conservation Values</p> <p>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.</p> <p>The site meets criteria 1, 3, 5 and 6 of the Ramsar Convention (CALM, 2003d).</p>

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
Vasse-Wonnerup System	Ramsar	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).
		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 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	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.
		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).
Wetlands of National Importance (DAWE, 2019)		
Rottneest Island Lakes		Description The Rottneest Island Lakes site is the cluster of 18 lakes and swamps on the north-east part of Rottneest Island (DCCEEW, 2019b).
		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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 267 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
State Marine Parks and Reserves		
Jurien Bay Marine Park	Sanctuary, Special Purpose and General Use Zones	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 km ² (CALM, 2005b).
		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).
		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).
		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).
Marmion Marine Park	Sanctuary, Recreation and Special Use Zones.	Description The Marmion Marine Park lies within State waters between Trigg Island and Burns Beach and encompasses a coastal area of ~95 km ² . Marmion Marine Park was the State's first marine park, declared in 1987 (CALM, 1992).
		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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 268 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>Social Values</p> <p>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>
South Coast Marine Park	Sanctuary Zone Special Purpose Zone (cultural protection) Special Purpose Zone (whale conservation) Special Purpose Zone (wildlife conservation) General Use Zone	<p>Description</p> <p>The south-west marine park lies within State waters, between Bremer Bay to the WA/SA border.</p>
		<p>Ecological Values</p> <p>The marine park supports seagrass meadows, macroalgae, cetaceans, pinnipeds, shorebirds and seabirds, fish, sharks and rays, and marine invertebrates. The South-west region has some of the highest seagrass and macroalgal diversity globally, approximately half of the species found here occur nowhere else in the world. The marine park supports foraging areas for cetaceans and seabird and shorebirds, and habitat for the Australian sea lion and New Zealand fur seal. The region supports high proportion of endemic species and high diversity of marine invertebrates (DBCA, 2024).</p>
		<p>Social Values</p> <p>The marine park supports recreational and commercial fishing, and recreational activities and tourisms such as, diving and snorkelling, surfing, four-wheel driving, camping, wildlife watching, swimming, kayaking, and boating (DBCA, 2024).</p>
		<p>Cultural and heritage values</p> <p>First Nations people have had connection in the Western Australian south coast for tens of thousands of years. Native title or traditional ownership has been recognised for several First Nations groups throughout the region, including the Wagyl Kaip and Southern Noongar Traditional Owners, and the Esperance Nyungar, Ngadju People and Mirning People native title holders.</p>
Swan Estuary Marine Park	Special Purpose and Nature Reserve Zones	<p>Description</p> <p>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</p> <p>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> <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>

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>Cultural Values</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>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>

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
Ngari Capes Marine Park	Sanctuary, Special Purpose and Recreation Zones	Description The Ngari Capes Marine Park is located off the south-west coast of Western Australia, ~250 km south of Perth, covering ~1238 km ² (DEC, 2013).
		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 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).
		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 finfish, 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).
		Cultural Values The Pibelman 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).
Walpole and Nornalup Inlets Marine Park	Recreation Zone	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 km ² (DEC, 2009a).
		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).
		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).

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Description of the Existing Environment

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 272 of 381

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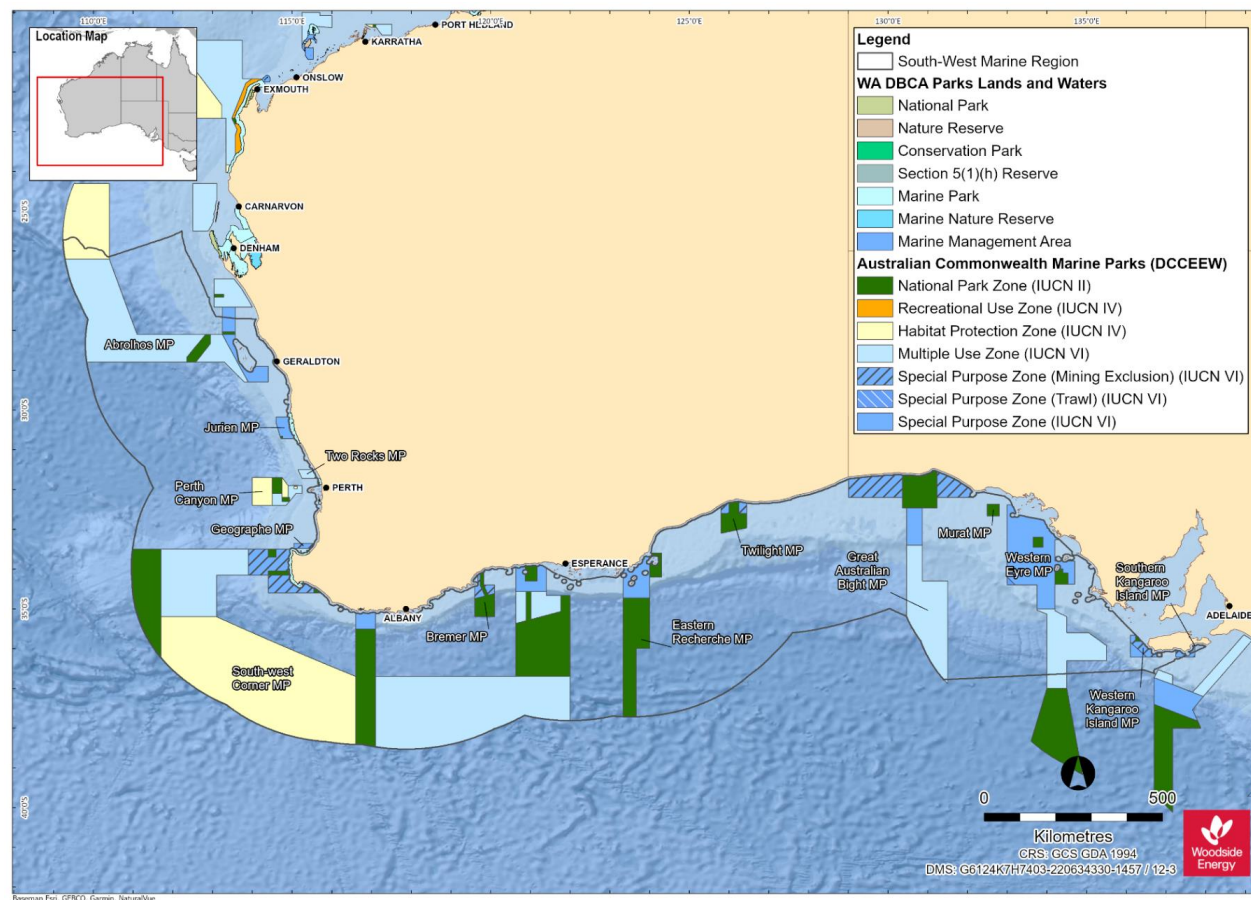


Figure 11-2: Commonwealth and State Marine Protected Areas for the SWMR (data source: GA, 2024)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 273 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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
<i>World Heritage Properties</i>		
Kakadu National Park		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 km ² (Director of National Parks, 2016).
		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).
		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).
		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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 274 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Description of the Existing Environment

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).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 275 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
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 ~5460 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).
		Social Values The area is an important site for recreational barramundi fishing and is a popular site for ecotourism (DCCEEW, 2019b).
Territory Marine Parks and Reserves		
Cobourg Marine Park	II, IV, VI	Description Cobourg Marine Park covers an area of 2290 km ² 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)
		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).
		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).
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Controlled Ref No: G2000RH1401743486		
Revision: 2		
Woodside ID: 1401743486		
Page 276 of 381		
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Description of the Existing Environment

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description and Values
		<p>Cultural Values</p> <p>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>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 277 of 381

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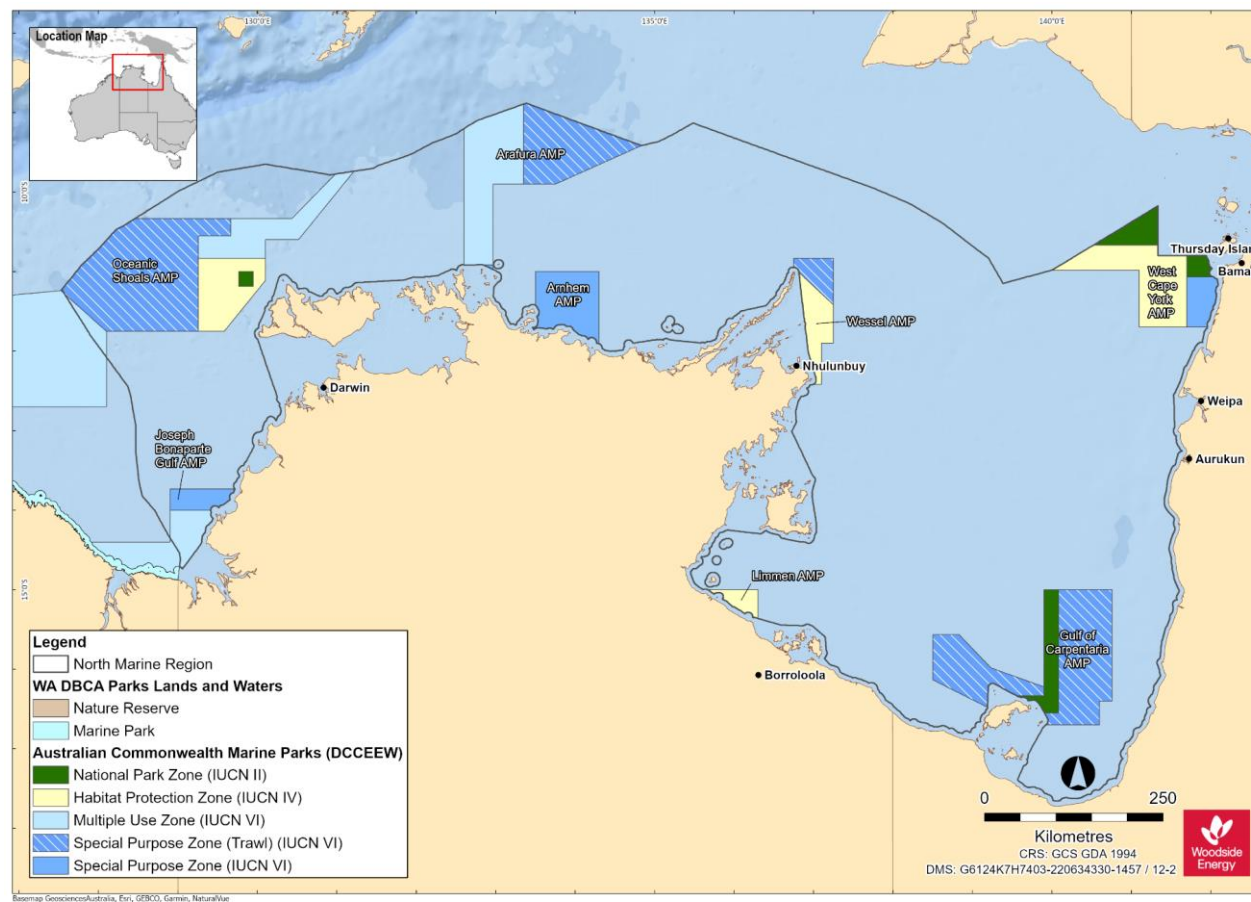


Figure 11-3: Commonwealth and State Marine Protected Areas within the NMR (data source: GA, 2024)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 278 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 279 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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.

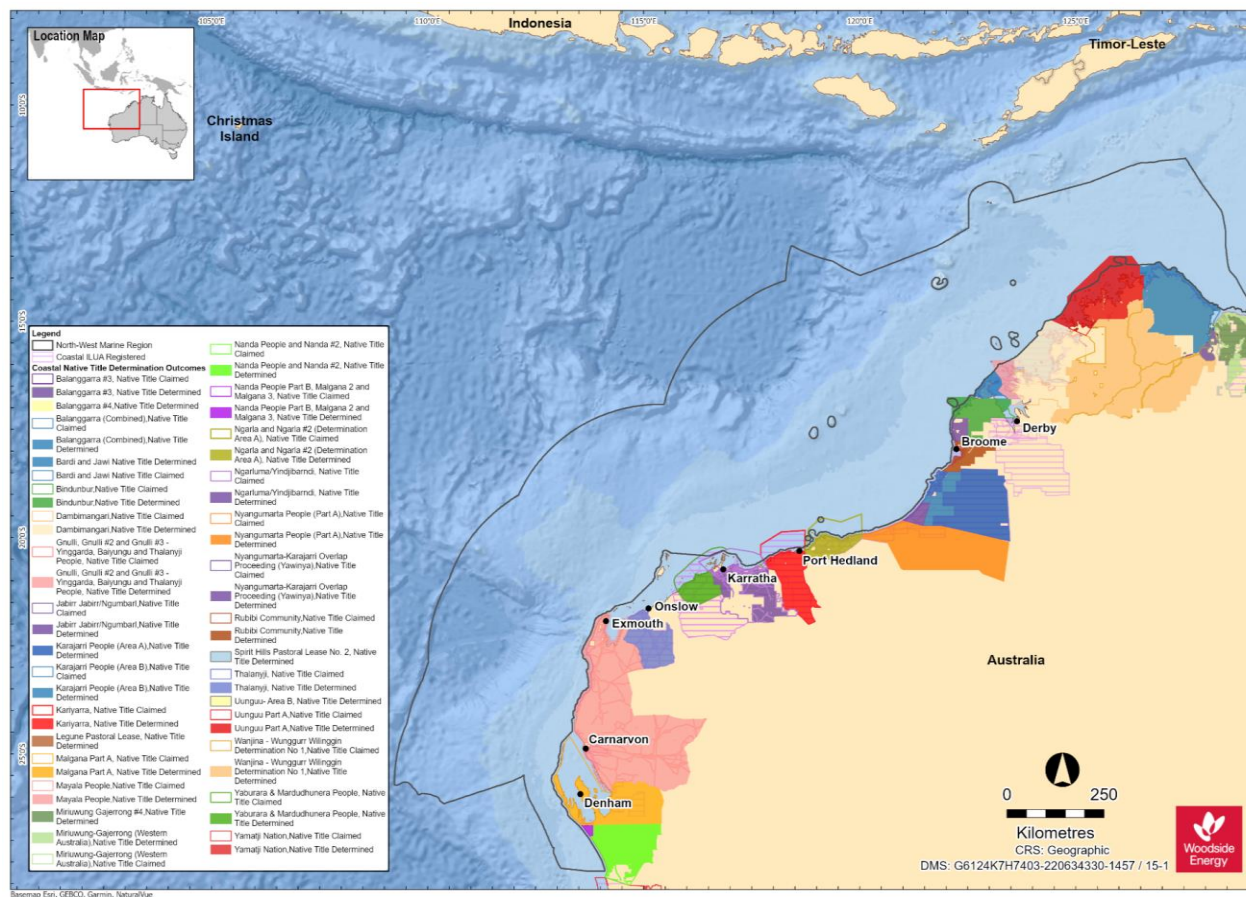


Figure 12-1: Coastal Native Title Claims / Determinations and Indigenous Land Use Agreements (ILUAs) in the NWMR (data source: DPLH, 2024)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 281 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

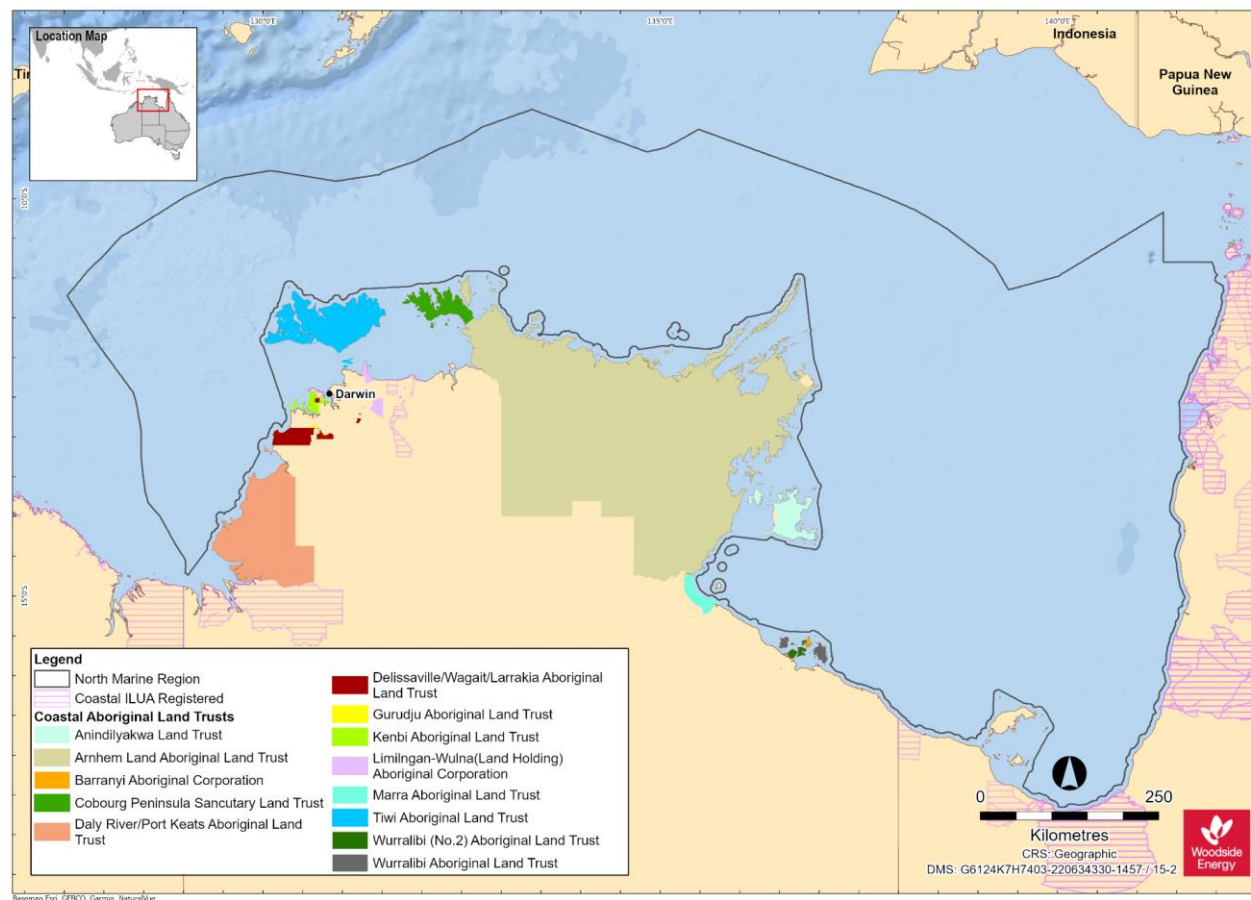


Figure 12-2: Coastal Native Title Claims / Determinations and ILUAs in the NMR (data source: DPLH, 2024)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 282 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

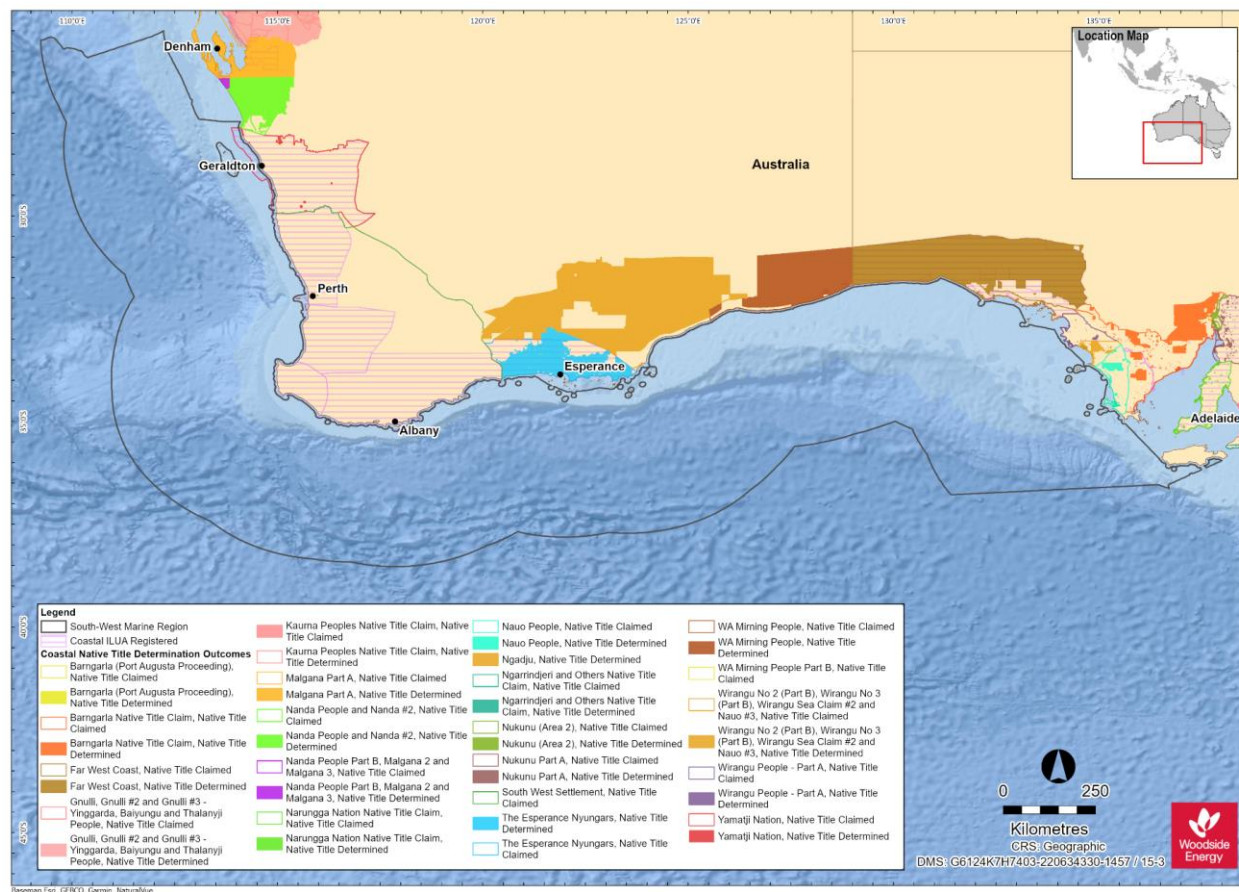


Figure 12-3: Coastal Native Title Claims / Determinations and ILUAs in the SWMR (data source: DPLH, 2024)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 283 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 5000 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 (IPAs)

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, Tukujana 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 12-4.

The following IPAs are within the NWMR:

12.1.5.1 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 and YMAC, 2015).

12.1.5.2 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 Tukumana 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).

12.1.5.3 Yawuru IPA

The Yawuru IPA was dedicated by Yawuru people in 2017, covering 2109 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, being:

- 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). Other ecological values include pearl shell beds for pearl oysters and habitat for a range of EPBC Act listed threatened species (YRNTBC, 2014).

12.1.5.4 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 garrabal (birds), including eastern curlews and fork-tailed swifts (KLC/BJNAC RNTBC, 2013).

12.1.5.5 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:

- 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).

12.1.5.6 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 Gaambara people for many thousands of years and is part of the Wanjin Wunggurr culture. Wunambal Gaambara 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 Gaambara Healthy Country Plan (WGAC, 2017)²¹.

Ten targets identified in the Wunambal Gaambara Healthy Country Plan are:

- Wanjin 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).

²¹ 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.

12.1.5.7 Balanggarra IPA

The Balanggarra IPA was dedicated on August 7, 2013. The IPA spans over one 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 1000 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).

12.1.5.8 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 identified in the Wilinggin Healthy Country Plan 2023–2032 are:

- becoming strong on country
- food and medicine plants
- bushfire
- law and culture sites
- law and culture
- freshwater places
- wildlife and bush meats.

The Wungurr Rangers are caretakers of the unique natural and cultural values of Wilinggin country (Wilinggin Aboriginal Corporation, 2022).

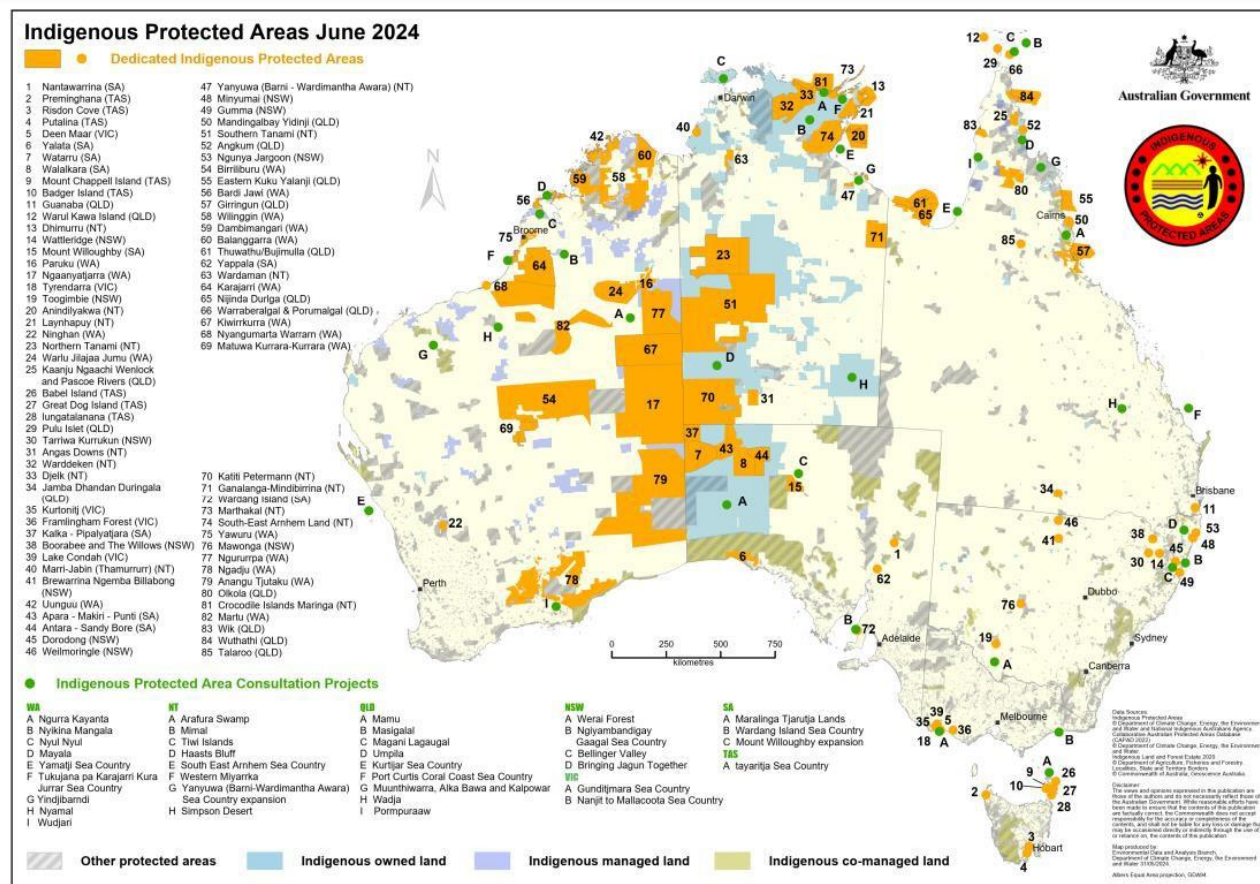


Figure 12-4: IPAs in Australia (data source: DCCEEW and NIAA, 2024)

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Controlled Ref No: G2000RH1401743486 Revision: 2 Woodside ID: 1401743486 Page 290 of 381

Revision: 2 Woodside ID: 1401743486 Page 290 of 381

Woodside ID: 1401743486 Page 290 of 381

Page 290 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

12.1.6 First Nations Cultural Heritage

Woodside understands that communal cultural connection exists 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 12-5 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>

Value	Details
Creation/dreaming sites, sacred sites and ancestral beings	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 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.

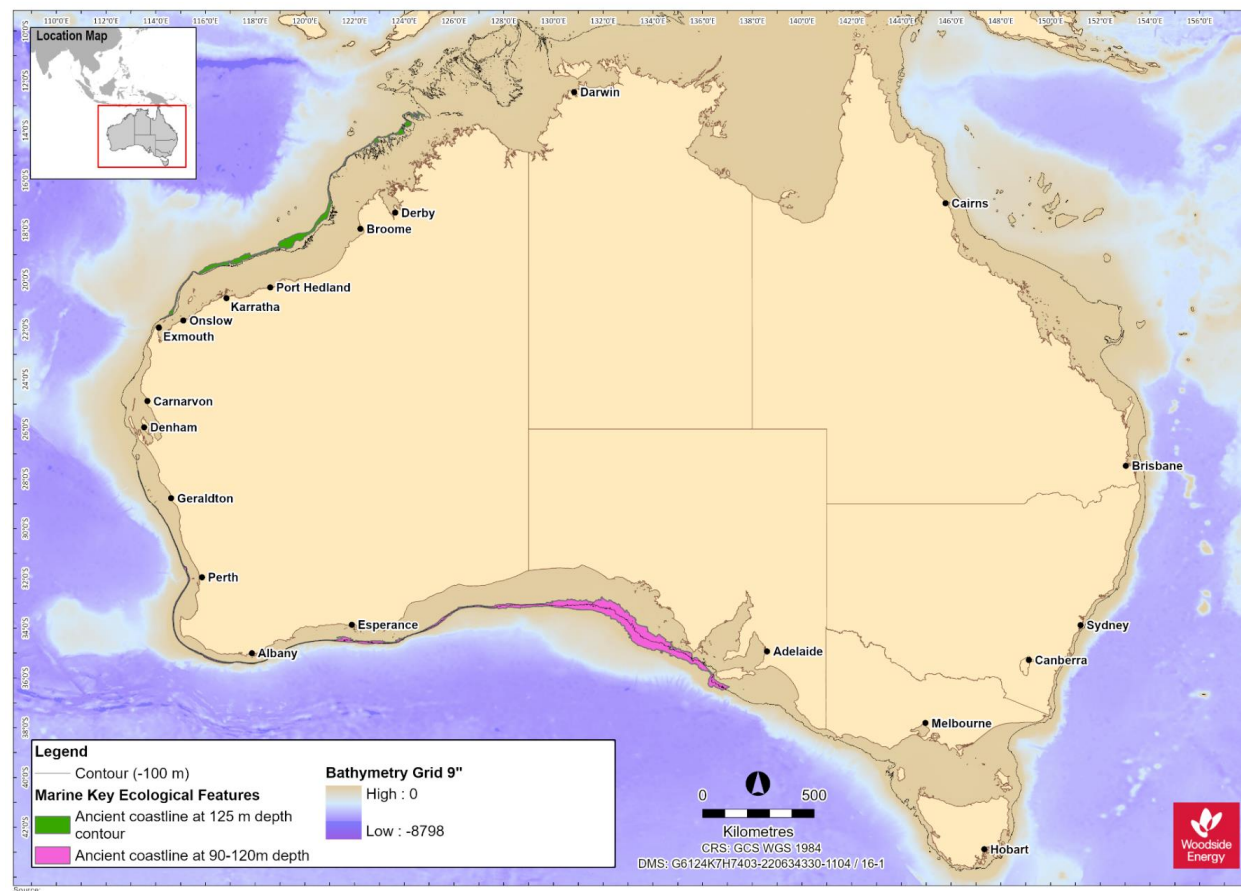


Figure 12-5: Indicative bathymetry of the ancient submerged landscape (data source: GA, 2024; DCCEEW, 2024d)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 295 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 4913 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 1600 registered sites on Murujuga and the Dampier Archipelago with around 1100 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 EPBC Act. 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 EPBC Act. 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.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 296 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 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 (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						

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 298 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Table 12-4: Heritage Places (Indigenous and historic) within the NMR

Heritage Places	Class	Description	Conservation Values
<i>National Heritage Properties</i>			
None			
<i>Commonwealth Heritage Properties</i>			
None			

Table 12-5: Heritage Places (Indigenous and historic) within the SWMR

Heritage Places	Class	Description	Conservation Values
<i>National Heritage Properties</i>			
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 Xanthorrhoea (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.

Heritage Places	Class	Description	Conservation Values
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.
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).

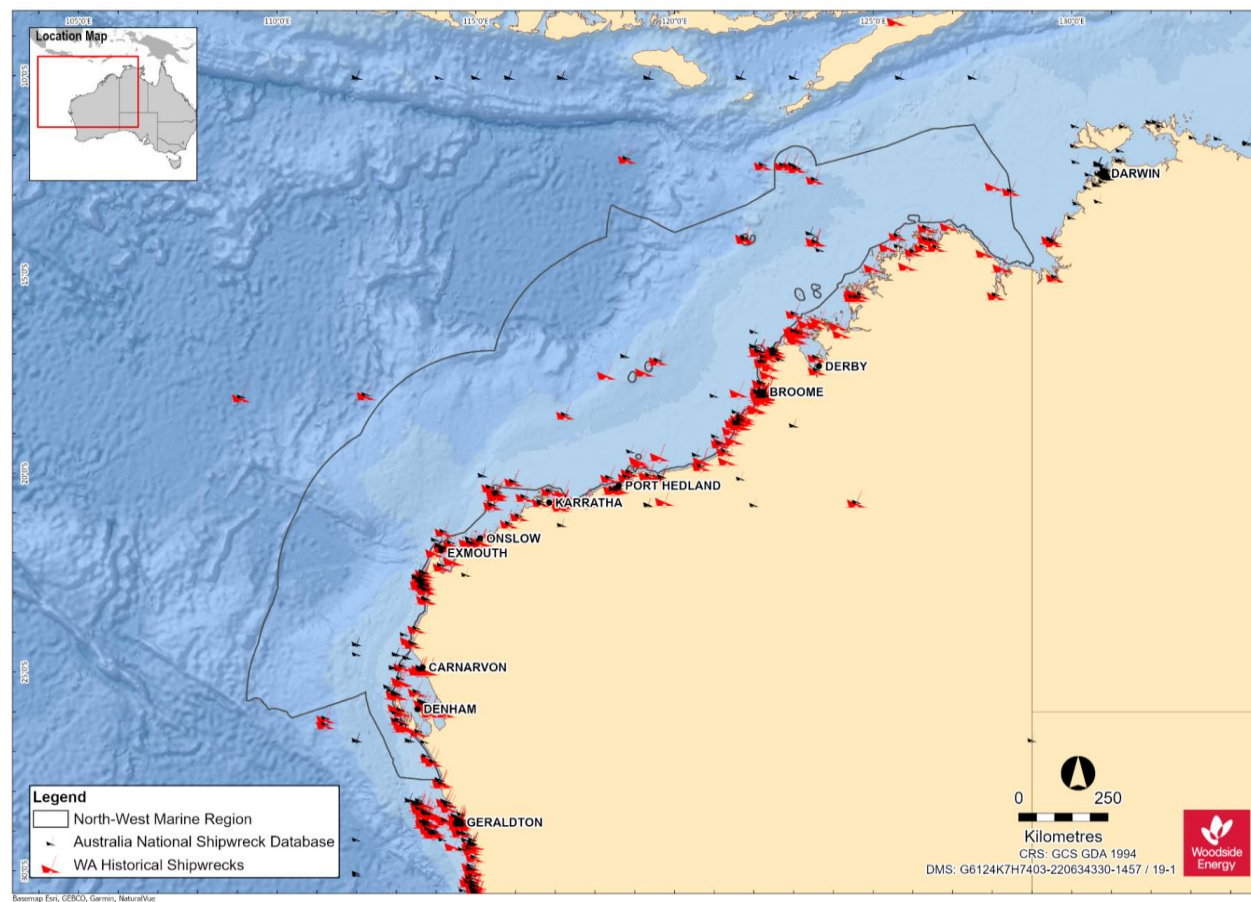


Figure 12-6: Shipwrecks in the NWMR (data source: WAM, 2018 and AODN, 2008)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 301 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

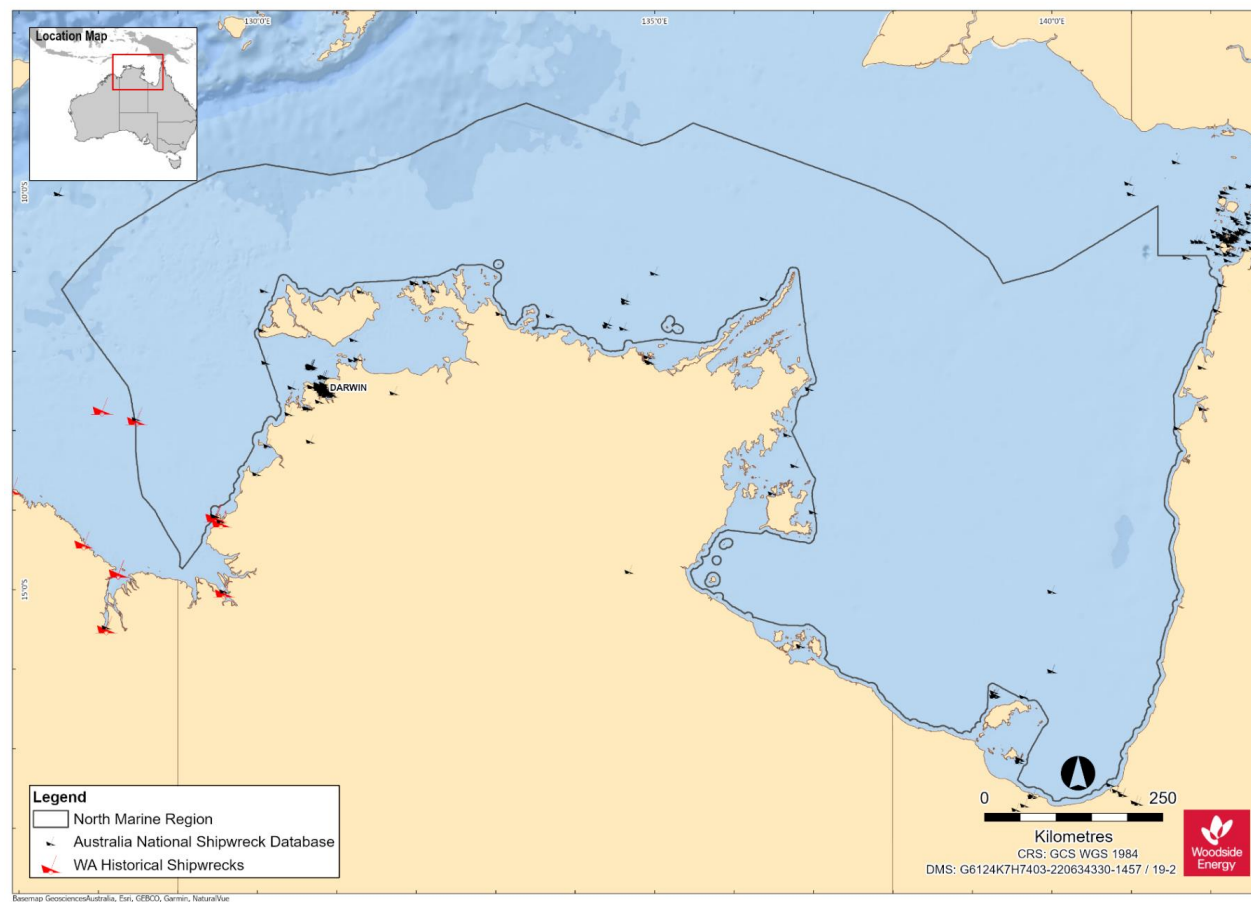


Figure 12-7: Shipwrecks in the NMR (data source: WAM, 2018 and AODN, 2008)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 302 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

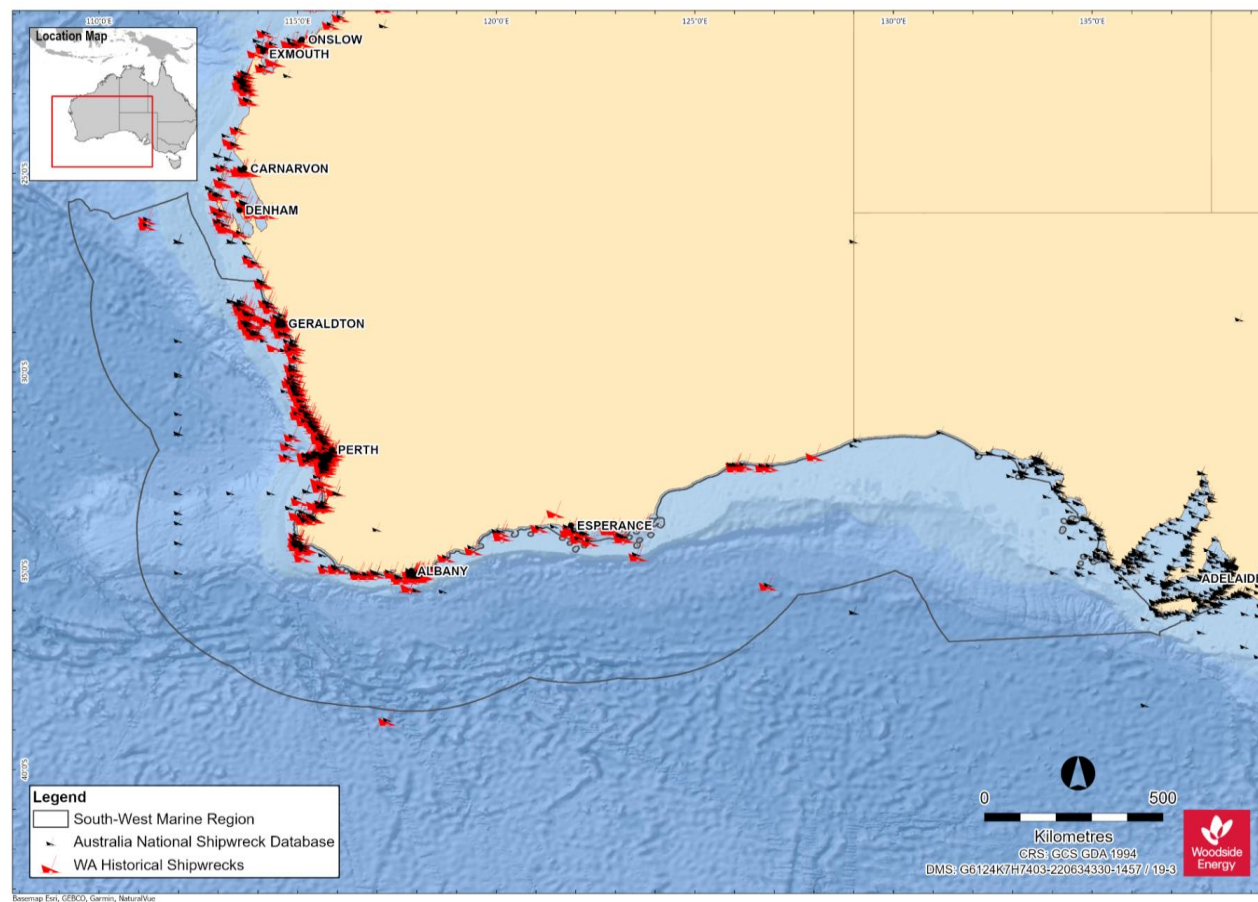


Figure 12-8: Shipwrecks in the SWMR (data source: WAM, 2018 and AODN, 2008)

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 303 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

12.2 Socio-Economic Values

Socio-economic values include commercial and traditional fishing, tourism and recreation, shipping, oil and gas activities and defense 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	NWC			
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	Fishing methods	Fishing depth
				Southern bluefin tuna (<i>Thunnus maccoyii</i>)	Longline, purse seine fishing, and minor line (troll and poling).	Southern bluefin tuna is a pelagic species which can be found to depths of 500 m (AFMA, 2021a).
				Fishing effort	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). 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 five to six 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 (one to four 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). The stock is classified as not overfished (Patterson and Dylewski, 2023a). A total of 5972 t bluefin tuna catch was recorded for the 2021–22 fishing season, an increase from 5646 t in the 2020–21 period (Patterson and Dylewski, 2023a). Of the total catch, 4957 t were collected using purse seine and 1015 from pelagic longline.	
				Active licences/ vessels	Eight purse seine vessels and 22 longline vessels, an increase from seven purse seine vessels and 20 longline vessels in the 2020–21 period (Patterson and Dylewski, 2023a).	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 305 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
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 2008–09 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). 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).	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 306 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description	
	Browse	NWS/S	NWC		
				Active licences/ vessels:	Two pelagic longline and 3 minor line vessels were active during the 2021-22 season (Patterson et al., 2023).
Western Deepwater Trawl Fishery			✓	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).
				Species targeted	Fishing methods
				More than 50 species, historically dominated by six commercial finfish species or species groups: <ul style="list-style-type: none"> orange roughy (<i>Hoplostethus atlanticus</i>) oreos (<i>Oreosomatidae</i>) boarfish (<i>Pentacerotidae</i>) eteline snapper (<i>Lutjanidae: Etelinae</i>) apsiline snapper (<i>Lutjanidae: Apsilinae</i>) sea bream (<i>Lethrinidae</i>). 	Demersal trawl.
				Fishing effort:	Fishing depth
				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 1108 in 2017–18 (Keller et al., 2023). 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).	Water deeper than 200 m (Blake et.al., 2021).
				Active licences/ vessels:	Since 2004–05, one to three vessels have been active in the fishery, with two active vessels in 2021–22 (Keller et al., 2023).

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
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
				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).	Fishing for scampi occurs over soft, muddy sediments or sandy habitats, using demersal trawl gear on the continental slope (Patterson et al., 2017).	Typically depths of 350 to 600 m (Patterson et al., 2017).
				Fishing effort:	The North-west Slope Trawl Fishery commenced in 1985 and the number of active vessels peaked at 21 in the 1986–87 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).	
				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 Curtotti, 2023).	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 308 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
Pilbara Fish Trawl (Interim) Managed Fishery		✓		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).	
				Species targeted	Fishing methods	Fishing depth
				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).	Demersal trawl. The fishery operates with standard stern trawling gear (single net with extension sweeps) (Newman et al., 2021a).	The fishery operates in waters between 50 and 200 m water depth (Allen et al., 2014; Newman et al., 2015).
				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). The biological stocks for the Pilbara Demersal Scalefish Fisheries are classified as sustainable-adequate (Wakefield et al., 2023a).	
				Active licences/ vessels:	Four active vessels in the trawl sector in 2022 (Wakefield et al., 2023a).	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
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 to 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).	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 310 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
Pilbara Line Managed Fishery		✓	✓	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 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>), other species from the genus <i>Scomberomorus</i> .	Trolling, baits or lures cast, jigging (Lewis et al., 2020).	Information not available.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 311 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
				Fishing effort: <p>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).</p> <p>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 and Rynvis, 2023).</p> <p>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 19.7 t and 18.2 t, and other species contributed to the remaining <10 t of the total catch (Lewis and Watt, 2023).</p> <p>All species stocks are sustainable-adequate (Lewis and Rynvis, 2023).</p>		
				Active licences/ vessels: <p>There were 16 vessels in 2022, primarily from May to November (Lewis and Rynvis, 2023).</p>		
Marine Aquarium Fish Managed Fishery	✓	✓	✓	Management area: <p>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>		
				Species targeted <p>Finfish, hard coral, soft coral, tridacnid clams, syngnathids (seahorses and pipefish), other invertebrates (including molluscs, crustaceans, echinoderms), algae, seagrasses and 'live rock'.</p> <p>The resource potentially includes over 1500 species of marine aquarium fishes (Newman et al., 2021b).</p>	Fishing methods <p>The fishery is diver-based, which typically restricts effort to safe diving depths (less than 30 m).</p>	Fishing depth <p>Information not available.</p>

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 312 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
				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 39 L 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 and living sand and <20 L 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)		
				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).		
Western Australian Sea Cucumber Fishery (formerly Beche-de-mer Fishery)	✓	✓	✓	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).		
				Species targeted	Fishing methods	Fishing depth
				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.
				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). 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).		

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 313 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description	
	Browse	NWS/S	NWC		
				Active licences/ vessels:	Two operating vessels operating in 2022 (Hart et al., 2023f).
Onslow Prawn Managed Fishery		✓		Management area:	The Onslow Prawn Managed Fishery encompasses a portion of the continental shelf off the Pilbara.
				Species targeted	Fishing methods
				Western king prawns (<i>Penaeus esculentus</i>), brown tiger prawns (<i>Penaeus esculentus</i>), blue endeavour prawns (<i>Metapenaeus endeavouri</i>).	Low opening, otter prawn trawl systems.
				Fishing effort:	Fishing depth
				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).	Fishery and or fishing activity overlaps the Beadon Creek dredging scope (Sporer et al., 2015).
Pearl Oyster Managed Fishery	✓	✓	✓	Active licences/ vessels:	One vessel active in 2021 (Kangas et al., 2023a).
				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).
				Species targeted	Fishing methods
				Silver lipped pearl oysters (<i>Pinctada maxima</i>).	Drift diving.
				Fishing effort:	Fishing depth
				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 8175 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).	Fishing effort is mostly focused in shallow coastal waters (10–15 m depth), with a maximum depth of 35 m (Lulofs et al., 2002).

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 314 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description	
	Browse	NWS/S	NWC		
				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
				Blue swimmer crab (<i>Portunus armatus</i>) (Johnston et al., 2021).	Hourglass traps (Johnston et al., 2021).
				Fishing effort:	Fishing depth
				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).	Up to 50m deep (Johnston et al., 2020a).
South West Coast Salmon Managed Fishery	✓	✓	✓	Active licences/ vessels:	No information available currently.
				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
				Western Australian salmon (<i>Arripis truttaceus</i>).	Beach seine nets.
				Fishing effort:	Fishing depth
				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).	Information not available.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 315 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description	
	Browse	NWS/S	NWC		
				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
				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 popular with shell collectors, such as cowries, cones, murexes and volutes (Hart et al., 2023c).	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).
				Fishing effort:	Fishing depth
				A total of 5074 specimen shells were collected in 2022, distributed over 200 species (Hart et al., 2023f). A total of 5443 specimen shells were collect distributed over 200 species in 2021 (Hart et al., 2023b). Total number of specimen shells collected in 2020 was 4258 shells, across 206 species (Hart et al., 2021c). Stocks of landed species in the Specimen Shell Managed Fishery are classified as sustainable – adequate (Hart et al., 2023f).	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).
				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).

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
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). 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 the 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 shark (<i>Carcharhinus tilstoni</i>), 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.	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 317 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
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>) giant (king) crab (<i>Pseudocarcinus gigas</i>) champagne (spiny) crabs (<i>Hypothalassia acerba</i>). Catches are dominated by crystal crabs of which 99% of their total allowable catch was landed in 2020 (How and Baudains, 2021).	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 500–800 m). Most of the commercial crystal crab catch is taken in depths of 500–800 m (WAFIC ²²).
				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).	
				Active licences/ vessels:	There were seven licence holders with five vessels active in 2022 (How et al., 2023c).	
Abrolhos Islands and Mid-West Trawl Fishery			✓	Management area:	The Abrolhos Islands and Mid-West Trawl Fishery operates around the Abrolhos Islands within the SWMR.	
				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 40 m depth at the Abrolhos Islands (Kangas et.al., 2021a).

²² <https://www.wafic.org.au/fishery/west-coast-deep-sea-crustacean-fishery/>

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
				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	
				Active licences/ vessels:	The number of vessels is unreported. There were 10 licences 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>), blue endeavour prawn (<i>Metapenaeus endeavouri</i>), banana prawn (<i>Penaeus merguensis</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	NWC			
Gascoyne Demersal Scalefish Managed Fishery			✓	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).	
				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).	
				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 (WAFIC ²³).	
				Species targeted	Fishing methods	Fishing depth
				Pink snapper (<i>Chrysophrys auratus</i>), goldband snapper (<i>Pristipomoides multidens</i>). Other demersal species caught include: <ul style="list-style-type: none"> tropical snappers emperors cods mulloway trevallies. 	Mechanised handlines.	The target species inhabit waters deeper than 20 m (Jackson et.al., 2021a).
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: 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).	

²³ <https://www.wafic.org.au/fishery/gascoyne-demersal-scalefish-fishery/>

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
				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).	
Kimberley Crab Managed Fishery (formerly Kimberley Developing Mud Crab Fishery)	✓			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).	
				Species targeted	Fishing methods	Fishing depth
				Brown mud crab (<i>Scylla olivacea</i>), green mud crab (<i>Scylla serrata</i>).	Trap. Exemption holders use crab traps and drop nets in waters adjacent to native title lands (Johnston et al., 2023).	Information not available.
				Fishing effort:	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).	
				Active licences/ vessels:	There is an allocation of 1200 units (equivalent to 600 traps) to licence 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 October (Johnston et al., 2023a).	
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 latisulcatus</i>), brown tiger prawn (<i>Penaeus esculentus</i>), blue endeavour prawn (<i>Metapenaeus endeavour</i>).	Low opening, otter prawn trawl systems.	Information not available.

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
				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
				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 1458 t in 2022, 1544 t in 2021, 1419 t in 2020, 1507 t in 2019, and 1297 t in 2018. In 2022, the majority of the catch was landed from Zone B, with 1235 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).		

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
Octopus Interim Managed Fishery	-	-	-	Management area:	The Octopus Interim Managed 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 Managed 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). 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 (yellowfin <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).	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
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: 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).	
				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).	
Shark Bay Prawn and Scallop Managed Fishery	-	-	-	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).	
				Species targeted	Fishing methods	Fishing depth
				Western king prawn (<i>Penaeus latisulcatus</i>), brown tiger prawn (<i>Penaeus esculentus</i>), endeavour prawns (<i>Metapenaeus endeavouri</i>), coral prawns (<i>Metapenaeopsis</i> sp.), saucer scallop (<i>Amusium balloti</i>).	Low-opening otter trawls.	Information not available.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
				Fishing effort:	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).	
				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 licences) and boats that also fish for prawns (18 Class B licenses). There were eight vessels (Wilkin et al., 2023a).	
				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.	
South Coast Crustacean Managed Fishery	-	-	-	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.
				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).	

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 325 of 381

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Fishery	Woodside Activity Area			Description	
	Browse	NWS/S	NWC		
				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).
South Coast Purse Seine Managed Fishery	-	-	-	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).
				Species targeted	Fishing methods
				Small pelagic finfish. Australian sardine (pilchards, <i>Sardinops sagax</i>), yellowtail scad (<i>Trachurus novaezelandiae</i>), 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.	Purse seine nets from vessels.
				Fishing effort:	Information not available.
				Active licences/ vessels:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: The South Coast Purse Seine Managed Fishery landed 1636 t in 2022, 1255 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).

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
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
				Scallops (<i>Ylistrum balloti</i> , formerly <i>Amusium balloti</i>) and associated by-products. In years of low scallop catches, licencees 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.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 327 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
				Fishing effort:	Previous years catch based on State of the Fisheries annual reports provided by DPIRD: 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. The stock status of target species is sustainable-adequate (Duffy et al., 2023b).	
				Active licences/ vessels:	Catch was recorded against eight licences in 2022 (Duffy et al., 2023d).	
West Coast Beach (Beach Bait Fish Net) Managed Fishery	-	-	-	Management area:	Primarily active in the Bunbury areas in the SWMR, operates between 26° and 33° S.	
				Species targeted	Fishing methods	Fishing depth
				Whitebait.	Beach-based haul nets.	Information not available.
				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).	
				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)	
West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery	-	-	-	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).	
				Species targeted	Fishing methods	Fishing depth
				Gummy shark (<i>Mustelus antarcticus</i>), dusky shark (<i>Carcharhinus obscurus</i>), whiskery shark (<i>Furgaleus macki</i>). Sandbar shark (<i>C. plumbeus</i>) Scalefish are a byproduct.	Gillnet and longline.	Information not available.

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
				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).		
				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).		
West Coast Demersal Scalefish Interim Managed Fishery	-	-	-	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.		
				Species targeted	Fishing methods	Fishing depth
				The resource comprises over 100 species, including: <ul style="list-style-type: none"> • baldchin groper (<i>Choerodon rubescens</i>) • dhufish (<i>Glaucosoma hebraicum</i>) • pink snapper (<i>Pagrus auratus</i>). 	Lines.	Information not available.
				Fishing effort: 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. 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).		
				Active licences/ vessels: 30 licenced vessels operated in 2022 (Fisher et al., 2023a).		

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 329 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NWC			
West Coast Purse Seine Managed Fishery	-	-	-	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).	
				Species targeted	Fishing methods	Fishing depth
				Small pelagic finfish such as: <ul style="list-style-type: none"> • 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.
				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 licencees 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% scaley mackerel and 31% Australian sardine (Norriss and Blazeski, 2023d). Both the scaley mackerel and Australian sardine have a stock status classified as sustainable – adequate (Norriss and Blazeski, 2023d).	
				Active licences/ vessels:	Five active vessels in 2022 (Norriss and Blazeski, 2023d).	
West Coast Rock Lobster Managed Fishery			✓	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.	
				Species targeted	Fishing methods	Fishing depth
				Western rock lobster (<i>Panulirus cygnus</i>).	Baited pots.	Information not available.

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 330 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

Fishery	Woodside Activity Area			Description	
	Browse	NWS/S	NWC		
				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 and Walsh, 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 to 14 Jan 2022) (How and Wiberg, 2023a). Landings for the 12-month (2021–22) season was 6334 t and the 18-month 2020–21 season was 9132 t. Commercial landings over the traditional 12-month season (15 Jan 2020 to 14 Jan 2021) were 5696 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 and Walsh, 2023).	

12.2.2 Fish Habitat Protection Areas

Fish Habitat Protection Areas (FHPAs) 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 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 FHPAs (four within the NWMR and two within the SWMR):

- Abrolhos Islands
- Kalbarri Blue Holes
- Miaboolya Beach
- Point Quobba
- Cottesloe Reef
- Lancelin Island Lagoon.

12.2.2.1 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, tammar 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 1 November and 31 January)

- spatial closures (e.g. Reef Observation Areas ~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 (*Sillago 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).

12.2.2.2 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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 334 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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).

12.2.3 Aquaculture

Aquaculture operations in the northwest are typically restricted to inland and shallow coastal waters.

12.2.3.1 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).

12.2.3.2 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).

12.2.3.3 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).

12.2.3.4 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).

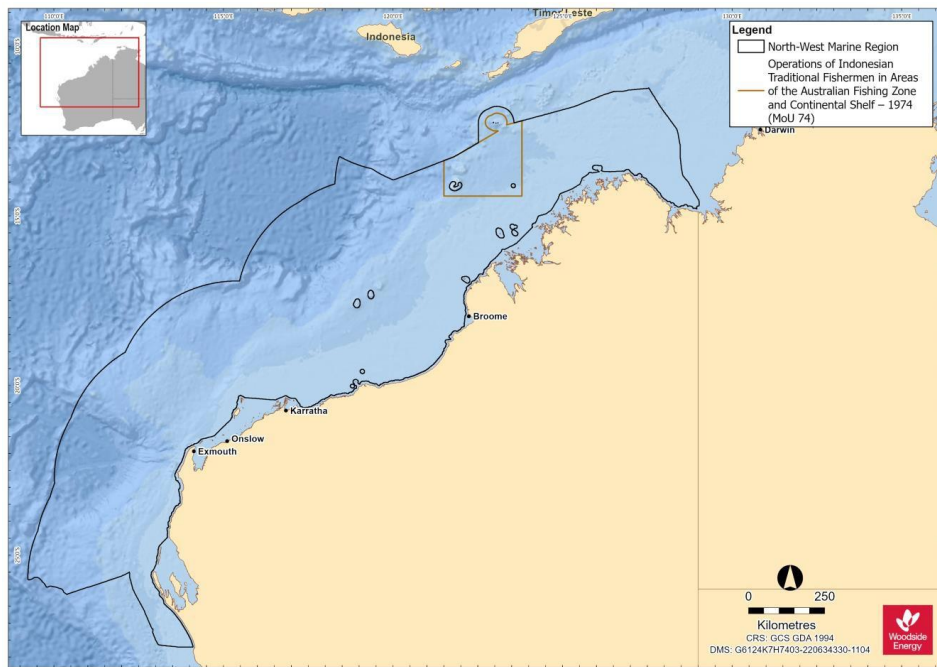


Figure 12-9: MOU 74 Box: operations of Indonesian traditional fishermen in areas of the Australian Fishing Zone and Continental Shelf – 1974

12.4 Tourism and Recreation

Western Australia's tourism sector is important to industry and the economy. In 2022–23, 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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 337 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 thousands 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

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 338 of 381

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 9594 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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Revision: 2

Woodside ID: 1401743486

Page 341 of 381

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Revision: 2

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Page 343 of 381

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Controlled Ref No: G2000RH1401743486

Revision: 2

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Page 345 of 381

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Page 346 of 381

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 348 of 381

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Page 352 of 381

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Page 354 of 381

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Page 359 of 381

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Page 362 of 381

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Revision: 2

Woodside ID: 1401743486

Page 363 of 381

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Revision: 2

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Revision: 2

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Page 367 of 381

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Controlled Ref No: G2000RH1401743486

Revision: 2

Woodside ID: 1401743486

Page 377 of 381

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Revision: 2

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Page 378 of 381

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Controlled Ref No: G2000RH1401743486

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Page 380 of 381

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APPENDIX V 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.

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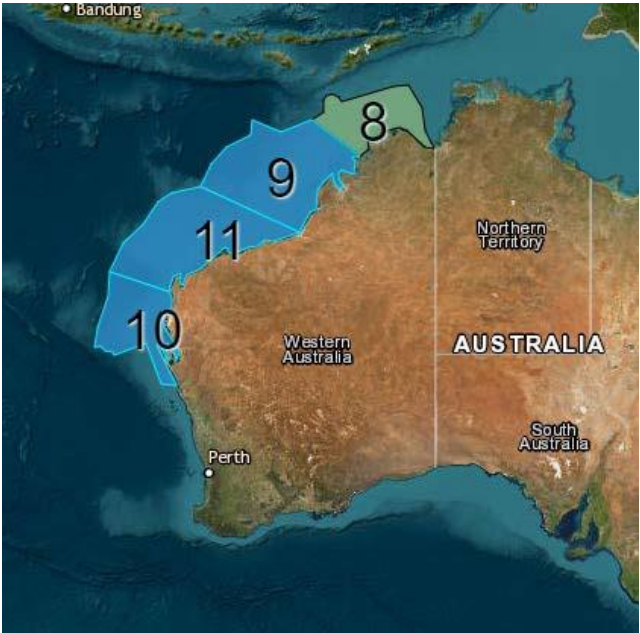
EPBC Act Protected Matters Report

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	

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)	Commonwealth Marine Areas (EPBC Act)	Commonwealth Marine Areas (EPBC Act)	

Feature Name
Commonwealth Marine Areas (EPBC Act) 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
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
Erythroriorchis 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 dorreae 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
Rhinonictoris 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
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[Trichosurus vulpecula arnhemensis](#)

Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat likely to occur within area
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[Xeromys myoides](#)

Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
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PLANT

[Caladenia barbarella](#)

Small Dragon Orchid, Common Dragon Orchid [68686]	Endangered	Species or species habitat may occur within area
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[Caladenia hoffmanii](#)

Hoffman's Spider-orchid [56719]	Endangered	Species or species habitat likely to occur within area
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[Eucalyptus beardiana](#)

Beard's Mallee [18933]	Vulnerable	Species or species habitat likely to occur within area
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[Minuria tridens](#)

Minnie Daisy [13753]	Vulnerable	Species or species habitat known to occur within area
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REPTILE

[Aipysurus apraefrontalis](#)

Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
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[Aipysurus foliosquama](#)

Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
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[Caretta caretta](#)

Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
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[Chelonia mydas](#)

Green Turtle [1765]	Vulnerable	Breeding known to occur within area
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[Ctenotus zasticus](#)

Hamelin Ctenotus [25570]	Vulnerable	Species or species habitat known to occur within area
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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

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
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour 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 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]	Endangered	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]		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

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 - EXMOUTH VLF TRANSMITTER STATION [50122]	WA
Defence - EXMOUTH VLF TRANSMITTER STATION [50123]	WA
Defence - LEARMONTH - RAAF BASE [50106]	WA
Defence - LEARMONTH - RAAF BASE [50109]	WA
Defence - LEARMONTH - RAAF BASE [50108]	WA
Defence - LEARMONTH - RAAF BASE [50101]	WA
Defence - LEARMONTH - RAAF BASE [50107]	WA
Defence - LEARMONTH - RAAF BASE [50097]	WA
Defence - LEARMONTH - RAAF BASE [50103]	WA
Defence - LEARMONTH - RAAF BASE [50100]	WA
Defence - LEARMONTH RADAR SITE - VLAMING HEAD EXMOUTH	WA [50001]
Defence - YAMPI SOUND TRAINING AREA [50145]	WA
Unknown	Commonwealth Land - [51698] WA
Commonwealth Land - [51699]	WA
Commonwealth Land - [51707]	WA
Commonwealth Land - [51704]	WA
Commonwealth Land - [51696]	WA
Commonwealth Land - [51705]	WA
Commonwealth Land - [51709]	WA
Commonwealth Land - [51700]	WA
Commonwealth Land - [51706]	WA

Commonwealth Land Name	State
Commonwealth Land - [52116]	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
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
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, Endangered Golden Bosunbird [26021]		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 Ribboned Pipehorse, Ribboned 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 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
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 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	
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 WA373385(1)(h) Reserve	WA	
Unnamed WA373835(1)(h) Reserve	WA	
Unnamed WA403225(1)(h) Reserve	WA	
Unnamed WA408285(1)(h) Reserve	WA	
Unnamed WA408775(1)(h) Reserve	WA	
Unnamed WA410805(1)(h) Reserve	WA	
Unnamed WA446655(1)(h) Reserve	WA	
Unnamed WA446675(1)(h) Reserve	WA	
Unnamed WA446695(1)(h) Reserve	WA	
Unnamed WA446725(1)(h) Reserve	WA	
Unnamed WA446735(1)(h) Reserve	WA	
Victor Island	Nature Reserve	WA
Whalebone Island	Nature Reserve	WA
Yawuru	Indigenous Protected	WA Area
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 Unacceptable	ClearlyCompleted
Highlands 3D Marine Seismic Survey	2012/6680	Action Unacceptable	ClearlyCompleted
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 Approach	Controlled Action	Assessment
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 Approach	Controlled Action	Assessment
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 Approach	2021/9027	Controlled Action	Assessment
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 Approach	Controlled Action	Assessment
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 Action	Not Controlled	Completed
3D marine seismic survey in WA 314P and WA 315P	2004/1927 Action	Not Controlled	Completed
Adele Trend TQ3D Seismic Survey Action	2001/252	Not Controlled	Completed
Airlie Island soil and groundwater investigations, Exmouth Gulf, offshore Pilbara coast	2014/7250 Action	Not Controlled	Completed
APX-West Fibre-optic telecommunications cable system, WA to Singapore	2013/7102 Action	Not Controlled	Completed
Aquaculture - Barramundi grow out, Yampi Sound	2005/2476 Action	Not Controlled	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
archaeological surveys & excavation at historic sites, Cape Inscription	2006/3027 Action	Not Controlled	Completed
Baniyas-1 Exploration Well, EP-424, near Onslow	2007/3282 Action	Not Controlled	Completed
Barrow Island 2D Seismic survey Action	2006/2667	Not Controlled	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868 Action	Not Controlled	Completed
Bultaco-2, Laverda-2, Laverda-3 and Montesa-2 Appraisal Wells	2000/103 Action	Not Controlled	Completed
Cape Lambert Port A Marine Structures Refurbishment Project	2018/8370 Action	Not Controlled	Completed
Carnarvon 3D Marine Seismic Survey Controlled Action	2004/1890	Not	Completed
Cazadores 2D seismic survey Action	2004/1720	Not Controlled	Completed
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703 Action	Not Controlled	Completed
Construction of a Commodities Berth, Wharf and Associated Infrastructure	2008/4129 Action	Not Controlled	Completed
Controlled Source Electromagnetic Survey	2007/3262 Action	Not Controlled	Completed
Development of Halyard Field off the west coast of WA	2010/5611 Action	Not Controlled	Completed
Development of iron ore facilities Action	2013/7013	Not Controlled	Completed
Development of Mutineer and Exeter petroleum fields for oil production, Permit	2003/1033 Action	Not Controlled	Completed
Drilling between Kalbarri and Cliff Head	2005/2185 Action	Not Controlled	Completed
Drilling of an exploration well Gats-1 in Permit Area WA-261-P	2004/1701 Action	Not Controlled	Completed
Drilling of exploration wells, Permit areas WA-301-P to WA-305-P	2002/769 Action	Not Controlled	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Eagle-1 Exploration Drilling, North West Shelf, WA	2019/8578 Action	Not Controlled	Completed
Echo A Development WA-23-L, WA-24-L	2005/2042 Action	Not Controlled	Completed
Expansion of Monkey Mia Resort Action	2003/1146	Not Controlled	Completed
Expansion of the Sino Iron Ore Mine and export facilities, Cape Preston, WA	2017/7862 Action	Not Controlled	Completed
Expansion Proposal, Mineralogy Cape Preston Iron Ore Project, Cape Preston, WA	2009/5010 Action	Not Controlled	Completed
Exploration drilling well WA-155-P(1) Action	2003/971	Not Controlled	Completed
Exploration of appraisal wells Action	2006/3065	Not Controlled	Completed
Exploration Well (Taunton-2) Action	2002/731	Not Controlled	Completed
Exploration Well in Permit Area WA-155-P(1)	2002/759 Action	Not Controlled	Completed
Exploratory drilling in permit area WA-225-P	2001/490 Action	Not Controlled	Completed
Extension of Simpson Oil Platforms & Wells	2002/685 Action	Not Controlled	Completed
Extention to the existing Blind Strait Black Lip Pearl Oyster Farm	2004/1342 Action	Not Controlled	Completed
Gulf Fishing Lodge	2010/5499	Not Controlled	Action Completed
Hadda 1,Flying Foam 1,Magnat 1 exploration drill	2004/1697 Action	Not Controlled	Completed
HCA05X Macedon Experimental Survey	2004/1926 Action	Not Controlled	Completed
Hess Exploration Drilling Programme Controlled Action	2007/3566	Not	Completed
Huascarán-1 exploration well (WA-292-P)	2001/539 Action	Not Controlled	Completed

Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522 Action	Not Controlled	Completed
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Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
INDIGO West Submarine Telecommunications Cable, WA	2017/8126 Action	Not Controlled	Completed
Infill Production Well (Griffin-9) Action	2001/417	Not Controlled	Completed
Jansz-2 and 3 Appraisal Wells Action	2002/754	Not Controlled	Completed
Klammer 2D Seismic Survey Action	2002/868	Not Controlled	Completed
Koolan Island Mine - Reconstruction of seawall and capital dewatering of mine pit,130km northwest of	2016/7848 Action	Not Controlled	Completed
Maia-Gaea Exploration wells Action	2000/17	Not Controlled	Completed
Manaslu - 1 and Huascaran - 1 Offshore Exploration Wells	2001/235 Action	Not Controlled	Completed
Marine Seismic Survey in WA-239-P Action	2000/24	Not Controlled	Completed
Mermaid Marine Australia Desalination Project	2011/5916 Action	Not Controlled	Completed
Montesa-1 and Bultaco-1 Exploration Wells	2000/102 Action	Not Controlled	Completed
Murujuga archaeological excavation, collection and sampling, Dampier Archipelago, WA	2014/7160 Action	Not Controlled	Completed
North Rankin B gas compression facility	2005/2500 Action	Not Controlled	Completed
Pipeline System Modifications Project Action	2000/3	Not Controlled	Completed
Port Hedland Channel Risk and Optimisation Project, WA	2017/7915 Action	Not Controlled	Completed
Project Highclere Geophysical Survey Controlled Action	2021/9023	Not	Completed
Rail and Port Facilities	2001/474	Not Controlled Action	Completed
Searipple gas and condensate field development	2000/89 Action	Not Controlled	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 Action	Not Controlled	Completed
sub-sea tieback of Perseus field wells	2004/1326	Not Controlled	Completed
Telfer Gold Mine Project - Mine and Borefield Extensions and Upgrade of Storage	2002/787 Action	Not Controlled	Completed
Telstra North Rankin Spur Fibre Optic Cable	2016/7836 Action	Not Controlled	Completed
Thevenard Island Retirement Project	2015/7423	Not Controlled	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373 Action	Not Controlled	Completed
WA-295-P Kerr-McGee Exploration Wells	2001/152 Action	Not Controlled	Completed
Walkway Lighting Upgrade	2009/4965	Not Controlled	Completed
Wanda Offshore Research Project, 80 km north-east of Exmouth, WA	2018/8293 Action	Not Controlled	Completed
Western Flank Gas Development	2005/2464	Not Controlled	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761 Action	Not Controlled	Completed
Not controlled action (particular manner)			
'Kate' 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km	2005/2037 Action (Particular Manner)	Not Controlled	Post-Approval
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282 Action (Particular Manner)	Not Controlled	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938 Action (Particular Manner)	Not Controlled	Post-Approval
2D and 3D seismic surveys	2005/2151	Not Controlled	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
2D marine seismic survey Action (Particular Manner)	2012/6296	Not Controlled	Post-Approval
2D seismic survey Manner)	2008/4493	Not Controlled Action (Particular	Post-Approval
2D Seismic Survey Manner)	2005/2146	Not Controlled Action (Particular	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 (Particular Manner)	2008/4281	Not Controlled Action	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
Manner)			
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
(Particular Manner)			
3D Seismic Survey in the Carnarvon Bsin on the North West Shelf	2002/778	Not Controlled Action (Particular Manner)	Post-Approval
3D sesmic survey	2006/2781	Not Controlled Action (Particular Manner)	Post-Approval
Manner)			
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 Action (Particular Manner)	2009/5212	Not Controlled	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled	Post-Approval
Artemis-1 Drilling Program (WA-360-P)	2010/5432	Not Controlled	Post-Approval
Aurora MC3D Marine Seismic Survey Action (Particular Manner)	2010/5510	Not Controlled	Post-Approval
Australia to Singapore Fibre Optic Submarine Cable System	2011/6127	Not Controlled	Post-Approval
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081	Not Controlled	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled	Post-Approval
Bonaventure 3D seismic survey Action (Particular Manner)	2006/2514	Not Controlled	Post-Approval
Braveheart 2D Infill Marine Seismic Survey 100km offshore	2008/4442	Not Controlled	Post-Approval
Braveheart 2D Marine Seismic Survey	2005/2322	Not Controlled	Post-Approval
Cable Seismic Exploration Permit areas WA-323-P and WA-330-P	2008/4227	Not Controlled	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	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 Manner)	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 Action (Particular Manner)	2007/3856	Not Controlled	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 Action (Particular Manner)	2005/2290	Not Controlled	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Lion 2D Marine Seismic Survey Action (Particular Manner)	2007/3777	Not Controlled	Post-Approval
Macedon Gas Field Development Action (Particular Manner)	2008/4605	Not Controlled	Post-Approval
Marine Geotechnical Drilling Program Action (Particular Manner)	2008/4012	Not Controlled	Post-Approval
Marine reconnaissance survey Action (Particular Manner)	2008/4466	Not Controlled	Post-Approval
Mariner Non-Exclusive 2D Seismic Survey	2011/6172 Action (Particular Manner)	Not Controlled	Post-Approval
Millstream 20GL Pipeline, Bungaroo, Borefield Integration	2012/6379 Action (Particular Manner)	Not Controlled	Post-Approval
Moosehead 2D seismic survey within permit WA-192-P	2005/2167 Action (Particular Manner)	Not Controlled	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970 Action (Particular Manner)	Not Controlled	Post-Approval
Nelson Point Dredging (Particular Manner)	2009/4920	Not Controlled	Action Post-Approval
Ocean Bottom Cable Seismic Program, WA-264-P	2007/3844 Action (Particular Manner)	Not Controlled	Post-Approval
Ocean Bottom Cable Seismic Survey Action (Particular Manner)	2005/2017	Not Controlled	Post-Approval
Offshore Canning Multi Client 2D Marine Seismic Survey	2010/5393 Action (Particular	Not Controlled	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Manner)			
Offshore Drilling Campaign Action (Particular Manner)	2011/5830	Not Controlled	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	Post-Approval
Action (Particular Manner)			
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 reservior 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 Action (Particular Manner)	2008/4239	Not Controlled	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 Action (Particular	2010/5629	Not Controlled	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 Action (Particular Manner)	2012/6373	Not Controlled	Post-Approval
Schild Phase 11 MC3D Marine Seismic Survey, Browse Basin	2013/6894	Not Controlled Action (Particular Manner)	Post-Approval
Scott Reef Seismic Research Action (Particular Manner)	2006/2647	Not Controlled	Post-Approval
Skorpion Marine Seismic Survey WA Action (Particular Manner)	2001/416	Not Controlled	Post-Approval
Sovereign 3D Marine Seismic Survey Action (Particular Manner)	2011/5861	Not Controlled	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 Action (Particular Manner)	2011/5810	Not Controlled	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 Action (Particular Manner)	2008/4430	Not Controlled	Post-Approval
Tortilla 2D Seismic Survey, WA Action (Particular Manner)	2011/6110	Not Controlled	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 Action Manner)	ControlledPost-Approval (Particular
Zeemeermin MC3D seismic survey, Browse Basin, Offshore WA	2009/5023	Not Action Manner)	ControlledPost-Approval (Particular
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, Carnavon 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
Seringapatam 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
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[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] corridor	Migration	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] corridor	Migration	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
<div>River shark</div> 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 Ardenna pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Ardenna 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] (provisioning young)	Foraging	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	Presence
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numbers)

[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 brevipinna](#)

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] (north)	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38] (north and south)	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Nursing	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Resting	Known to occur

Caveat
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.

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

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

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

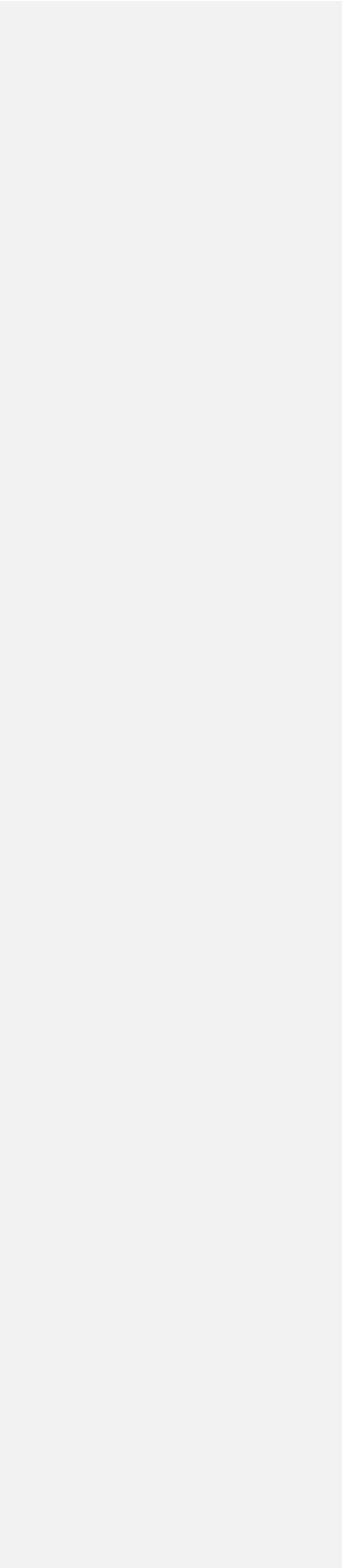
This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-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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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)	

Commonwealth Marine Areas (EPBC Act) Commonwealth Marine Areas (EPBC Act) Commonwealth Marine Areas (EPBC Act) 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		
Anous tenuirostris melanops		
Australian Lesser Noddy [26000]	Vulnerable	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris acuminata Sharp-tailed Sandpiper [874] habitat known to occur within area	Vulnerable	Species or species
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
Erythrorchis 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] Dependent	Conservation	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 Sheathtail 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

REPTILE

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
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
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Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
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Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
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Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to 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 Common Noddy [825]	Anous stolidus	Breeding known to occur within area

Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
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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, Endangered 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 spinirostris Spiny-snout Pipefish [66225]	Species or species habitat may occur within area	
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned 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 Turtle-headed Sea Snake [1125]	Eastern	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 Dolphin [51]	Spotted	Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne [52]	Dolphin	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
Balanggarra	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
Nort 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 Approval	2-D seismic survey Scott Reef	2000/125	Controlled Action	Post-
Audacious Oil Field Standalone Development	2001/407	Controlled Action	Completed	
Bonaparte Liquified 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
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Controlled action

Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval
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Montara 4, 5, and 6 Oil Production Wells, and Montara 3 Gas Re-Injection Well	2002/755	Controlled Action	Post-Approval
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Prelude Floating Liquefied Natural Gas Facility and Gas Field Development	2008/4146	Controlled Action	Post-Approval
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PTTEP AA Floating LNG Facility	2011/6025	Controlled Action	Completed
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Not controlled action

2D seismic survey, exploration permit NT/P67	2004/1587	Not Action	ControlledCompleted
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2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Action	ControlledCompleted
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3D marine seismic survey in WA 314P and WA 315P	2004/1927	Not Action	ControlledCompleted
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Adele Trend TQ3D Seismic Survey	2001/252	Not Action	ControlledCompleted
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AEC International Hydrocarbon Well Puffin 6	2000/36	Not Action	ControlledCompleted
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Audacious-3 oil drilling well	2003/1042	Not Action	ControlledCompleted
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Backpacker-1 Offshore Hydrocarbon Exploration Well	2001/300	Not Action	ControlledCompleted
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Coot-1 hydrocarbon exploration well, Permit Area AC/L2 or AC/L3	2001/296	Not Action	ControlledCompleted
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Crux-A and Crux-B appraisal wells, Petroleum Permit Area AC/P23	2006/2748	Not Action	ControlledCompleted
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Crux gas-liquids development in permit AC/P23	2006/3154	Not Action	ControlledCompleted
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Drilling of 12 Hydrocarbon Exploration Wells, Permit Area WA-371-P	2006/3005	Not Action	ControlledCompleted
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Drilling of exploration well Audacious- 1 in AC/P17	2000/5	Not Action	ControlledCompleted
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Drilling of exploration wells, Permit areas WA-301-P to WA-305-P	2002/769	Not Action	ControlledCompleted
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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 Action	ControlledCompleted
Exploration Drilling in AC/P17, AC/P18 and AC/P24	2001/359	Not Action	ControlledCompleted
Exploration Well AC/P23	2001/234	Not Action	ControlledCompleted
Kaleidoscope exploration well	2001/182	Not Action	ControlledCompleted
Marine Seismic Survey in WA-239-P	2000/24	Not Action	ControlledCompleted
Marine Survey for the Australia- ASEAN Power Link AAPL	2020/8714	Not Action	ControlledCompleted
Montara-3 Offshore Hydrocarbon Exploration Well Permit Area AC/RL3	2001/489	Not Action	ControlledCompleted
Nexus Drilling Program NT-P66	2007/3745	Not Action	ControlledCompleted
P30 Hydrocarbon Exploration Well	2001/293	Not Action	ControlledCompleted
Project Highclere Geophysical Survey	2021/9023	Not Action	ControlledCompleted
Puffin Oil wells 7, 8 & 9 development	2005/2336	Not Action	ControlledCompleted
Saucepan 1 Exploration Well ACP23	2000/2	Not Action	ControlledCompleted
Skua and Swift Oilfields	2006/3195	Not Action	ControlledCompleted
Strumbo-1 Gas Exploration Well Permit Area WA-288-P	2002/884	Not Action	ControlledCompleted
Thresher-1 Well	2000/84	Not Action	ControlledCompleted
Not controlled action (particular manner)			
2 (3D) Marine Seismic Surveys	2009/4994	Not Action Manner)	ControlledCompleted (Particular
2D and 3D Seismic Survey	2011/6197	Not Action (Particular	ControlledPost-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Manner)			
2D and 3D Seismic Survey WA-405-P Action (Particular Manner)	2009/5104	Not Controlled	Post-Approval
2D and 3D Seismic Survey WA-405-P Action (Particular Manner)	2008/4133	Not Controlled	Post-Approval
2D Marine Seismic Survey Action (Particular Manner)	2009/4728	Not Controlled	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 Action (Particular Manner)	2001/363	Not Controlled	Post-Approval
2D Seismic survey Manner)	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 Action (Particular Manner)	2008/4437	Not Controlled	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 Action (Particular Manner)	2011/5961	Not Controlled	Post-Approval
Aurora MC3D Marine Seismic Survey Action (Particular Manner)	2010/5510	Not Controlled	Post-Approval
Bassett 3D Marine Seismic Survey Action (Particular Manner)	2010/5538	Not Controlled	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 (Particular Manner)	2013/6825	Not	Controlled	Action Post-Approval
NT/P80 2010 2D Marine Seismic Survey	2010/5487		Not Controlled	Post-Approval Action (Particular Manner)
Octantis 3D Marine Seismic Survey, Permit Area AC/P41 off northern Western Australia	2007/3369		Not Controlled	Post-Approval Action (Particular Manner)
Offshore Exploration Drilling Campaign	2011/6222		Not Controlled	Post-Approval Action (Particular Manner)
Offshore Fibre Optic Cable Network Construction & Operation, Port Hedland WA to Darwin NT	2014/7223		Not Controlled	Post-Approval Action (Particular Manner)
Offshore Gas Exploration Drilling Campaign	2012/6384		Not Controlled	Post-Approval Action (Particular Manner)
Petrel MC2D Marine Seismic Survey Action (Particular Manner)	2010/5368		Not Controlled	Post-Approval
Sandalford 3D Seismic Survey Action (Particular Manner)	2012/6261		Not Controlled	Post-Approval
Santos Petrel-7 Offshore Appraisal Drilling Programme (Bonaparte Basin)	2011/5934		Not Controlled	Post-Approval Action (Particular Manner)
Schild MC3D Marine Seismic Survey Action (Particular Manner)	2012/6373		Not Controlled	Post-Approval
Schild Phase 11 MC3D Marine Seismic Survey, Browse Basin	2013/6894		Not Controlled	Post-Approval Action (Particular Manner)

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 (Particular Manner)	2001/345	Not Controlled	Action Post-Approval
Songa Venus Drilling and Testing Operations	2009/5122	Not Controlled Action (Particular Manner)	Post-Approval
Thoar 3D Marine Seismic Survey Action (Particular Manner)	2010/5668	Not Controlled	Post-Approval
Tiffany 3D Seismic Survey Action (Particular Manner)	2010/5339	Not Controlled	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 Action (Particular Manner)	2008/4634	Not Controlled	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 Action (Particular Manner)	2011/6148	Not Controlled	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
Seringapatam 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] unknown behaviour	Significant	habitat	-	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		
<div>Dugong</div> 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 Ardenna 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 Blue Whale [81317]	Pygmy Foraging	Known to occur	
Balaenoptera musculus brevipinna Blue Whale [81317]	Pygmy Migration	Known to occur	
Megaptera novaeangliae [38]	Humpback Whale Calving	Known to occur	
Megaptera novaeangliae [38]	Humpback Whale Migration	Known to occur	
Megaptera novaeangliae [38]	Humpback Whale Nursing	Known to occur	
Megaptera novaeangliae [38]	Humpback Whale Resting	Known to occur	

Caveat
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.

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

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

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

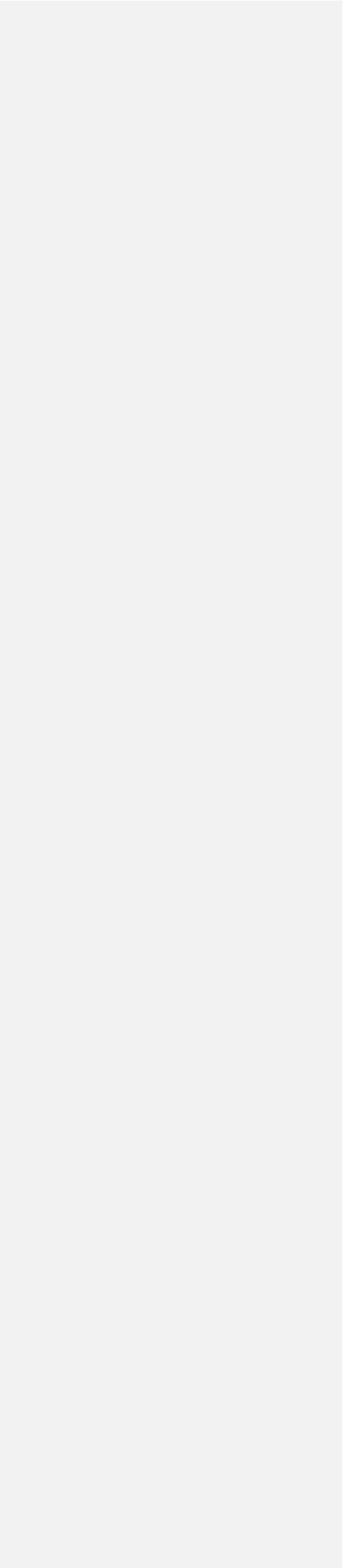
This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-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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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
Erythroriorchis 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] Dependent	Conservation	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
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Notomys aquilo Northern Hopping-mouse, Woorentinta [123]	Endangered	Species or species habitat may occur within area
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Petrogale concinna canescens Nabarlek (Top End) [87606]	Endangered	Species or species habitat may occur within area
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Phascogale pirata Northern Brush-tailed Phascogale [82954]	Vulnerable	Species or species habitat likely to occur within area
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Rhinolophus robertsi Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat [87639]	Vulnerable	Species or species habitat may occur within area
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Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
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Sminthopsis butleri Butler's Dunnart [302]	Vulnerable	Species or species habitat known to occur within area
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Trichosurus vulpecula arnhemensis Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat known to occur within area
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Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat known to occur within area
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PLANT Bruguiera x hainesii Haines's Orange Mangrove [91351]	Critically Endangered	Species or species habitat may occur within area
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Burmannia 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
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Calophyllum bicolor [11371]	Vulnerable	Species or species habitat may occur within area
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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

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 gurrmul 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
SHARK		

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] Dependent	Conservation	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 Curlew, Far Eastern Curlew [847]	Eastern 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
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Defence - RIMBIJA ISLAND RAAF RADIO BEACON [70074]NT

Unknown

Commonwealth Land - [71140]	NT
Commonwealth Land - [70995]	NT

Listed Marine Species	[Resource Information]
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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 brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area
Micrognathus micronotopterus 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 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 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 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	
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 ActNT park or park addition	
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 Action	ControlledCompleted
2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Action	ControlledCompleted
Barossa-1 (NT/P69), Caldita-2 (NT/P61) exploration wells	2006/2793	Not Action	ControlledCompleted
Caldita-1 Hydrocarbon Exploration Well, NT/P61	2004/1854	Not Action	ControlledCompleted
Construction and operation of Radar Infrastructure	2004/1406	Not Action	ControlledCompleted
Cox Peninsular Remediation Project, NT	2015/7587	Not Action	ControlledCompleted
Dredging of Weipa South Channel	2003/1311	Not Action	ControlledCompleted
Eastern Leases 2010 Exploration Drilling Program	2010/5455	Not Action	ControlledCompleted
Geo-scientific survey	2005/2004	Not Action	ControlledCompleted
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Action	ControlledCompleted
Marine Survey for the Australia-ASEAN Power Link AAPL	2020/8714	Not Action	ControlledCompleted
Nexus Drilling Program NT-P66	2007/3745	Not Action	ControlledCompleted
NT/P68 2007 Two Well Drilling Program	2007/3569	Not Action	ControlledCompleted
Not controlled action (particular manner)			
2D and 3D Seismic Survey Action (Particular Manner)	2011/6197	Not Controlled	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
2D Marine Seismic Survey Action (Particular Manner)	2009/4728	Not Controlled	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 Action (Particular Manner)	2009/4681	Not Controlled	Post-Approval
3D Seismic Survey 2006/2729	Not	Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey (NT/P68) Action (Particular Manner)	2006/2980	Not Controlled	Post-Approval
3D Seismic Survey (NT/P68) Action (Particular Manner)	2008/4121	Not Controlled	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	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 Action (Particular Manner)	2011/6118	Not Controlled	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 Action (Particular Manner)	2012/6310	Not Controlled	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Nova 3D Seismic Survey 2013/6825 Action (Particular Manner)	2013/6825	Not Controlled	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 Action (Particular Manner)	2009/4683	Not Controlled	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 Action (Particular Manner)	2010/5368	Not Controlled	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 (Particular Manner)	2001/345	Not Controlled Action	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	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 Action Manner)	ControlledPost-Approval (Particular

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	2003/1302	Channel	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
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.

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

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

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

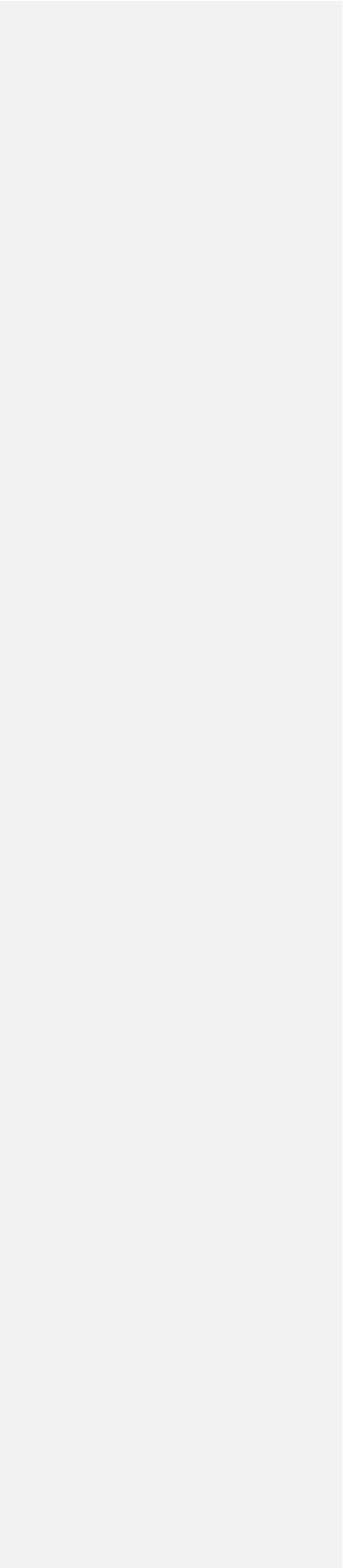
This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-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](#)
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- [-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](#)
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- [-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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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
Natural		
Fitzgerald River National Park	WA	Listed place

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 (Eucalyptus gomphocephala) 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 nigroularis nigroularis 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
Zanda latirostris listed as Calyptorhynchus latirostris		
Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
CRUSTACEAN		
Engaewa pseudoreducta		
Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat may occur within area
Engaewa reducta		
Dunsborough Burrowing Crayfish [82675]	Critically Endangered	Species or species habitat may occur within area
FISH		
Galaxias truttaceus (Western Australian population)		
Western Trout Minnow [89857]	Endangered	Species or species habitat known to occur within area
Galaxiella nigrostriata		
Blackstriped Dwarf Galaxias, stripe Minnow [88677]	Black-Endangered	Species or species habitat known to occur within area
Hoplostethus atlanticus		
Orange Roughy, Deep-sea Perch, Red Roughy [68455]	Conservation Dependent	Species or species habitat likely to occur within area
Nannatherina balstoni		
Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat known to occur within area
Thunnus maccoyii		
Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat known to occur within area
INSECT		
Hesperocolletes douglasi		
Douglas' Broad-headed Bee, Rottnest Bee [66734]	Critically Endangered	Species or species habitat may occur within area
Trioza barrettiae		
Banksia brownii plant louse [87805]	Endangered	Species or species habitat known to occur within area
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, Endangered Black-footed Rock Wallaby [66647]		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
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Potorous gilbertii Gilbert's Potoroo, Ngilkat [66642]	Critically Endangered	Species or species habitat known to occur within area
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Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Breeding known to occur within area
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Pseudomys shortridgei Heath Mouse, Dayang, Heath Rat [77]	Endangered	Species or species habitat likely to occur within area
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Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat known to occur within area
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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] Gingin	Endangered (listed as Chamelaucium sp.)	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-leaved Hammer Orchid, Glossy-leaved 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, Wabling 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

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
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Ardenna 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 dougallii 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 melanophrys Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche steady 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 WA ISLAND [50117]	
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN WA ISLAND [50133]	
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN WA ISLAND [50134]	
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN WA ISLAND [50132]	
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN WA ISLAND [50131]	
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]
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- Commonwealth Land - [50495]
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- Commonwealth Land - [50505]
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- Commonwealth Land - [50424]
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- Commonwealth Land - [50493]
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- Commonwealth Land - [50567]
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- Commonwealth Land - [50633]
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- Commonwealth Land - [50487]
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- Commonwealth Land - [50551]
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- Commonwealth Land - [50558]
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- Commonwealth Land - [50431]
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- Commonwealth Land - [50550]
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- Commonwealth Land - [50518]
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- Commonwealth Land - [50437]
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- Commonwealth Land - [50422]
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- Commonwealth Land - [51437]
- WA
- Commonwealth Land - [50579]
- WA

Commonwealth Land Name		State
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Commonwealth Land - [50486]	WA	

Commonwealth Land Name		State
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Commonwealth Land - [50464]	WA	

Commonwealth Land Name		State
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Commonwealth Land Name		State
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Commonwealth Land Name		State
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Commonwealth Land Name		State
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Commonwealth Land - [50545]	WA	
Commonwealth Land - [50546]	WA	

Commonwealth Land Name		State
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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
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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
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Ardenna 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), Vulnerable Breeding known to occur within area overfly marine area
		Recherche Cape Barren Goose [25978]
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 Vulnerable Species or species habitat known to occur within area [877]
Charadrius mongolus		Lesser Sand Plover, Mongolian Plover Endangered Roosting known to occur within area [879]
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 Long- snout 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	Endangered	Breeding known to occur within area [22]

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, LuthEndangered Foraging, feeding or related behaviour known to occur within area [1768]

[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
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
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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 Approach	Controlled Action	Assessment
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

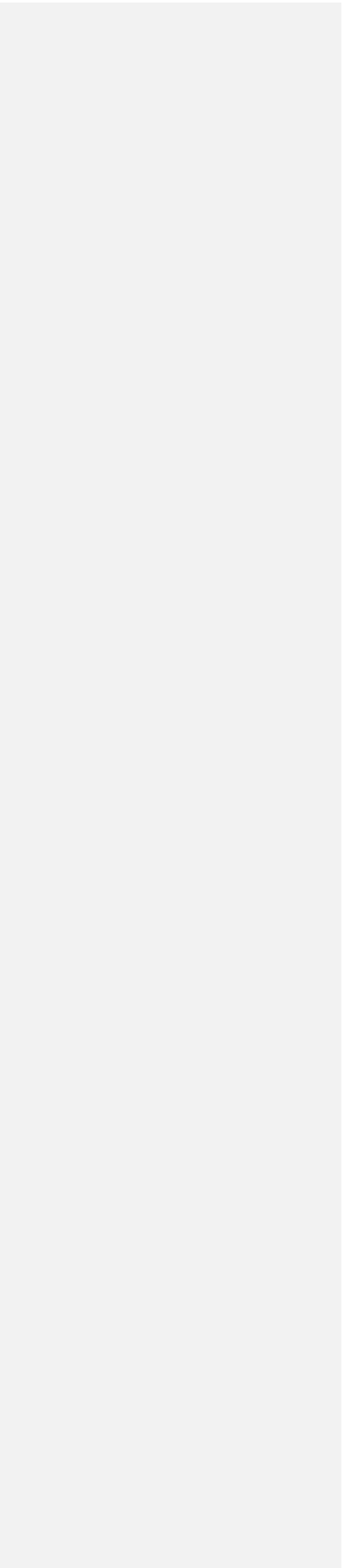
Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Old Broadwater Farm Estate Subdivision - Stage 3	2009/5231	Controlled Action	Post-Approval
Peel's Retreat Estate - Residential development	2006/3063	Controlled Action	Post-Approval
Peppermint Park Residential Subdivision - 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 Action	Not Controlled	Completed
25 Lot Residential Subdivision Action	2009/4830	Not Controlled	Completed
Aerial application of mosquito larvicides to Vasse Wonnerup Wetlands, WA	2016/7780 Action	Not Controlled	Completed
APX-West Fibre-optic telecommunications cable system, WA to Singapore	2013/7102 Action	Not Controlled	Completed
Bushfire Mitigation Works - City of Mandurah	2020/8674 Action	Not Controlled	Completed
Busselton to Flinders Bay Rails to Trails Project, WA	2013/6835 Action	Not Controlled	Completed
Cape Naturaliste Road Shared Pathway, Dunsborough, WA	2018/8282 Action	Not Controlled	Completed
Causeway Bridge Duplication, Busselton, WA	2018/8309 Action	Not Controlled	Completed
Caves Road widening project between Dunsborough and Yallingup(20.3 -24.6 SLK), WA	2015/7475 Action	Not Controlled	Completed
Clear Lot 503, 54 Ocean Road Dawesville, WA	2014/7375 Action	Not Controlled	Completed
Construction and operation of an 8 turbine wind farm at Rous Head Harbour, Frema	2003/933 Action	Not Controlled	Completed
Construction of Secret Harbour High School	2004/1489 Action	Not Controlled	Completed
CTBT - Cape Leeuwin Hydroacoustic Station Proposal	2000/27 Action	Not Controlled	Completed
Disposal of residential properties, Fremantle, WA	2019/8593 Action	Not Controlled	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Eastport canal estate development stage 5	2007/3737 Action	Not Controlled	Completed
Establishment of a National Lifestyle Village	2011/6081 Action	Not Controlled	Completed
Expansion of berthing facilities at Kwinana Bulk Terminal	2006/2509 Action	Not Controlled	Completed
Expansion of existing Ammonium Nitrate Production Facility	2005/1941 Action	Not Controlled	Completed
Expedition 369-Australian Cretaceous Climate and Tectonics, Australian EEZ waters	2017/7891 Action	Not Controlled	Completed
Florida Estate Residential Subdivision Development Stage 13	2011/6045 Action	Not Controlled	Completed
Florida North residential development, Lot 9008, Ocean Road, Dawesville, WA	2015/7462 Action	Not Controlled	Completed
Fremantle Ports Inner Harbour Capital Dredging Proposal	2005/2477 Action	Not Controlled	Completed
Gas-fired Power Station	2005/2213	Not Controlled Action	Completed
Geo-science Investigations	2005/2069	Not Controlled	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522 Action	Not Controlled	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127 Action	Not Controlled	Completed
Kennedy Bay urban development, Port Kennedy, WA	2014/7122 Action	Not Controlled	Completed
Kennedy Park Estate Residential Development	2003/1044 Action	Not Controlled	Completed
Kwinana Gas-Fired Power Station	2005/2101	Not Controlled	Completed
Limestone quarry expansion	2005/2268	Not Controlled	Completed
Limestone Quarry Expansion, Lots 3618 and 1794, Finn Road	2005/2332 Action	Not Controlled	Completed
Lot 101 Mandurah Road, Madora Bay, WA	2012/6466 Action	Not Controlled	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Oman Australia Cable Installation, WA	2021/8922 Action	Not Controlled	Completed
Oman Australia Cable - Marine Route Survey	2020/8731 Action	Not Controlled	Completed
Palm Beach Caravan Park Redevelopment, Rockingham, WA	2013/6853 Action	Not Controlled	Completed
Redevelopment of Lots 3 & 4, Kent Street	2007/3243 Action	Not Controlled	Completed
Residential & Light Industrial Development, Vasse WA	2013/6932 Action	Not Controlled	Completed
Residential development, Lot 42, Farmhouse Court, Bovell, WA	2014/7195 Action	Not Controlled	Completed
Re-zoning of Land for Future Residential Development Purposes	2009/4908 Action	Not Controlled	Completed
Rottnest Lodge Redevelopment Action	2019/8565	Not Controlled	Completed
Seismic Survey, Bremer Basin, Mentelle Basin and Zeewyck Sub-basin	2004/1700 Action	Not Controlled	Completed
Sepia Depression Ocean Outlet Landline Duplication	2012/6248 Action	Not Controlled	Completed
Vasse Hotel and Supermarket Redevelopment	2001/288 Action	Not Controlled	Completed
Warders' Cottages Block 2 'W2' Action	2022/9148	Not Controlled	Completed
Warders' Cottages W2 minor works, Fremantle, WA	2018/8185 Action	Not Controlled	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
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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	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,PortKennedy,Rockingh	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

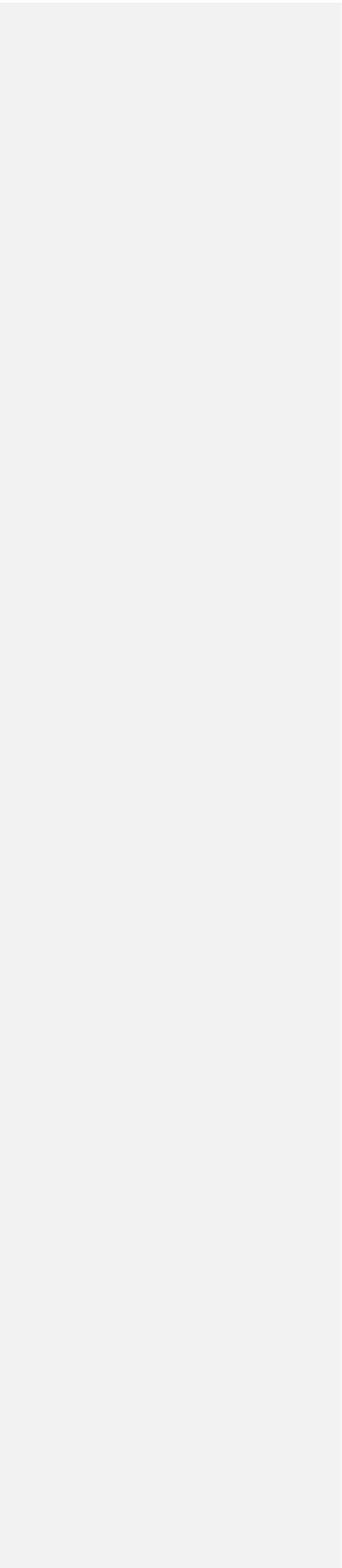
Name	Region
Commonwealth marine environment surrounding the Recherche Archipelago	South-west
Commonwealth marine environment within and adjacent	South-west to Geographe Bay
Commonwealth marine environment within and adjacent	South-west to the west coast inshore lagoons
Diamantina Fracture Zone	South-west
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			
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] (provisioning young)	Foraging	Known to occur	
Hydroprogne caspia			
Caspian Tern [808] (provisioning young)	Foraging	Known to occur	
Larus pacificus			
Pacific Gull [811] high numbers)	Foraging (in	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
<div>Seals</div> 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] (north)	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38] (north and south)	Migration	Known to occur

Scientific Name	Behaviour	Presence
Megaptera novaeangliae Humpback Whale [38] (south)	Migration	Known to occur
Physeter macrocephalus Sperm Whale [59] (abundant food source)	Foraging	Known to occur



Caveat
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.

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

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

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

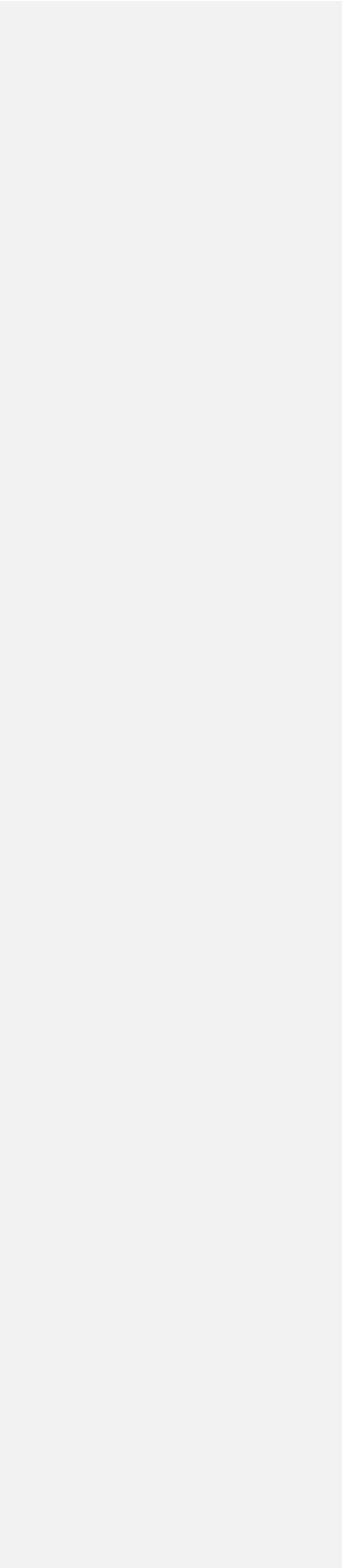
This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-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](#)
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- [-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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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
Natural		
Fitzgerald River National Park	WA	Listed place

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 (Eucalyptus gomphocephala) 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 nigroularis nigroularis 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
Zanda latirostris listed as Calyptorhynchus latirostris		
Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
CRUSTACEAN		
Engaewa pseudoreducta		
Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat may occur within area
Engaewa reducta		
Dunsborough Burrowing Crayfish [82675]	Critically Endangered	Species or species habitat may occur within area
FISH		
Galaxias truttaceus (Western Australian population)		
Western Trout Minnow [89857]	Endangered	Species or species habitat known to occur within area
Galaxiella nigrostriata		
Blackstriped Dwarf Galaxias, stripe Minnow [88677]	Black-Endangered	Species or species habitat known to occur within area
Hoplostethus atlanticus		
Orange Roughy, Deep-sea Perch, Red Roughy [68455]	Conservation Dependent	Species or species habitat likely to occur within area
Nannatherina balstoni		
Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat known to occur within area
Thunnus maccoyii		
Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat known to occur within area
INSECT		
Hesperocolletes douglasi		
Douglas' Broad-headed Bee, Rottnest Bee [66734]	Critically Endangered	Species or species habitat may occur within area
Trioza barrettiae		
Banksia brownii plant louse [87805]	Endangered	Species or species habitat known to occur within area
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, Endangered Black-footed Rock Wallaby [66647]		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
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Potorous gilbertii Gilbert's Potoroo, Ngilkat [66642]	Critically Endangered	Species or species habitat known to occur within area
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Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Breeding known to occur within area
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Pseudomys shortridgei Heath Mouse, Dayang, Heath Rat [77]	Endangered	Species or species habitat likely to occur within area
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Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat known to occur within area
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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] Gingin	Endangered (listed as Chamelaucium sp.)	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-leaved 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, Wabling 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
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Ardenna 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 dougallii 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 melanophrys Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche steady 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 WA ISLAND [50117]	
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN WA ISLAND [50134]	
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN WA ISLAND [50133]	
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN WA ISLAND [50131]	
Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN WA ISLAND [50132]	
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]
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Commonwealth Land Name		State
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Commonwealth Land Name		State
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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
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Ardenna 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), Vulnerable Breeding known to occur within area overfly marine area
		Recherche Cape Barren Goose [25978]
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 Vulnerable Species or species habitat known to occur within area [877]
Charadrius mongolus		Lesser Sand Plover, Mongolian Plover Endangered Roosting known to occur within area [879]
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 Long- snout 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
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[Neophoca cinerea](#)
Australian Sea-lion, Australian Sea Lion Endangered Breeding known to occur within area [22]

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, LuthEndangered Foraging, feeding or related behaviour known to occur [1768] 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

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

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
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
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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 Approach	Controlled Action	Assessment
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 Action	Not Controlled	Completed
25 Lot Residential Subdivision Action	2009/4830	Not Controlled	Completed
Aerial application of mosquito larvicides to Vasse Wonnerup Wetlands, WA	2016/7780 Action	Not Controlled	Completed
APX-West Fibre-optic telecommunications cable system, WA to Singapore	2013/7102 Action	Not Controlled	Completed
Bushfire Mitigation Works - City of Mandurah	2020/8674 Action	Not Controlled	Completed
Busselton to Flinders Bay Rails to Trails Project, WA	2013/6835 Action	Not Controlled	Completed
Cape Naturaliste Road Shared Pathway, Dunsborough, WA	2018/8282 Action	Not Controlled	Completed
Causeway Bridge Duplication, Busselton, WA	2018/8309 Action	Not Controlled	Completed
Caves Road widening project between Dunsborough and Yallingup(20.3 -24.6 SLK), WA	2015/7475 Action	Not Controlled	Completed
Clear Lot 503, 54 Ocean Road Dawesville, WA	2014/7375 Action	Not Controlled	Completed
Construction and operation of an 8 turbine wind farm at Rous Head Harbour, Frema	2003/933 Action	Not Controlled	Completed
Construction of Secret Harbour High School	2004/1489 Action	Not Controlled	Completed
CTBT - Cape Leeuwin Hydroacoustic Station Proposal	2000/27 Action	Not Controlled	Completed
Disposal of residential properties, Fremantle, WA	2019/8593 Action	Not Controlled	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Eastport canal estate development stage 5	2007/3737 Action	Not Controlled	Completed
Establishment of a National Lifestyle Village	2011/6081 Action	Not Controlled	Completed
Expansion of berthing facilities at Kwinana Bulk Terminal	2006/2509 Action	Not Controlled	Completed
Expansion of existing Ammonium Nitrate Production Facility	2005/1941 Action	Not Controlled	Completed
Expedition 369-Australian Cretaceous Climate and Tectonics, Australian EEZ waters	2017/7891 Action	Not Controlled	Completed
Florida Estate Residential Subdivision Development Stage 13	2011/6045 Action	Not Controlled	Completed
Florida North residential development, Lot 9008, Ocean Road, Dawesville, WA	2015/7462 Action	Not Controlled	Completed
Fremantle Ports Inner Harbour Capital Dredging Proposal	2005/2477 Action	Not Controlled	Completed
Gas-fired Power Station	2005/2213	Not Controlled Action	Completed
Geo-science Investigations	2005/2069	Not Controlled	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522 Action	Not Controlled	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127 Action	Not Controlled	Completed
Kennedy Bay urban development, Port Kennedy, WA	2014/7122 Action	Not Controlled	Completed
Kennedy Park Estate Residential Development	2003/1044 Action	Not Controlled	Completed
Kwinana Gas-Fired Power Station	2005/2101	Not Controlled	Completed
Limestone quarry expansion	2005/2268	Not Controlled	Completed
Limestone Quarry Expansion, Lots 3618 and 1794, Finn Road	2005/2332 Action	Not Controlled	Completed
Lot 101 Mandurah Road, Madora Bay, WA	2012/6466 Action	Not Controlled	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Oman Australia Cable Installation, WA	2021/8922 Action	Not Controlled	Completed
Oman Australia Cable - Marine Route Survey	2020/8731 Action	Not Controlled	Completed
Palm Beach Caravan Park Redevelopment, Rockingham, WA	2013/6853 Action	Not Controlled	Completed
Redevelopment of Lots 3 & 4, Kent Street	2007/3243 Action	Not Controlled	Completed
Residential & Light Industrial Development, Vasse WA	2013/6932 Action	Not Controlled	Completed
Residential development, Lot 42, Farmhouse Court, Bovell, WA	2014/7195 Action	Not Controlled	Completed
Re-zoning of Land for Future Residential Development Purposes	2009/4908 Action	Not Controlled	Completed
Rottnest Lodge Redevelopment Action	2019/8565	Not Controlled	Completed
Seismic Survey, Bremer Basin, Mentelle Basin and Zeewyck Sub-basin	2004/1700 Action	Not Controlled	Completed
Sepia Depression Ocean Outlet Landline Duplication	2012/6248 Action	Not Controlled	Completed
Vasse Hotel and Supermarket Redevelopment	2001/288 Action	Not Controlled	Completed
Warders' Cottages Block 2 'W2' Action	2022/9148	Not Controlled	Completed
Warders' Cottages W2 minor works, Fremantle, WA	2018/8185 Action	Not Controlled	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	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,PortKennedy,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

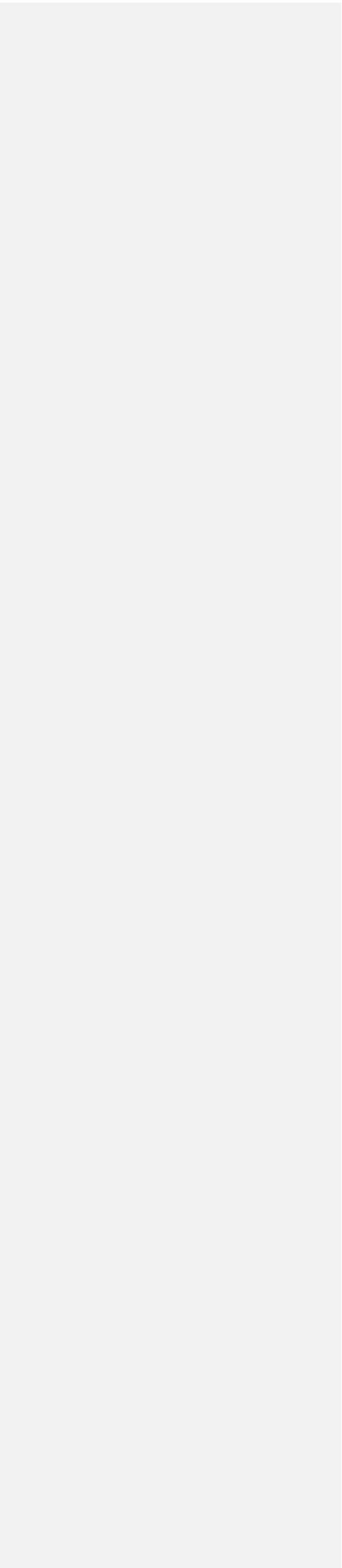
Name	Region
Commonwealth marine environment surrounding the Recherche Archipelago	South-west
Commonwealth marine environment within and adjacent	South-west to Geographe Bay
Commonwealth marine environment within and adjacent	South-west to the west coast inshore lagoons
Diamantina Fracture Zone	South-west
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		
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
<div>Seals</div> 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
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.

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

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

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

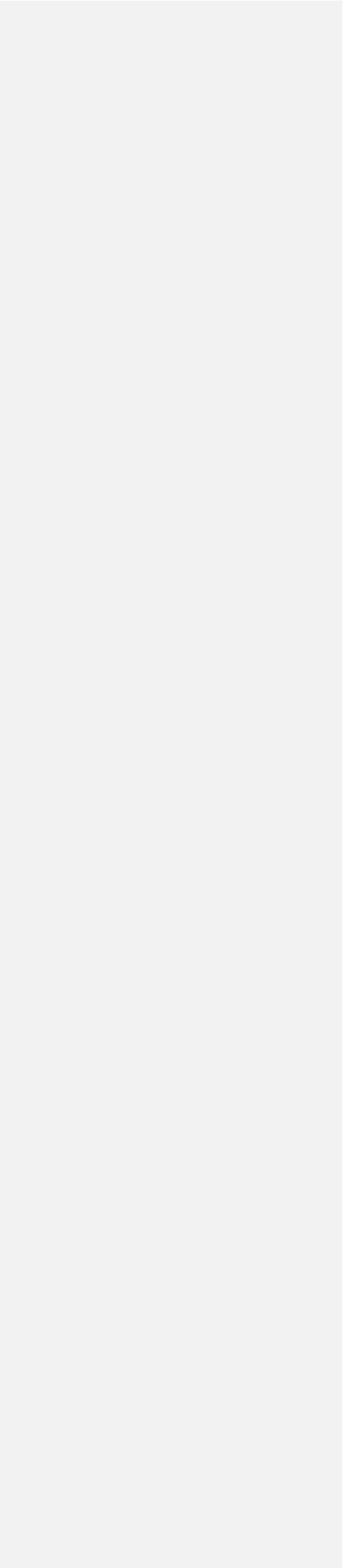
This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-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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APPENDIX W SUPPORTING FIGURES FOR SECTION 2.3 METEOROLOGY AND OCEANOGRAPHY

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APPENDIX B. SUPPORTING FIGURES FOR SECTION 2.3 METEOROLOGY AND OCEANOGRAPHY

Browse

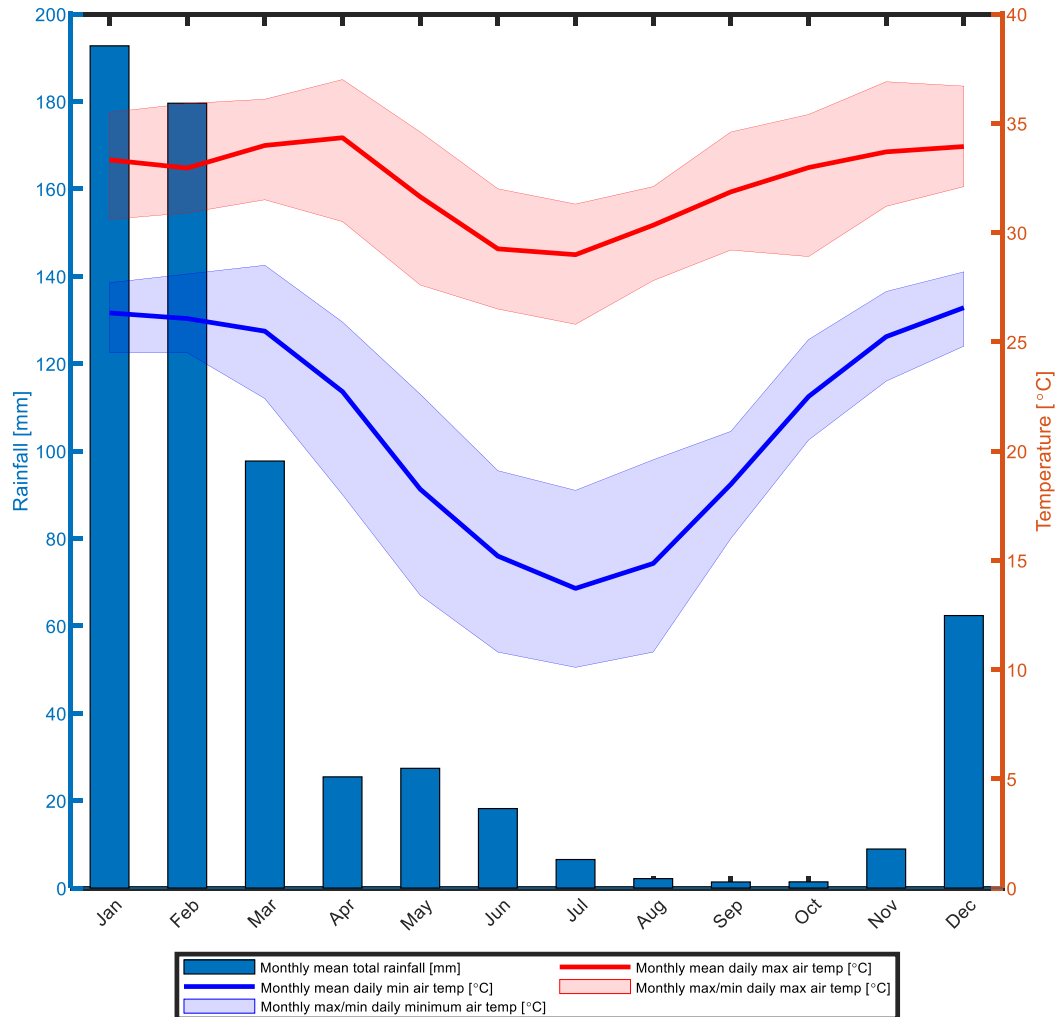
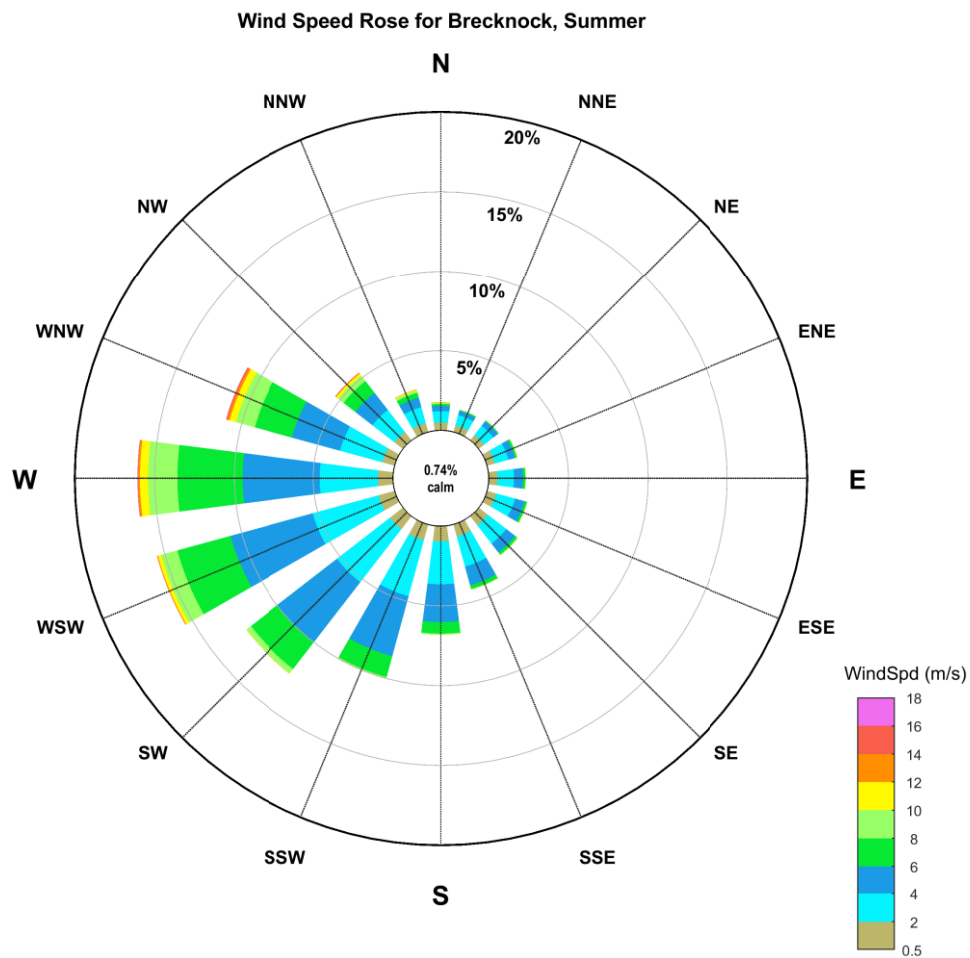


Figure 1. Monthly average total rainfall [mm] and air temperature [°C], calculated based on observations at the Broome Airport weather station from 1939-2020 (Bureau of Meteorology 2020). Bars show the monthly average total rainfall values, and thick blue and red lines denote monthly average daily minimum and maximum air temperatures, respectively. Shaded blue and red areas denote monthly recorded extremes of daily minimum and maximum air temperature, respectively.

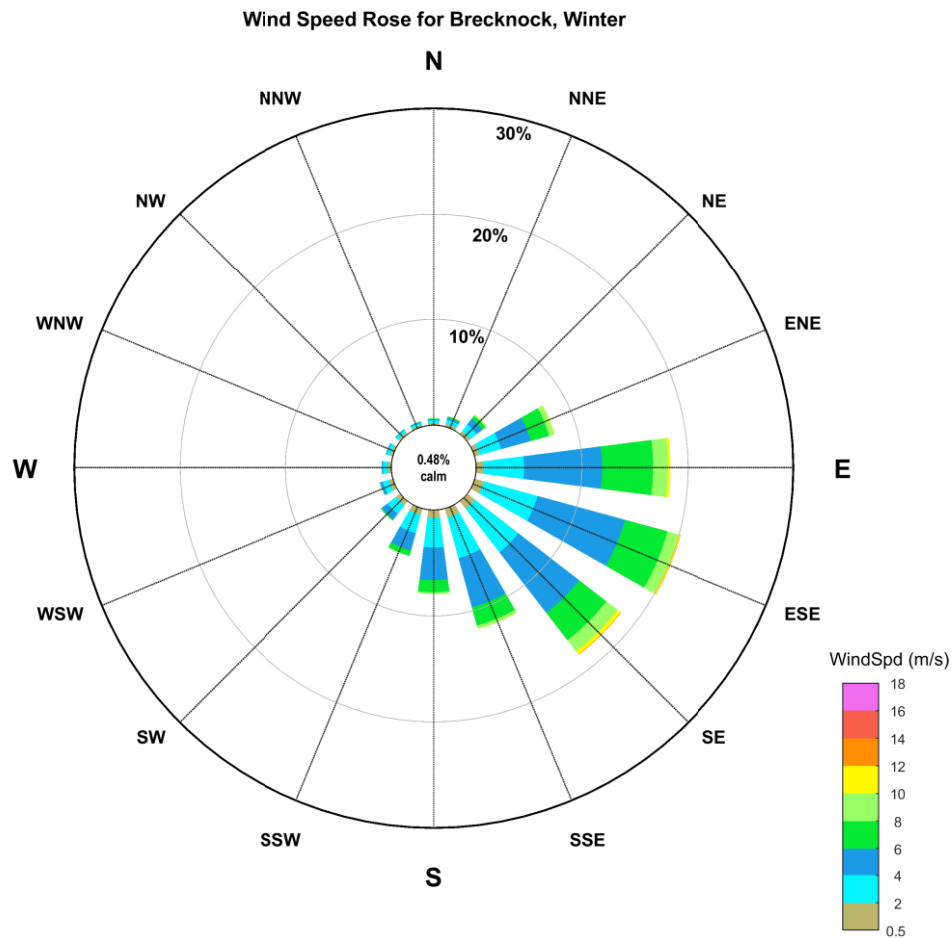


Data Information:
 Project: Browse
 Location: Brecknock [121.6500°E, 14.5300°S]
 Data Period: Summer (01-Jan-1979 to 01-Jan-2019)
 Data Source: Modelled Hindcast
 Record Elevation: 10 m AMSL
 Local Water Depth (m): 560
 Data Summary: Summer
 Number of Records: 164812
 Missing Data (%): 5.80
 Calm (% < 0.50m/s): 0.74
 Measurement Format: 10-minute avg.

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



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).

**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.

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



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).

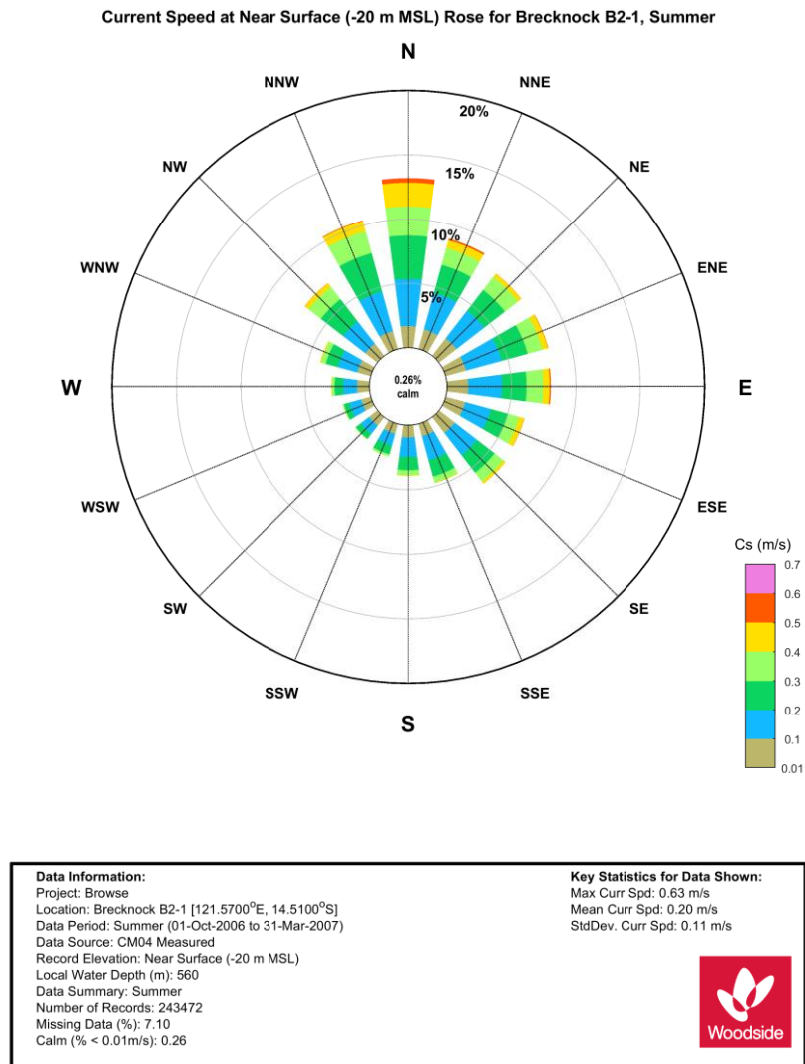
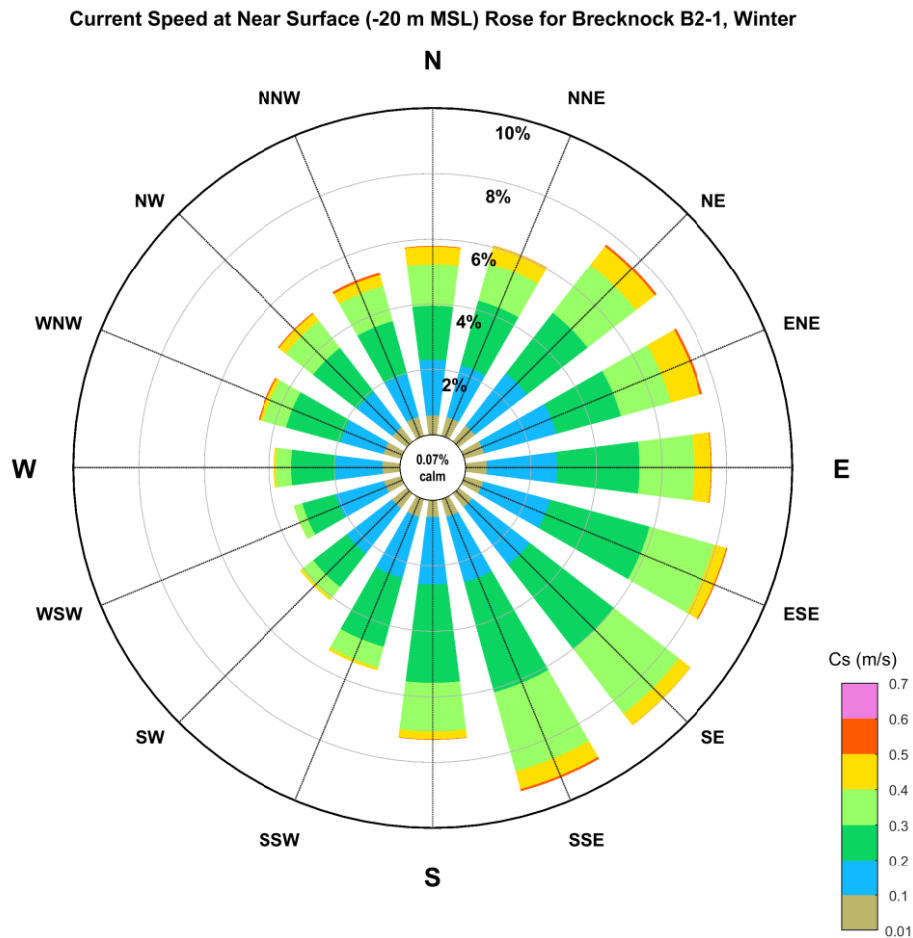


Figure 4. Summer (Nov-Apr) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at Brecknock B2-1 location (cyclones removed) (RPS Metocean Ltd. 2008).

**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

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



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

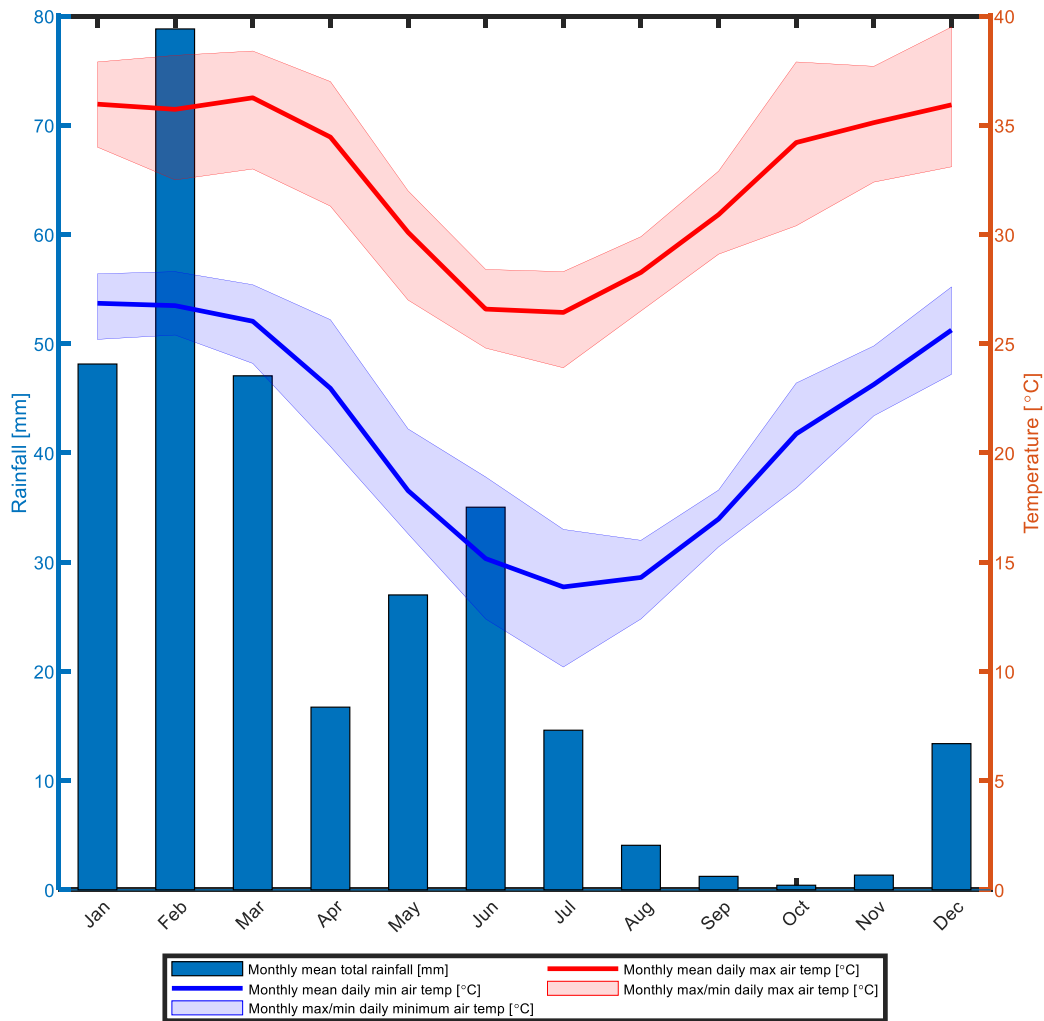
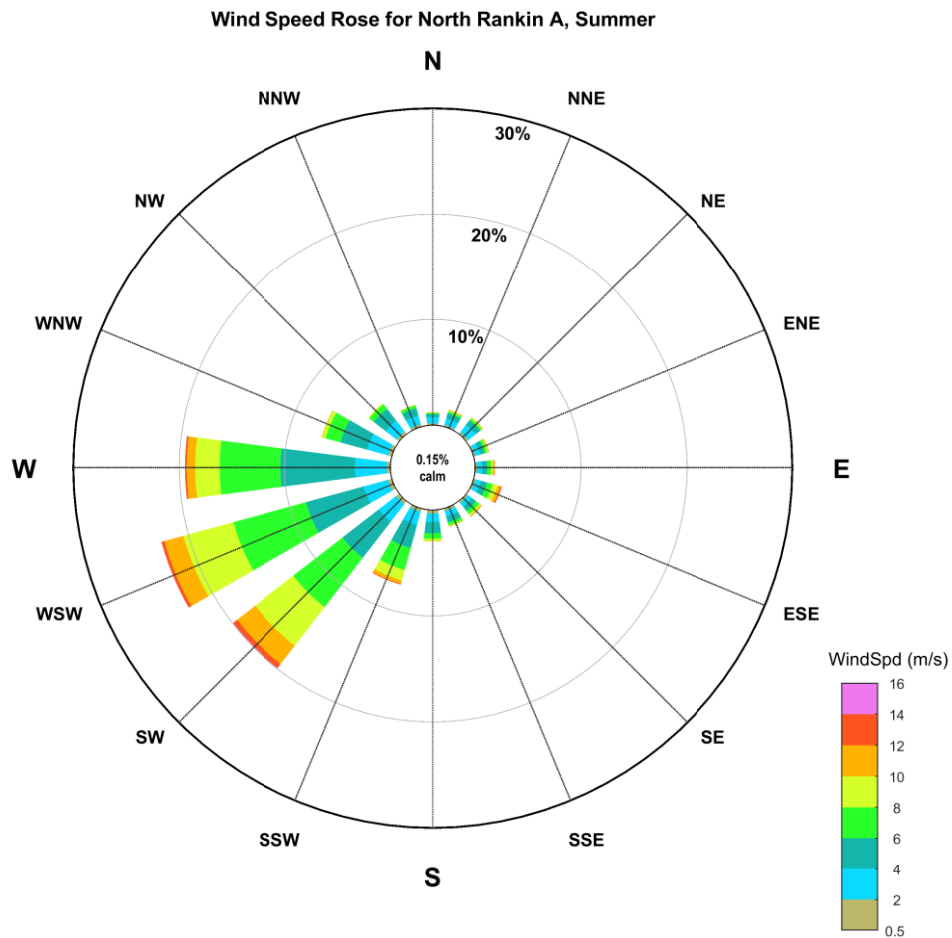


Figure 1. Monthly average total rainfall [mm] and air temperature [°C], calculated based on observations at the Karratha Aero weather station from 1972-2020 and 1993-2020 respectively (Bureau of Meteorology 2020). Bars show the monthly average total rainfall values, and thick blue and red lines denote 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.

**Data Information:**

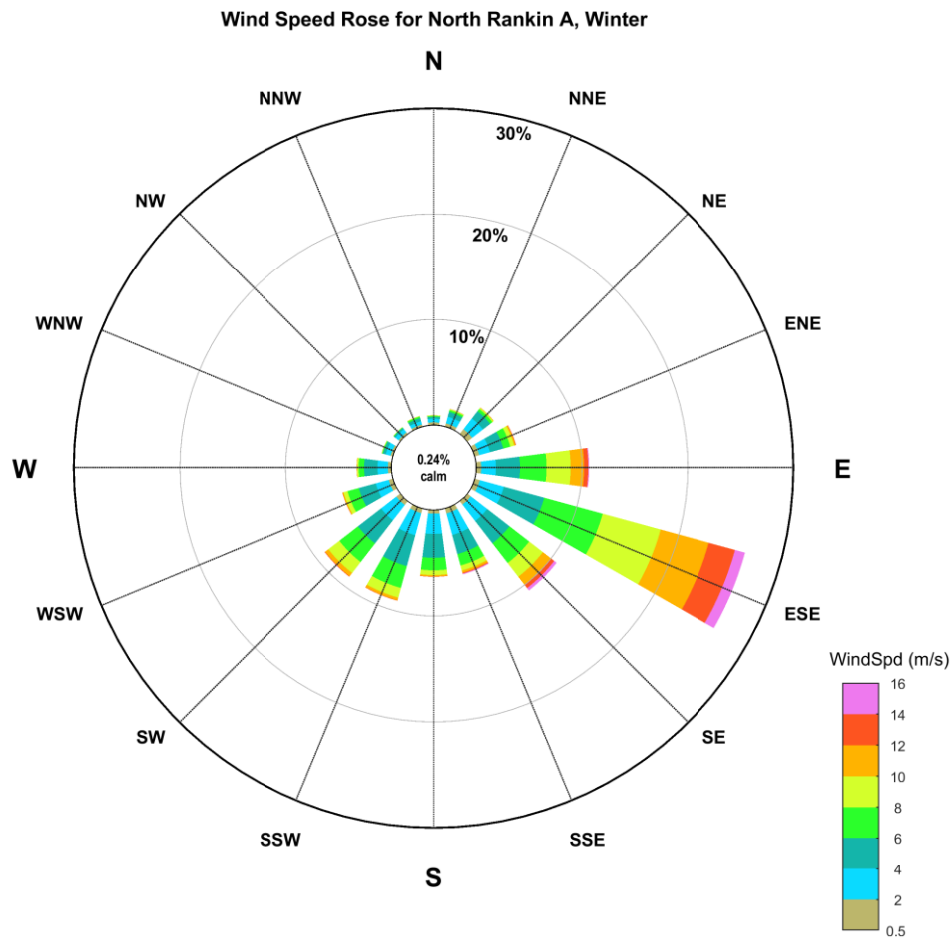
Project: North West Shelf
 Location: North Rankin A [116.1200°E, 19.6100°S]
 Data Period: Summer (01-Oct-1995 to 30-Nov-2015)
 Data Source: Measured Winds
 Record Elevation: 10 m AMSL
 Local Water Depth (m): 125
 Data Summary: Summer
 Number of Records: 674659
 Missing Data (%): 7.24
 Calm (% < 0.50m/s): 0.15
 Measurement Format: 10-minute avg.

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



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).

**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.

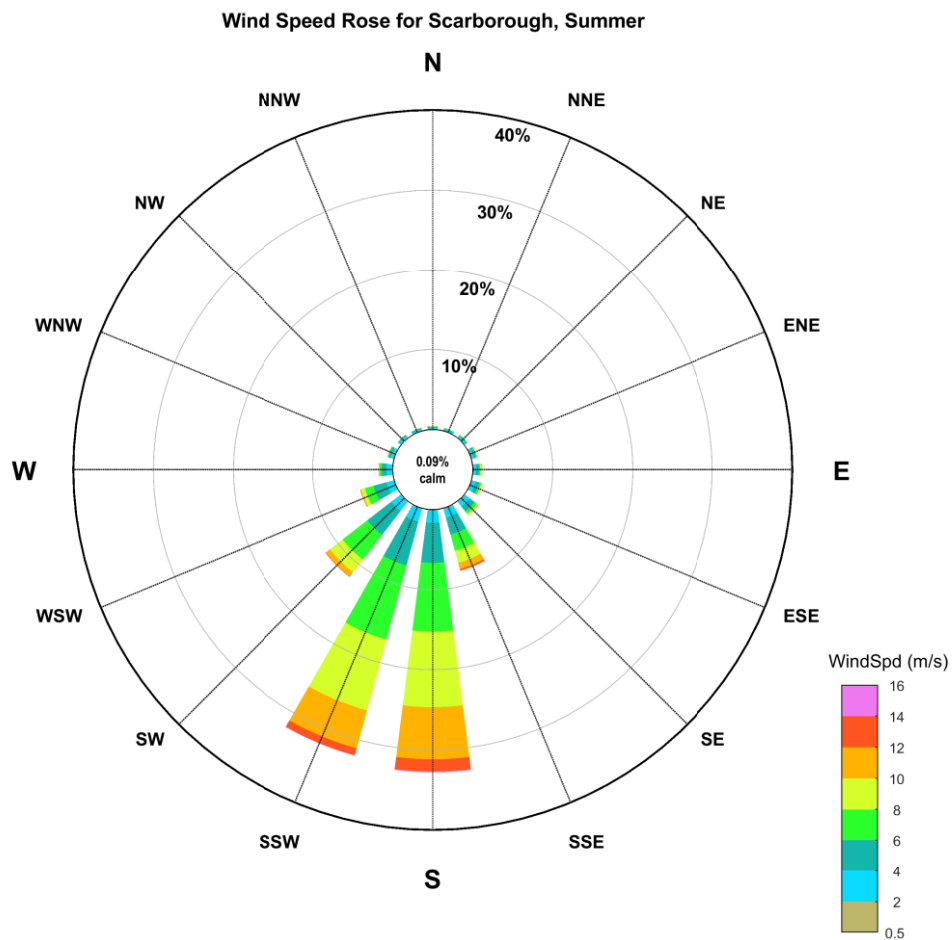
Key Statistics for Data Shown:

Max Wind Speed: 24.23 m/s
 Mean Wind Speed: 6.25 m/s
 StdDev. Wind Speed: 3.16 m/s



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


Data Information:

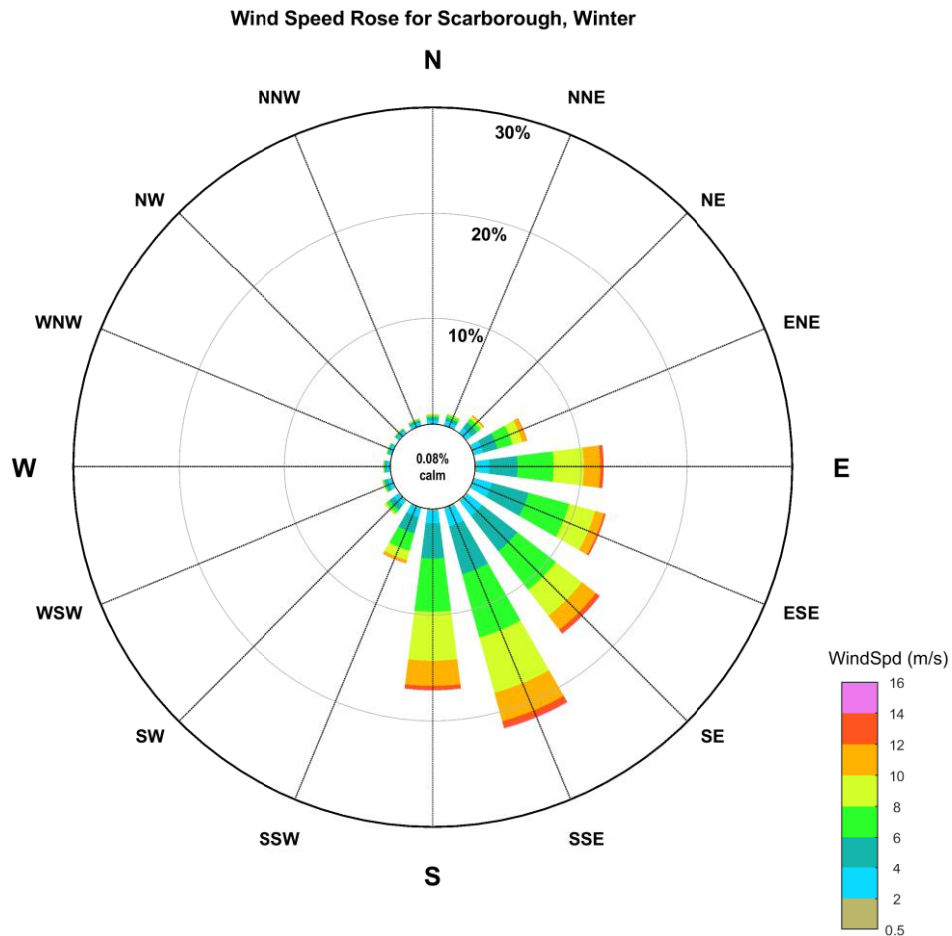
Project: North West Shelf
 Location: Scarborough [113.2000°E, 19.8800°S]
 Data Period: Summer (01-Jan-1979 to 01-Jan-2011)
 Data Source: CSFR
 Record Elevation: 10 m AMSL
 Local Water Depth (m): 950
 Data Summary: Summer
 Number of Records: 129521
 Missing Data (%): 7.46
 Calm (% < 0.50m/s): 0.09
 Measurement Format: 10-minute avg.

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



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.

**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.

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



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 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

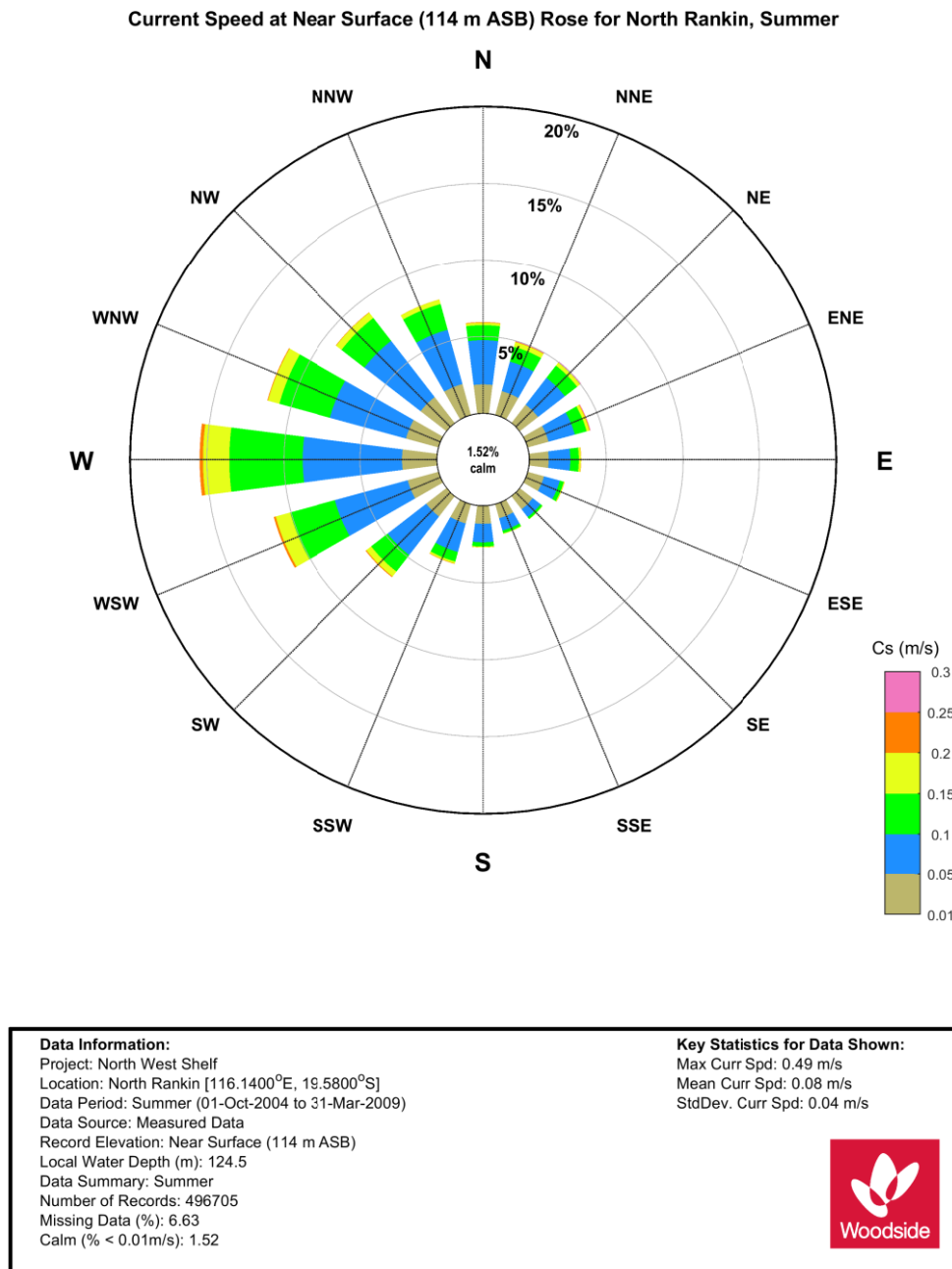


Figure 6. Summer (Nov-Apr) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the North Rankin location (cyclones removed) (WEL, 2011).

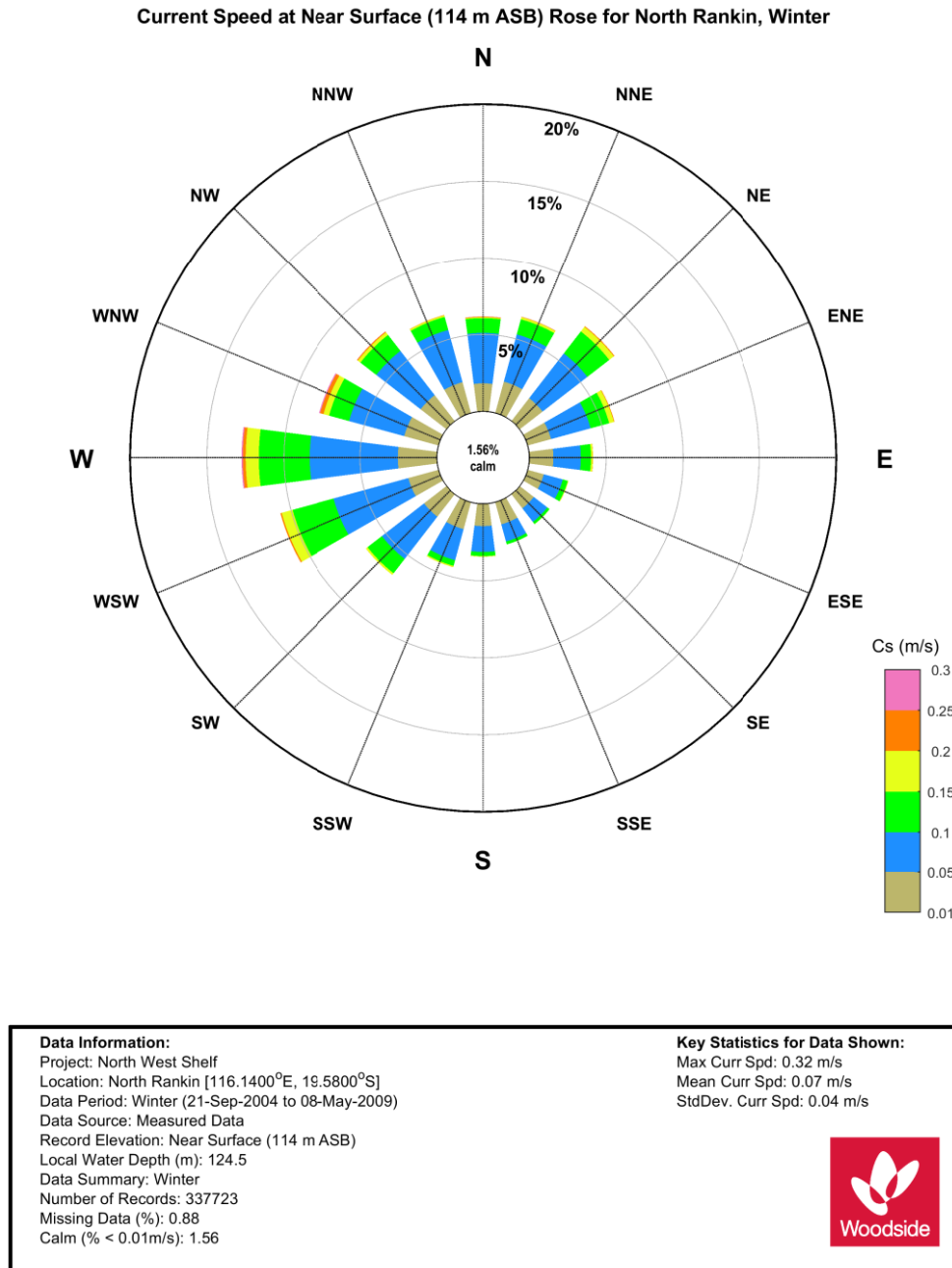


Figure 7. Winter (May-Sep) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the North Rankin location (cyclones removed) (WEL, 2011).

Scarborough

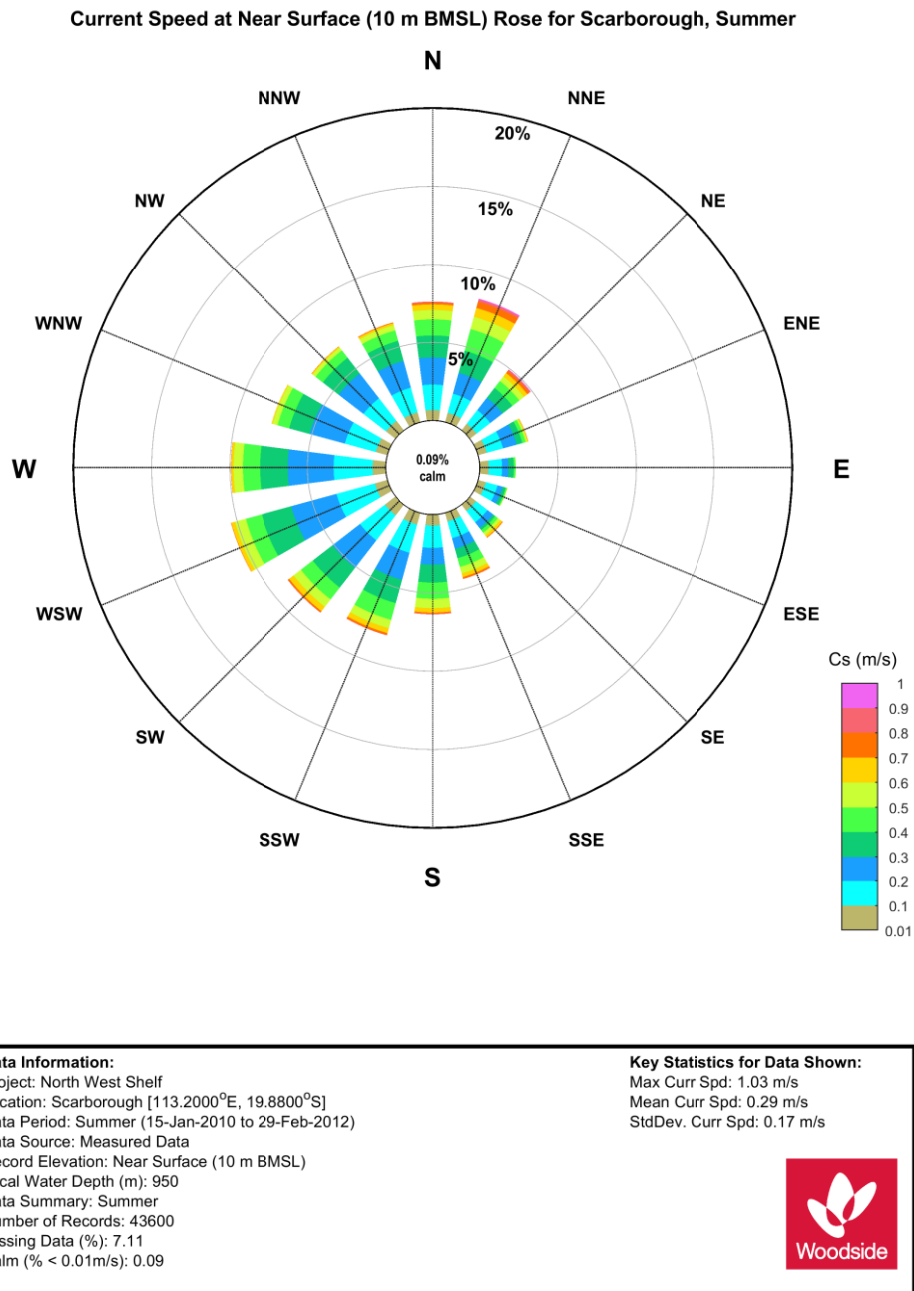
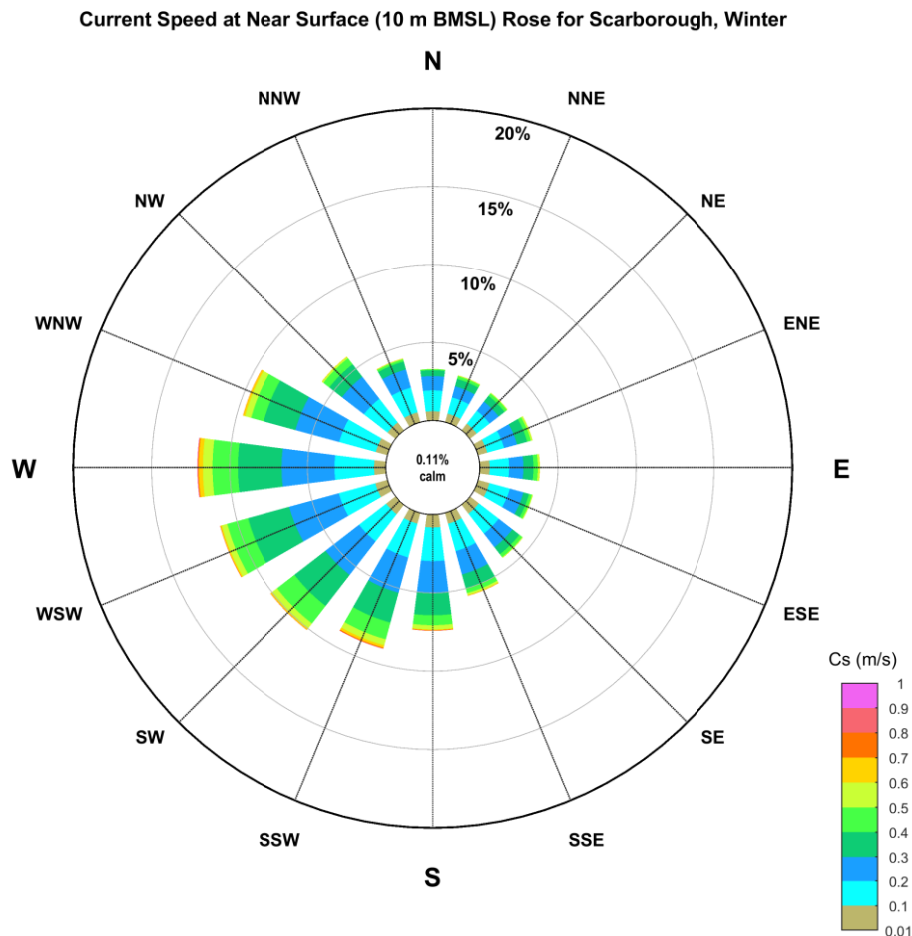


Figure 8. Summer (Nov - April) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the Scarborough location (cyclones removed) (WEL, 2018).

**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

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



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

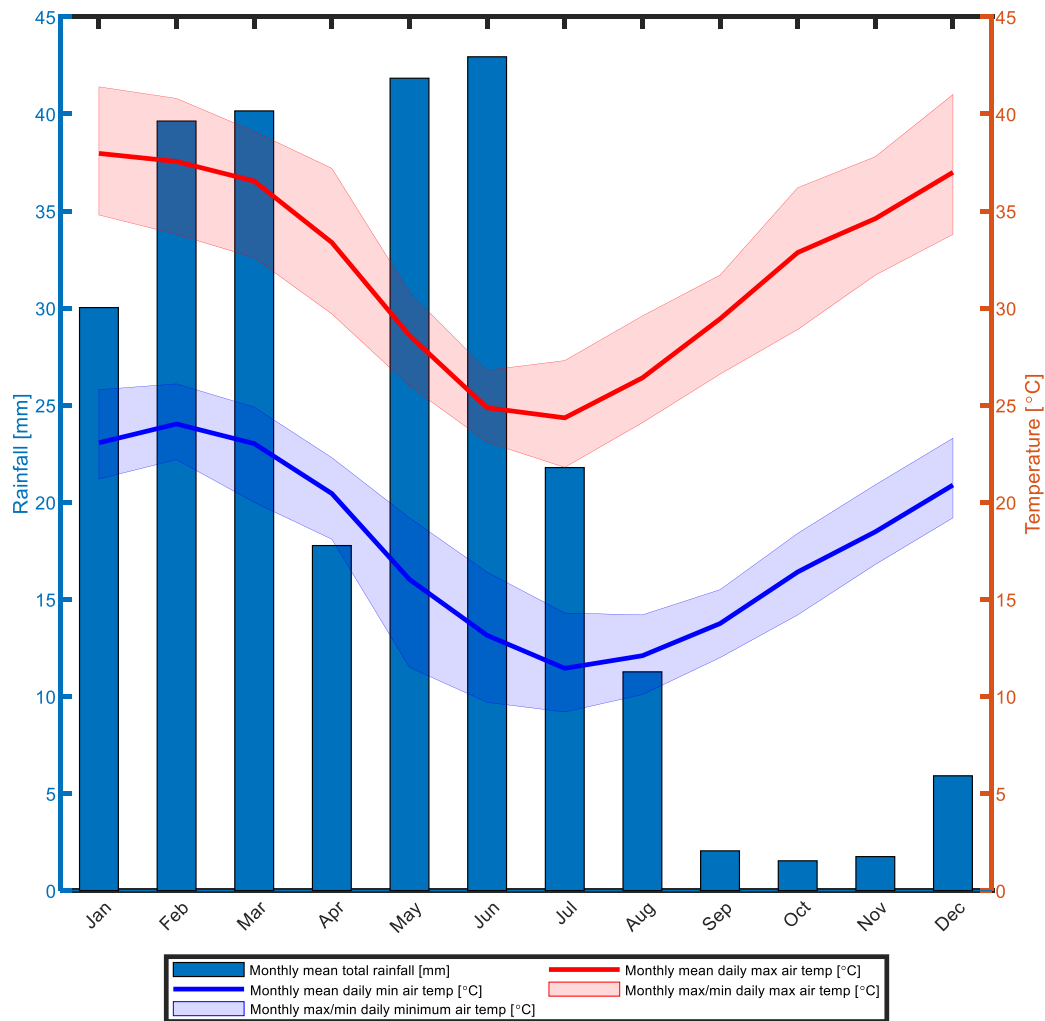
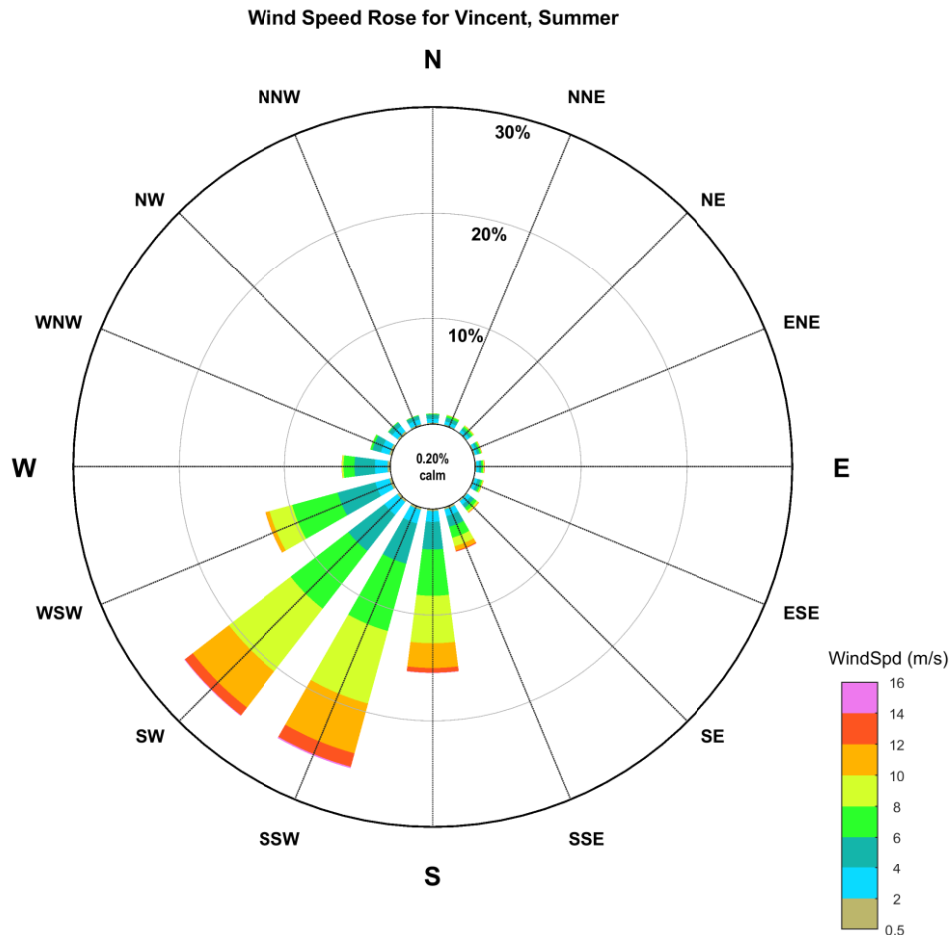


Figure 1. Monthly average total rainfall [mm] and air temperature [°C], calculated based on observations at the Learmonth Airport weather station from 1945-2020 and 1975-2020 respectively (Bureau of Meteorology 2020). Bars show the monthly average total rainfall values, and thick blue and red lines denote 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.

**Data Information:**

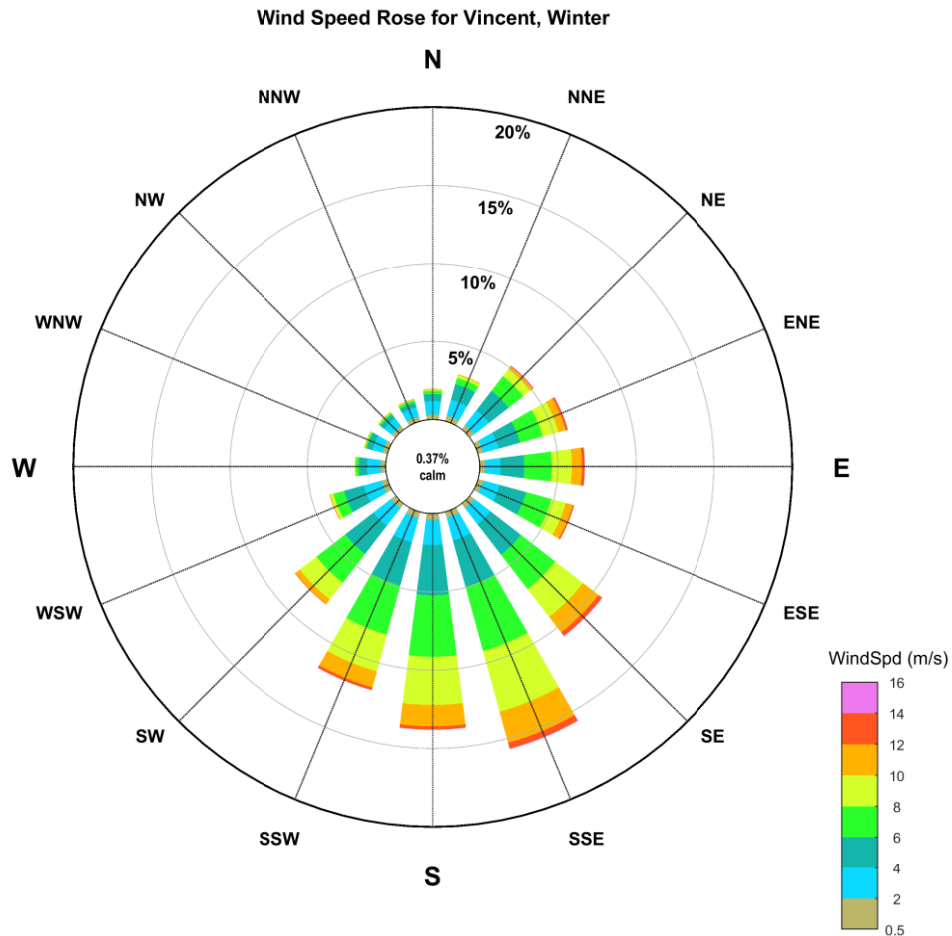
Project: North West Cape
 Location: Vincent [114.0600°E, 21.4400°S]
 Data Period: Summer (01-Jan-1979 to 01-Jan-2019)
 Data Source: Modelled Hindcast
 Record Elevation: 10 m AMSL
 Local Water Depth (m): 350
 Data Summary: Summer
 Number of Records: 159379
 Missing Data (%): 8.91
 Calm (% < 0.50m/s): 0.20
 Measurement Format: 10-minute avg.

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



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).

**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.

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



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).

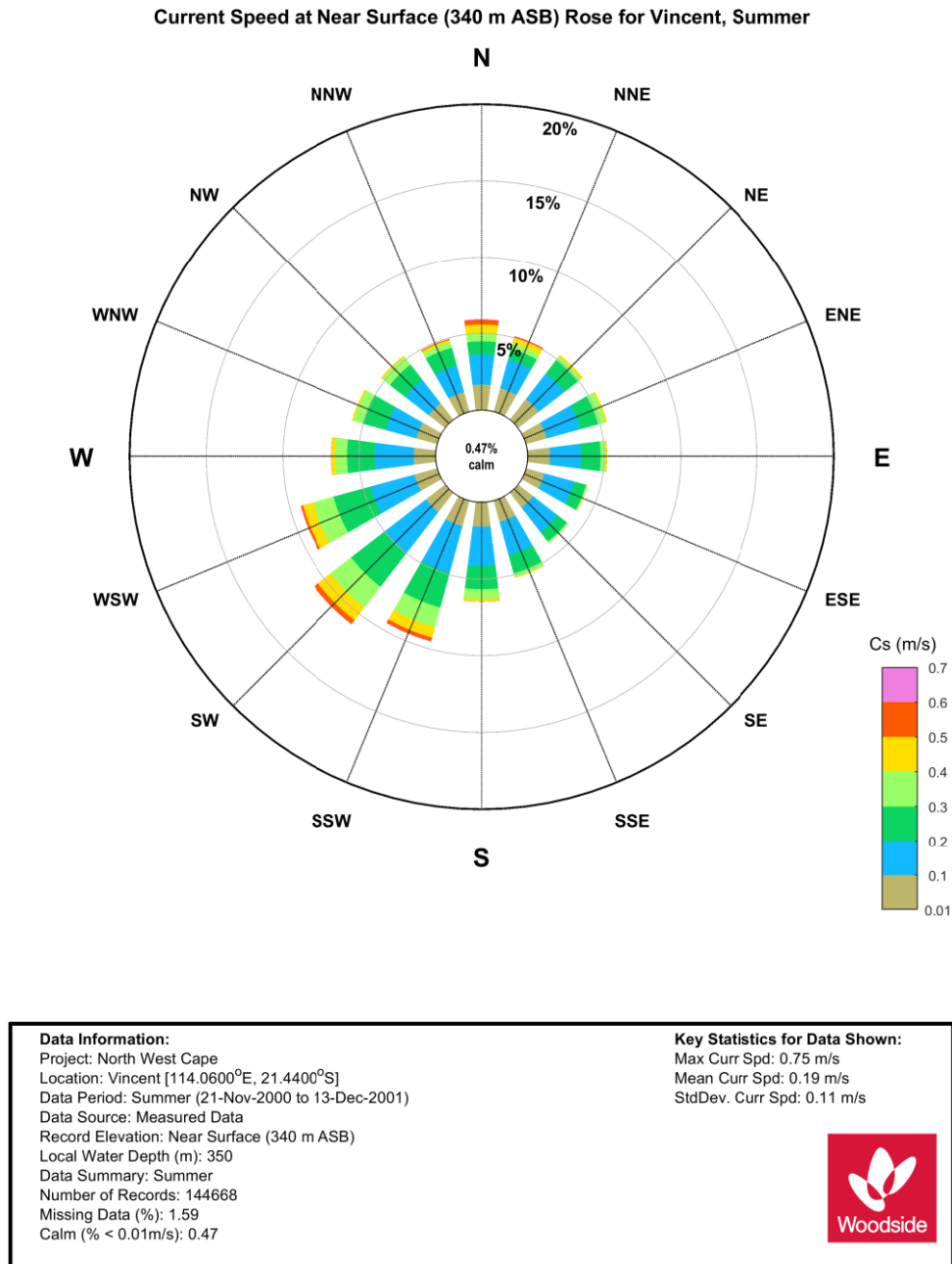


Figure 4. Summer (May – Sep) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the Vincent location (cyclones removed) (WEL, 2016).

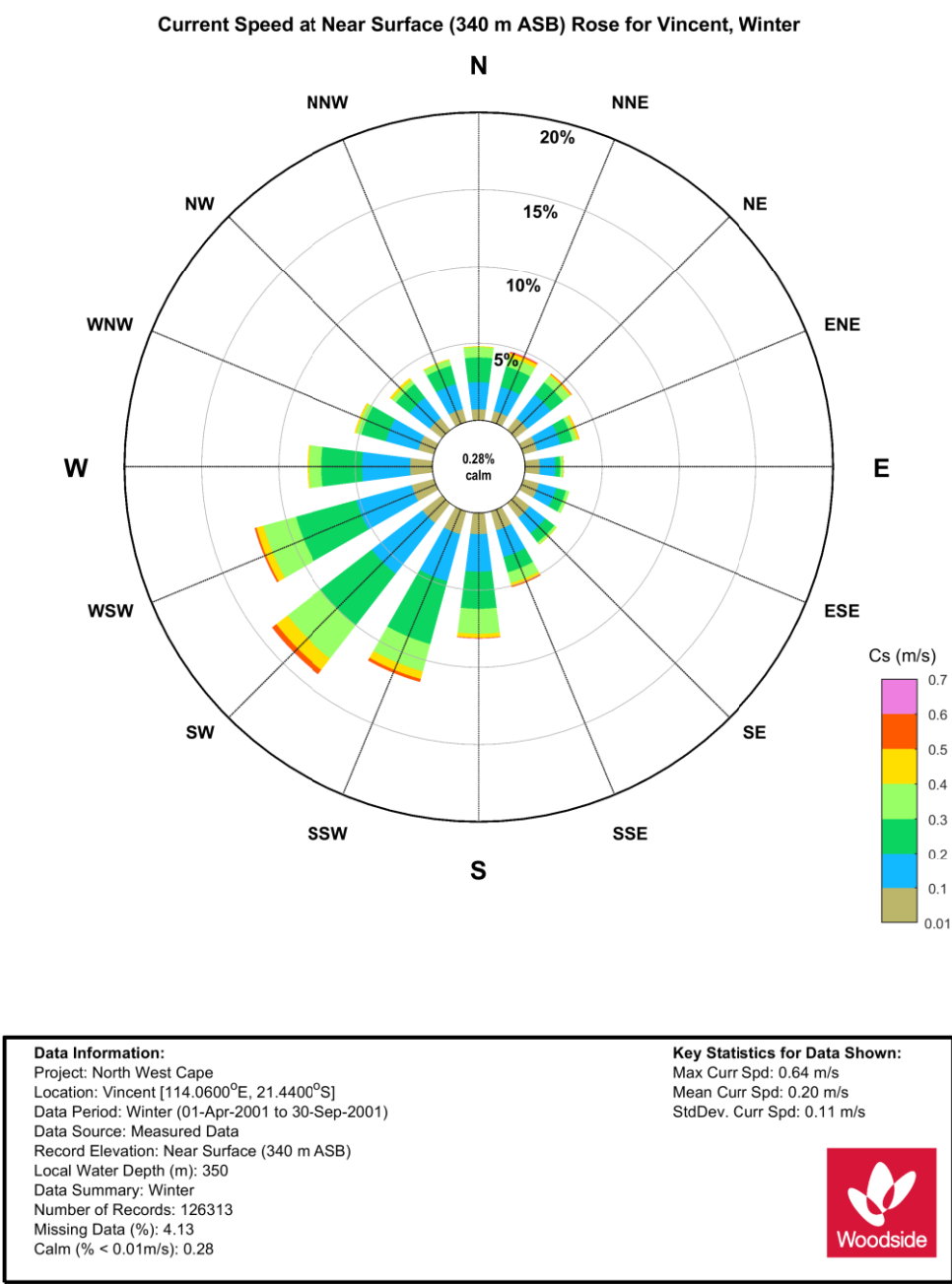


Figure 5. Winter (Nov – Apr) near surface combined frequency of 1-minute mean current speed and direction (towards) measured at the Vincent location (cyclones removed) (WEL, 2016).

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APPENDIX D Oil Spill Preparedness and Response Mitigation Assessment

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**Woodside
Energy**

Oil Spill Preparedness and Response Mitigation Assessment for Julimar Operations

Corporate HSE

Hydrocarbon Spill Preparedness

March 2025

Revision 3b

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Page 2 of 115

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	7
1 INTRODUCTION	10
1.1 Overview.....	10
1.2 Purpose	10
1.3 Scope	10
1.4 Oil spill response document overview	10
2 RESPONSE PLANNING PROCESS.....	15
2.1 Response planning process outline.....	17
2.1.1 Response Planning Assumptions.....	18
2.2 Environment plan risk assessment (credible spill scenarios)	19
2.2.1 Hydrocarbon characteristics	22
2.3 Hydrocarbon spill modelling	22
2.3.1 Stochastic modelling.....	23
2.3.2 Deterministic modelling	23
2.3.3 Response planning thresholds for surface and shoreline hydrocarbon exposure	23
2.3.4 Spill modelling results.....	27
3 IDENTIFY RESPONSE PROTECTION AREAS (RPAS)	30
3.1 Identified sensitive receptor locations.....	31
3.2 Identify Response Protection Areas (RPAs).....	31
4 NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)	32
4.1 Pre-operational / Strategic NEBA	33
4.2 Stage 1: Evaluate data	33
4.2.1 Define the scenario(s)	33
4.3 Stage 2: Predict Outcomes.....	33
4.4 Stage 3: Balance trade-offs	33
4.5 Stage 4: Select Best Response Options	33
4.5.1 Determining potential response options	33
5 HYDROCARBON SPILL ALARP PROCESS	41
5.1 Monitor and Evaluate.....	43
5.1.1 Response need based on predicted consequence parameters	43
5.1.2 Environmental performance based on need.....	44
5.2 Source Control and Well Intervention	46
5.2.1 Response need based on predicted consequence parameters	46
5.2.2 Environmental performance based on need.....	47
5.3 Source Control via vessel Shipboard Oil Pollution Emergency Plan (SOPEP)	49
5.3.1 Environmental performance based on need.....	49
5.4 Oiled wildlife response (including hazing)	50
5.4.1 Response need based on predicted consequence parameters	50
5.4.2 Environmental performance based on need.....	53
5.5 Waste Management	54
5.5.1 Response need based on predicted consequence parameters	54

5.5.2	Environmental performance based on need.....	55
5.6	Operational and Scientific monitoring.....	56
5.6.1	Response need for Shoreline Clean-Up Assessment (SCAT) based on predicted consequence parameters	57
5.6.2	Summary – operational and scientific monitoring.....	57
5.6.3	Environmental performance based on need.....	59
5.7	Incident Management System (IMS)	61
5.7.1	Incident action planning.....	61
5.7.2	Operational NEBA process.....	61
5.7.3	Consultation engagement process	61
5.7.4	Environmental performance based on need.....	62
5.8	Measurement Criteria for all Response Techniques	63
6	ALARP EVALUATION	67
6.1	Monitor and Evaluate – ALARP Assessment	67
6.1.1	Monitor and evaluate – Control Measure Options Analysis.....	67
6.1.2	Selected Control Measures	68
6.2	Source Control – ALARP Assessment	69
6.2.1	ROV Intervention	69
6.2.2	Debris clearance and/or removal.....	70
6.2.3	Capping stack.....	70
6.2.4	Relief Well drilling	71
6.2.5	Source Control – Control Measure Options Analysis	77
6.2.6	Activation/Mobilisation – Control Measure Options Analysis.....	77
6.2.7	Deployment Options Analysis.....	79
6.2.8	Selected Control Measures	80
6.3	Source Control via Vessel SOPEP – ALARP Assessment	82
6.3.1	Source Control via Vessel SOPEP – Control Measure Options Analysis.....	82
6.3.2	Selected control measures	82
6.4	Oiled Wildlife Response – ALARP Assessment	83
6.4.1	Existing Capability – Oiled Wildlife Response	83
6.4.2	Oiled Wildlife Response – Control Measure Options Analysis	83
6.4.3	Selected control measures	84
6.5	Waste Management – ALARP Assessment	85
6.5.1	Existing Capability – Waste Management	85
6.5.2	Waste Management - Control Measure Options Analysis	85
6.5.3	Selected control measures	86
6.6	Operational and Scientific Monitoring – ALARP Assessment	87
6.6.1	Existing Capability – Operational and Scientific Monitoring.....	87
6.6.2	Operational and Scientific Monitoring – Control Measure Options Analysis.....	87
6.6.3	Selected Control Measures	88
6.6.4	ALARP and Acceptability Summary	89
7	ENVIRONMENTAL RISK ASSESSMENT OF SELECTED RESPONSE TECHNIQUES	90
7.1	Identification of impacts and risks from implementing response techniques	90

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7.2	Analysis of impacts and risks from implementing response techniques.....	90
7.3	Evaluation of impacts and risks from implementing response techniques	91
7.4	Treatment of impacts and risks from implementing response techniques.....	93
8	ALARP CONCLUSION	94
9	ACCEPTABILITY CONCLUSION	95
10	REFERENCES	96
11	GLOSSARY AND ABBREVIATIONS	99
11.1	Glossary	99
11.2	Abbreviations	101
	ANNEX A: Net Environmental Benefit Analysis detailed outcomes.....	104
	ANNEX B: Monitor and evaluate Activation and Termination Criteria	108
	ANNEX C: OSM Activity Specific Requirement and Verification of OSM-BIP Adequacy.....	111
	ANNEX D: Tactical Response Plans	114

TABLE OF FIGURES

Figure 1-1: Woodside hydrocarbon spill document structure.....	11
Figure 2-1: Response planning and selection process	16
Figure 2-2: Response planning assumption – timing, resourcing and effectiveness	18
Figure 2-3: Location of Scenario 1 (MEE-01), Scenario 2 (CS-02) and Scenario 3 (CS-03).....	21
Figure 2-4: Proportion of total area coverage (AMSA, 2014).....	25
Figure 2-5: Oil thickness versus potential response options (from Allen & Dale 1996)	26
Figure 3-1: Identify Response Protection Areas (RPAs) flowchart	30
Figure 4-1: Net Environmental Benefit Analysis (NEBA) flowchart.....	32
Figure 5-1: Example screenshot of the CEM competency dashboard.....	64
Figure 5-2: Example screenshot for the SCAT role	64
Figure 6-1: Julimar Operations process for sourcing relief well MODU	71
Figure 6-2: Source control and well intervention response strategy deployment timeframes for Julimar Operations.....	73
Figure 6-3: Timeline showing Safety Case revision timings alongside other relief well preparation activity timings for Julimar Operations	75

TABLES

Table 0-1: Summary of the key details for assessment	7
Table 1-1: Hydrocarbon Spill preparedness and response – document references	12
Table 2-1: Petroleum Activities Program credible spill scenarios	20
Table 2-2: Summary of thresholds applied to the stochastic hydrocarbon spill modelling to determine the EMBA and environmental impacts	23
Table 2-3: Surface hydrocarbon thresholds for response planning	24
Table 2-4: Surface hydrocarbon viscosity thresholds	27
Table 2-5: Worst case credible scenario modelling results.....	28
Table 4-1: Response technique evaluation – Loss of Well Containment (LOWC) (MEE-01)	35
Table 4-2 Response technique evaluation – Loss of containment from subsea infrastructure (CS-02).....	37
Table 4-3: Response technique evaluation – vessel collision.....	39
Table 5-1: Environmental Performance – Monitor and evaluate.....	44
Table 5-2: Response Planning Assumptions – Source Control	46
Table 5-3: Environmental Performance – Source Control	47

Table 5-4: Key at-risk species potentially in Response Protection Areas and open ocean	51
Table 5-5: WAOWRP Guide for rating wildlife impact of an oil spill (DBCA, 2022).....	51
Table 5-6: Environmental Performance – Oiled Wildlife Response (OWR).....	53
Table 5-7: Response Planning Assumptions – Waste Management.....	54
Table 5-8: Environmental Performance – Waste Management	55
Table 5-9: Joint industry OSM plans relevant to Julimar Operations	57
Table 5-10: Response Planning Assumptions - SCAT	57
Table 5-11: Operational and scientific monitoring.....	59
Table 5-12: Environmental Performance – Incident Management System.....	62
Table 6-1: ROV timings.....	69
Table 6-2: Relief well drilling timings.....	72
Table 6-3: Safety case revision conditions and assumptions	76
Table 7-1: Analysis of risks and impacts.....	91

EXECUTIVE SUMMARY

Woodside Energy Julimar Pty Ltd (Woodside) has developed its oil spill preparedness and response position for the Julimar 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 described in the Environment Plan (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.

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 Scenarios	Major Environmental Event-01 (MEE-01): Worst Case Credible Scenario (WCCS): Hydrocarbon release caused by loss of well containment BRUA-2 well. 115°12'05.6357" E, 20°01'49.1571" S. Subsea release of 55,647 m ³ over 75 days of Brunello condensate. 6.9% residual component of 3840 m ³	Section 2.2
	Credible Scenario-02 (CS-02): Hydrocarbon release caused by a subsea infrastructure loss of containment 115°12'09.28" E, 20°01'53.43" S. Release of 1062 m ³ over 5.2 hours of Brunello condensate. 6.9% residual component of 73 m ³	
	Credible Scenario-03 (CS-03): Hydrocarbon release due to a vessel collision 115°12'05.6357" E, 20°01'49.1571" S Instantaneous release of 250 m ³ ¹ of marine diesel oil (MDO). 5% residual component of 12.5 m ³	
Hydrocarbon Properties	Brunello Condensate Brunello Condensate (API 49.8) contains a high proportion (~6.9% by mass) of hydrocarbon compounds that will not evaporate at atmospheric temperatures. The unweathered mixture has a dynamic viscosity of 1.4257 cP. The pour point of the whole oil (< 36°C) ensures that it will remain in a liquid state over the annual temperature range observed on the North West Shelf. The mixture is composed of hydrocarbons that have a wide range of boiling points and volatilities at atmospheric temperatures, and which will begin to evaporate at different rates on exposure to the atmosphere. Evaporation rates will increase with temperature, but in general about 45.5% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 37.3% should evaporate within the first 24 hours (180°C < BP < 265 °C); and a further 10.3% should evaporate over several days (265 °C < BP < 380 °C). MDO 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	Section 6 of the EP Appendix A of the First Strike Plan

¹ Existing modelling was undertaken in 2024 for a release of 500 m³ of MDO ~6 km from the activity location. Given that the available modelling is fifty percent larger than then spill risk for this activity, within the same vicinity and slightly closer to Montebello Islands, it is deemed representative and additional modelling was therefore not required.

	< BP < 380 °C). Approximately 5% of the oil is shown to be persistent (50 m³). Under calm conditions the majority of the remaining oil on the water surface will weather at a slower rate due to being comprised of the longer-chain compounds with higher boiling points. Evaporation of the residual compounds will slow significantly, and they will then be subject to more gradual decay through biological and photochemical processes.			
Modelling Results	Stochastic modelling A quantitative, stochastic assessment has been undertaken for credible spill scenarios to help assess the environmental risk of a hydrocarbon spill. A total of 100 replicate simulations were completed for MEE-01 and CS-02 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 25 simulations per quarter). A total of 200 replicate simulations were completed for CS-03 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).			Section 2.3
		MEE-01: Hydrocarbon release caused by loss of well containment from BRUA-2 well	CS-02: Hydrocarbon release caused by a subsea infrastructure loss of containment	CS-03: Hydrocarbon release due to a vessel collision
	Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m²)	60 hrs at Montebello Australian Marine Park (AMP)	6 hrs at Montebello AMP	13 hrs to contact at Montebello AMP
	Minimum time to shoreline contact (above 100 g/m²)	NA – no shoreline contact above 100 g/m²	NA – no shoreline contact above 100 g/m²	NA – no shoreline contact above 100 g/m²
	Largest volume ashore at any single Response Protection Area (RPA) (above 100 g/m²)	NA – no shoreline contact above 100 g/m²	NA – no shoreline contact above 100 g/m²	NA – no shoreline contact above 100 g/m²
	Largest total shoreline accumulation (above 100 g/m²) all shorelines	NA – no shoreline contact above 100 g/m²	NA – no shoreline contact above 100 g/m²	NA – no shoreline contact above 100 g/m²
	Minimum time to entrained hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb)	126 hrs at Rankin Bank	3 hrs at Montebello AMP	6 hrs at Montebello AMP
Net Environmental Benefit Analysis	Monitor and evaluate, source control, and oiled wildlife response are all identified as potentially having a net environmental benefit and carried forward for further assessment.			Section 4

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ALARP evaluation of selected response techniques	The evaluation of the selected response techniques shows the proposed controls reduced the risk to an ALARP and acceptable level for the risk presented in Section 2, without the implementation of considered additional, alternative or improved control measures.	Section 7
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1 INTRODUCTION

1.1 Overview

Woodside Energy Julimar Pty Ltd (Woodside) has developed its oil spill preparedness and response position for the Julimar Operations, hereafter known as the PAP. This document outlines 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 2009 (Environment Regulations) relating to hydrocarbon spill response arrangements.

- The Julimar Operations Environment Plan (EP)
- Oil Pollution Emergency Arrangements (OPEA) (Australia)
- The Julimar Operations Oil Pollution Emergency Plan (OPEP) including
 - Oil Pollution 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 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 described 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 2-3.

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 pre-operational Net Environmental Benefit Analysis (NEBA) summary is included at ANNEX A, and outlines 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 monitor and evaluate operations 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.

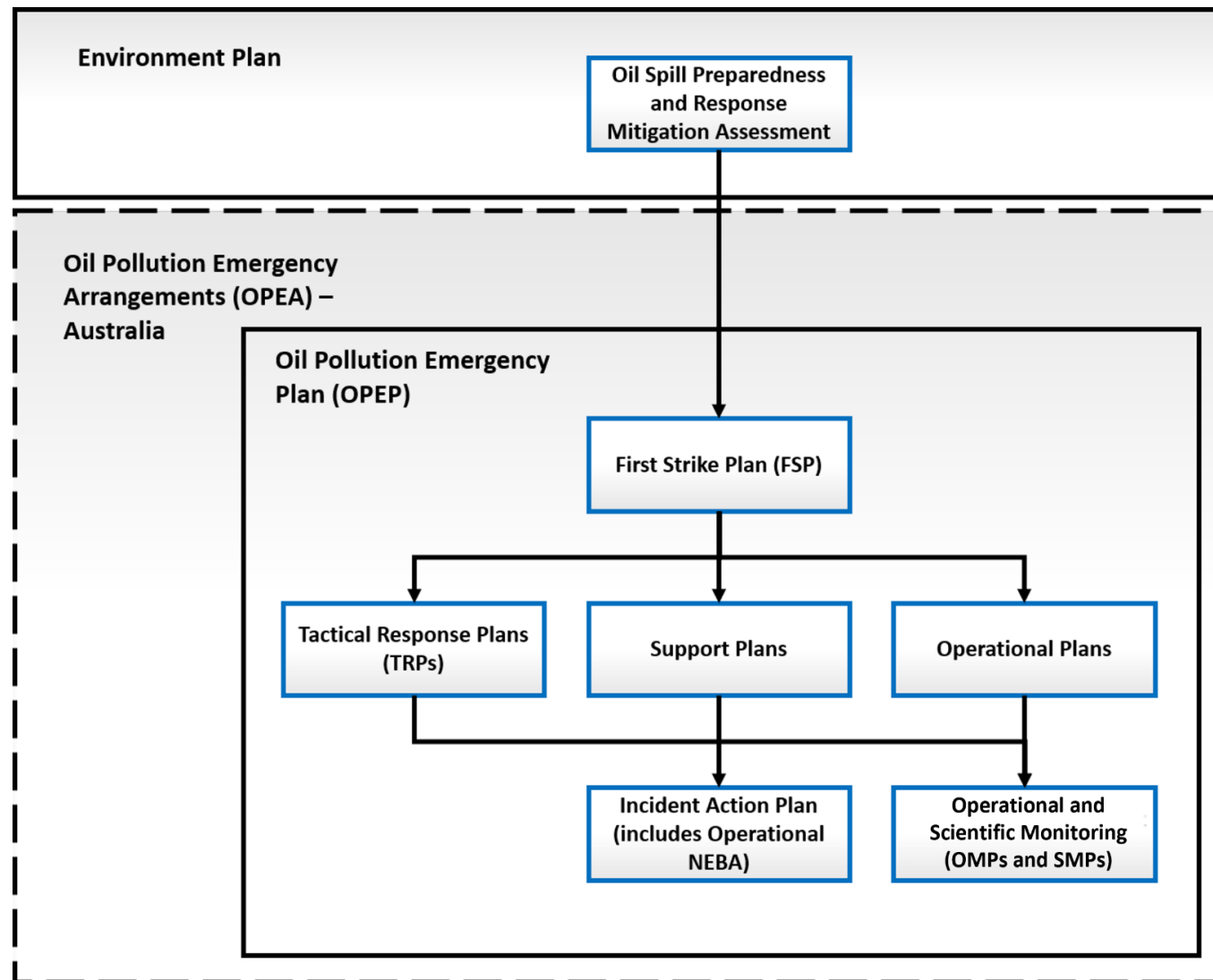


Figure 1-1: Woodside hydrocarbon spill document structure

Table 1-1: Hydrocarbon Spill preparedness and response – document references

Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
Julimar Operations Environment Plan (EP)	Demonstrates that potential adverse impacts on the environment associated with the Julimar 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 4 (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 Julimar 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.	
Julimar 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 required once the resources arrive.</p> <p>Details on how to implement resources to undertake a response.</p>	<p>Operational Monitoring Plan</p> <p>Source Control and Well Intervention</p> <p>Oiled Wildlife Response</p> <p>Operational and Scientific Monitoring Bridging Implementation Plan</p> <p>Vessel Shipboard Oil Pollution Emergency Plan (SOPEP)</p>
Tactical Response Plans	<p>Provides options for response techniques in selected RPAs.</p> <p>Provides site, access and deployment information to support a response at the location.</p>	<p>CIMT: Planning Section to help develop IAPs, and Logistics Section 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 Response Plans (TRPs) for the Julimar Operations oil spill response, refer to ANNEX D: 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>Accommodation & Catering Plan – Australia</p> <p>Transport Management Plan – Australia</p>

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Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
				Waste Management Plan – Australia Health and Safety Support Plan Hydrocarbon Spill Responder Health Monitoring Guidelines People and Global Capability (Surge Labour Requirements) Support Plan (Land Based) Security Support Plan Stakeholder Engagement Support Plan Guidance for Hydrocarbon Spill Claims Management Communications Support Plan – Australia

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 outlines 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 Julimar Operations First Strike Plan (FSP) 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.

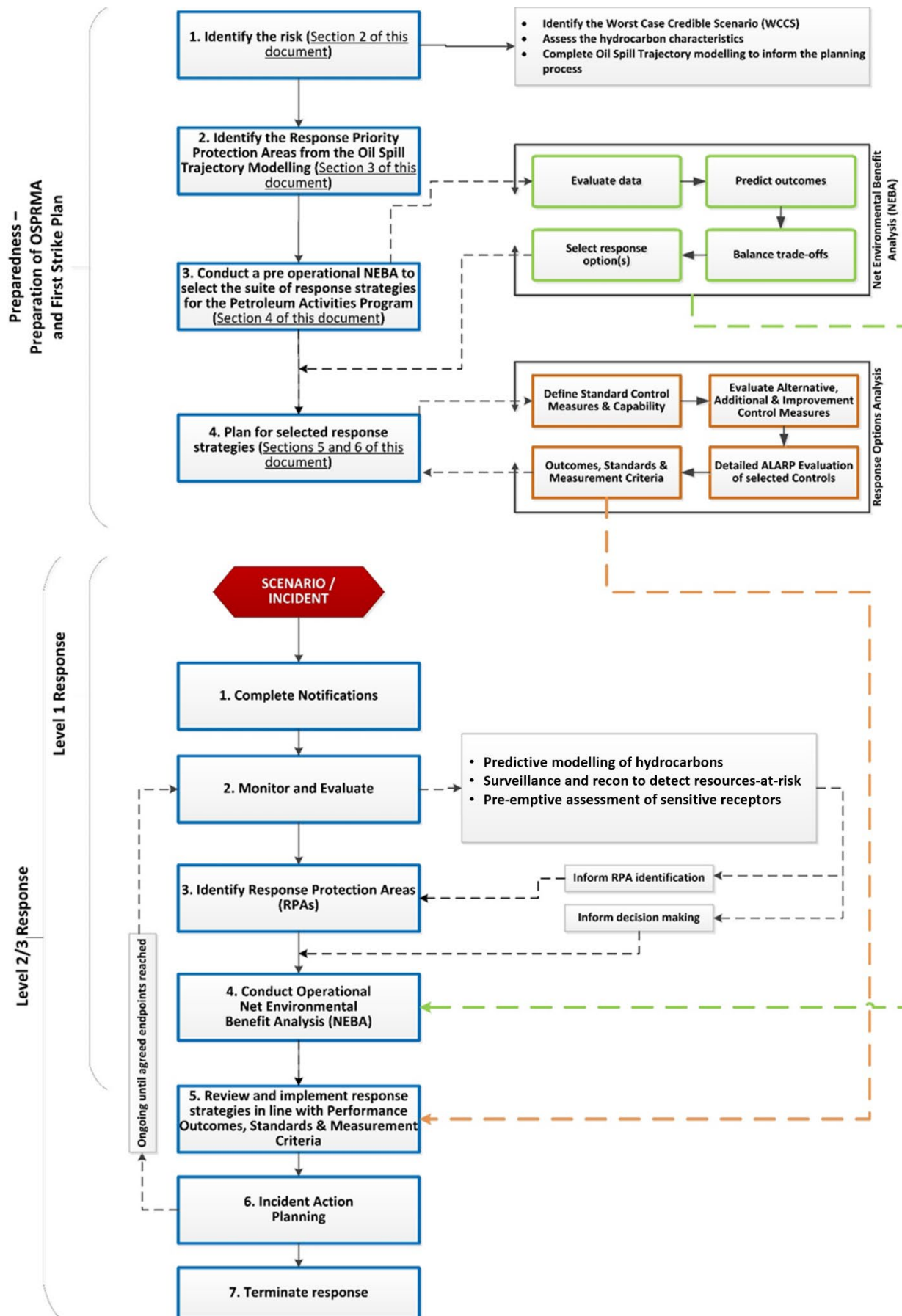


Figure 2-1: Response planning and selection process

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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 <ul style="list-style-type: none">• identification of worst-case credible scenario(s) (WCCS)• spill modelling for WCCS. |
| Section 3. | IDENTIFY RESPONSE PROTECTION AREAS (RPAs) <ul style="list-style-type: none">• areas predicted to be contacted at concentration >100 g/m². |
| Section 4. | NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA) <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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:<ul style="list-style-type: none">– 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 <ul style="list-style-type: none">• 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.

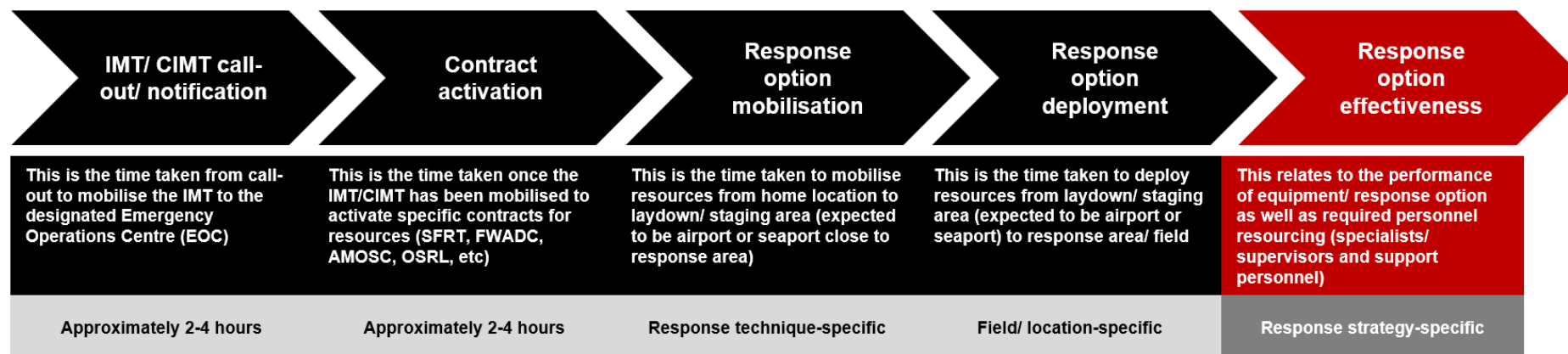


Figure 2-2: Response planning assumption – timing, resourcing and effectiveness

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. Three 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.

Loss of well containment scenarios (MEE-01) has been modelled and considered to determine the WCCS for response planning purposes. Modelling of all scenarios has confirmed that the WCCS will not result in shoreline accumulation or floating hydrocarbons at feasible response thresholds.

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) ¹	Incident level	Hydrocarbon type	Residual proportion	Residual volume (m ³)
MEE-01 (WCCS)	Yes	Hydrocarbon release caused by a well loss of containment (subsea well)	55,647 (Brunello Condensate, over 75 days)	3	Brunello Condensate	6.9 %	3,840 m ³ or 51 m ³ per day
CS-02	No	Hydrocarbon release caused by a subsea infrastructure loss of containment	1062	2	Brunello Condensate	6.9 %	73 m ³
CS-03 ²	No	Hydrocarbon release caused by vessel collision	250	2	MDO	5.0 %	13 m ³

² Existing modelling was undertaken in 2024 for a release of 500 m³ of MDO ~6 km from the activity location. Given that the available modelling is fifty percent larger than then spill risk for this activity, within the same vicinity and slightly closer to Montebello Islands, it is deemed representative and additional modelling was therefore not required.

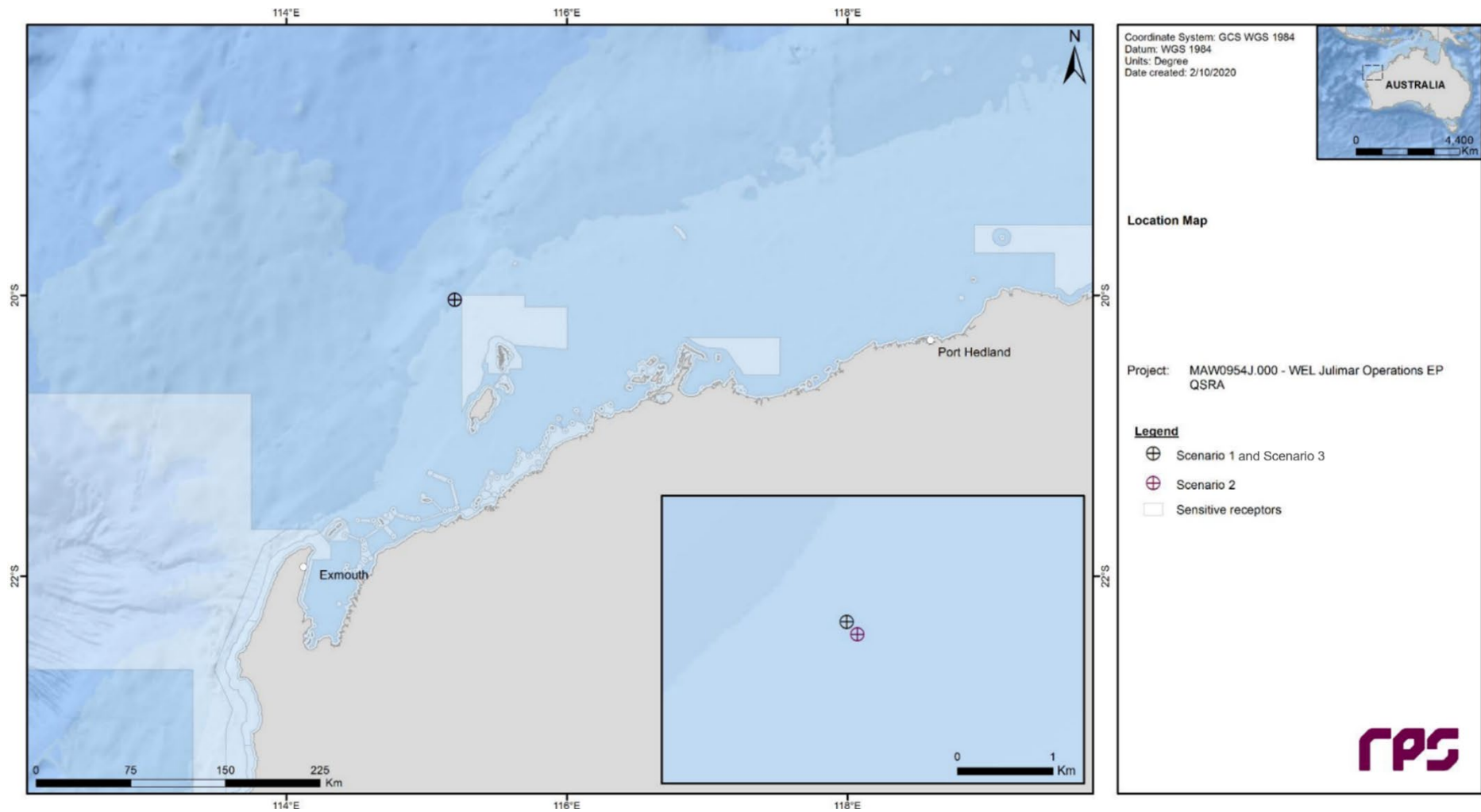


Figure 2-3: Location of Scenario 1 (MEE-01), Scenario 2 (CS-02) and Scenario 3 (CS-03)

2.2.1 Hydrocarbon characteristics

Hydrocarbon characteristics, including modelled weathering data and ecotoxicity, are included in Section 6 of the EP.

Brunello condensate

Brunello Condensate (API 49.8) contains a relatively high proportion (~6.9% by mass) of hydrocarbon compounds that will not evaporate at atmospheric temperatures. These compounds are expected to persist in the marine environment.

The unweathered mixture has a dynamic viscosity of 1.43cP. The pour point of the whole oil (<36 °C) confirms that it will remain in a liquid state over the annual temperature range observed on the North West Shelf. The mixture is composed of hydrocarbons that have a wide range of boiling points and volatilities at atmospheric temperatures, and which will begin to evaporate at different rates on exposure to the atmosphere. Evaporation rates will increase with temperature, but in general about 45.5% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 37.3% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 10.3% should evaporate over several days (265 °C < BP < 380 °C).

Soluble aromatic hydrocarbons contribute approximately 11.2% by mass of the whole oil, with a large proportion (6.9%) in the C4-C10 range of hydrocarbons. These compounds will evaporate slowly, leaving the potential for dissolution of a proportion of them into the water.

Marine Diesel Oil

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.

From modelling results it is predicted that around 6% of the release will be subject to a fairly rapid evaporation when on or around the surface of the water and around 89% in total is available to evaporate over time. It is predicted only 5% product would remain from the bunkering scenario and there is no predicted shoreline contact or accumulation.

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 100 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 (25 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)
Condensate	10	50	100	100
Diesel	10	50	100	100

2.3.2 Deterministic modelling

Woodside uses deterministic modelling results to evaluate risks and impacts and response capability requirements. These results are provided in both shapefile and data table format with each row of the data table representing a 1 km² cell. This cell size has been used as it represents the approximate area a single containment and recovery operation or surface dispersant operation (single sortie or vessel spraying) can effectively treat in one ten (10) hour day.

Deterministic modelling is undertaken where initial stochastic modelling has indicated that floating oil is present at a response threshold of >50 g/m² and/or where there are shoreline accumulations at a response threshold of >100 g/m². None of the scenarios for this PAP meet these thresholds therefore deterministic modelling was not required and stochastic modelling has therefore been used to scale the response.

Woodside is committed to a realistic, scalable response capability commensurate to the level of risk and able to be practically implemented and feasibly sustained.

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 operational and scientific monitoring (OSM), 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 deterministic modelling is then used to assess the nature and scale of a response.

In the event of an actual response, existing deterministic modelling would be reviewed for suitability and additional modelling would be conducted using real-time data and field information to inform CIMT decisions.

The deterministic spill 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)

(Section 2.2). The thresholds used are derived from oil spill response planning literature and industry guidance and are summarised below.

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 monitor and evaluate operations ³	Code 3 – Dull metallic colours	5 to 50
50	Predicted minimum floating oil threshold for containment and recovery and surface dispersant application ⁴	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 overall the average thickness is 0.1 mm (or approx. 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 (10) 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 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

³ Monitor and evaluate 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.

⁴ 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.

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 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 2-4 below 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. Wind-rows, 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 for offshore response operations (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 wind-rows).

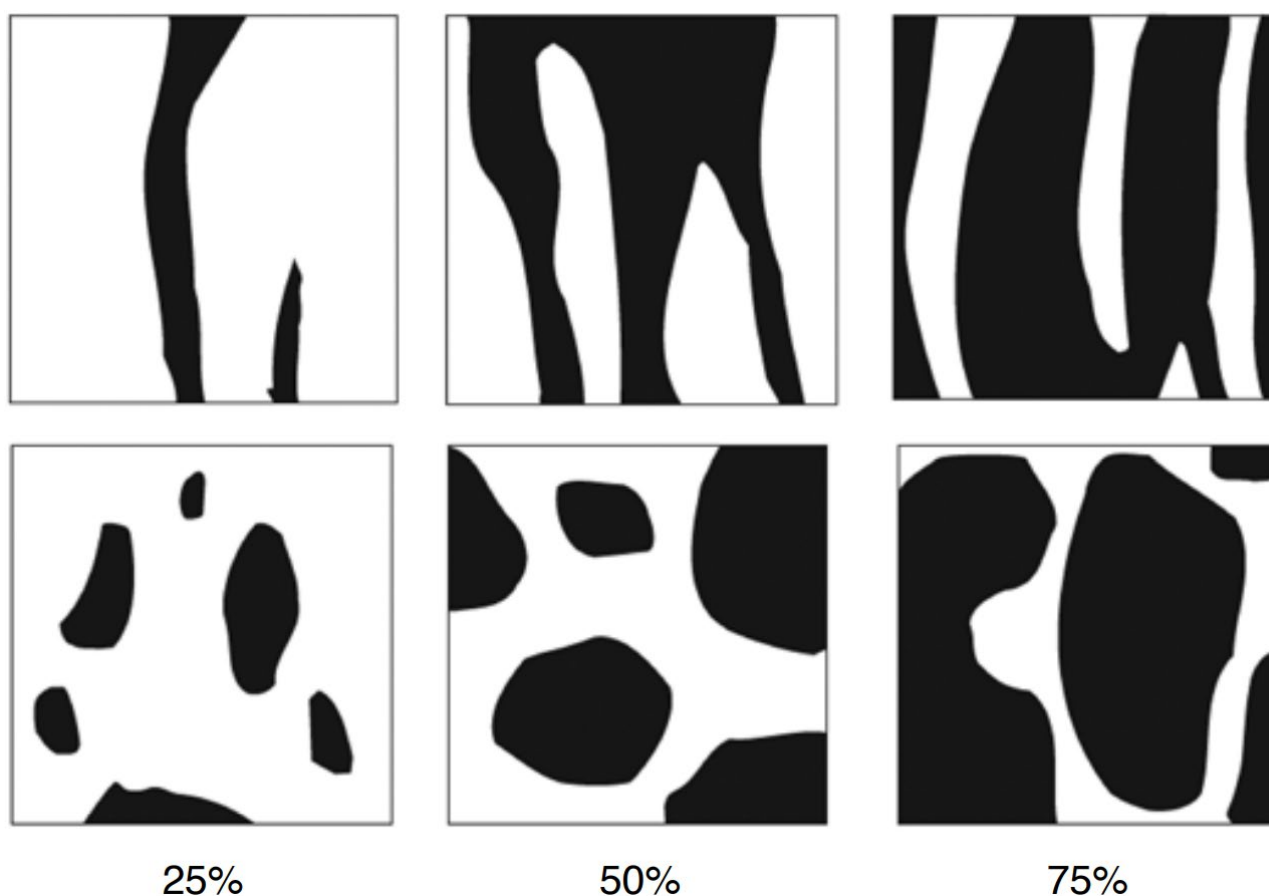


Figure 2-4: Proportion of total area coverage (AMSA, 2014)

Figure 2-5 illustrates the general relationships between on-water response techniques and slick thickness. Wind-rows, 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.

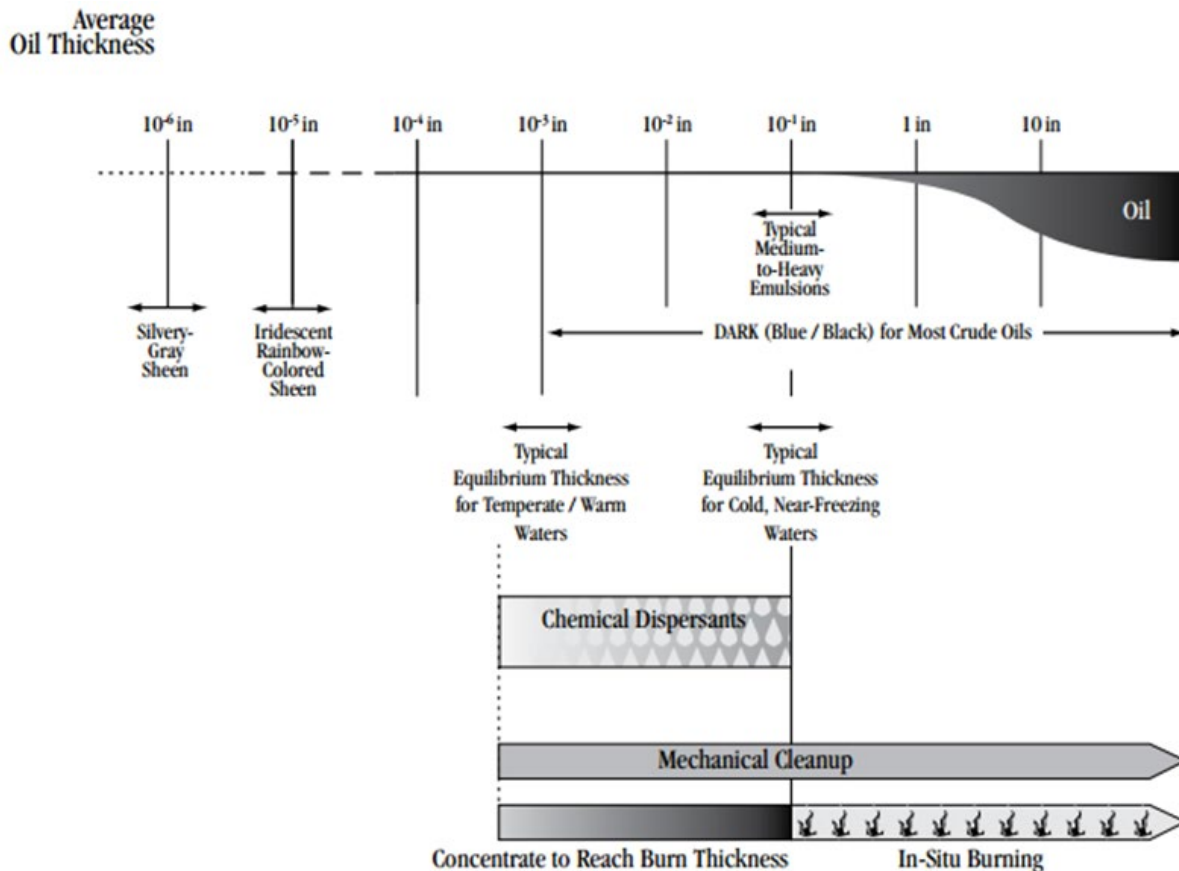


Figure 2-5: Oil thickness versus potential response options (from Allen & Dale 1996)

Wind and wave influence on the feasibility of response operations are also considered below (adapted from NOAA 2013):

- **Mechanical Clean-up:** Effectiveness drops significantly because of entrainment and/or splash-over as short period waves develop beyond 2–3 ft. (0.6–0.9m) in height. The ability to contain and recover oil decreases rapidly as the slick thickness becomes less than a thousandth of an inch (0.025 mm) (i.e., very low oil encounter rates). Waves and wind can also be limiting factors for the safe operation of vessels and aircraft.
- **Dispersants:** Effective dispersion requires a threshold amount of surface mixing energy (typically a few knots of wind and a light chop) to be effective. At higher wind and sea conditions, dispersant evaporation and wind-drift will limit chemical dispersion application effectiveness; and, there is a point (~25-kt winds, 10-ft waves) where natural dispersion forces become greater, particularly for light oils. Because of droplet size versus slick thickness constraints and application dose-rate limitations, dispersants work best on slick thicknesses of a few thousandths (approx. 50 g/m²) to hundredths of an inch (approx. 250 g/m²). Improved dispersants, higher dose rates, and multiple-pass techniques may extend the thickness limitation to 0.1 inch (2.5 mm) or more.

As offshore response operations (surface dispersant and containment and recovery) are intended to be undertaken at the thickest part of the slick, 50 g/m² and 100 g/m² (aligning with the lower limit of BAOAC 4 and midpoint of BAOAC 5) have been utilised by Woodside in deterministic modelling to identify the most likely locations for surface dispersant application and containment and recovery operations.

2.3.3.2 Surface hydrocarbon viscosity

Table 2-4: Surface hydrocarbon viscosity thresholds

Surface viscosity threshold (cSt)	Description	European Maritime Safety Authority (EMSA)	Viscosity at sea temperature (cSt)
5,000*	Predicted optimum viscosity for surface dispersant operations	Generally possible to disperse	500-5,000
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 1,000 or 2,000 mPa (1,000 – 2,000 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 2,000 or 5,000 mPa (2,000 – 5,000 cSt), could be applied to all oils.”

However, modern oil spill dispersants are generally effective up to an oil viscosity of 5,000 mPa (5,000 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 – 5,000 cSt at sea temperature are generally possible to disperse, while 5,000 – 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.

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 are included along with modelling results in Table 2-5.

The selected results used to represent the WCCS are:

- Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a threshold of 10 g/m²).
- Minimum time to commencement of hydrocarbon accumulation at any shoreline receptor (at a threshold of 100 g/m²).
- Maximum cumulative hydrocarbon volume accumulated at any individual shoreline receptor (at a threshold of 100 g/m²).
- Maximum cumulative hydrocarbon volume accumulated across all shoreline receptors (at a threshold of 100 g/m²).
- Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb).

Table 2-5: Worst case credible scenario modelling results

Scenario description	Results		
	MEE-01 (WCCS)	CS-02	CS-03
WCCS – total volume released Refer to Section 2.1.1 for detailed hydrocarbon characteristics	Hydrocarbon release caused by loss of well containment BRUA-2 well Subsurface – 55647 m ³ over 75 days	Hydrocarbon release caused by a subsea infrastructure loss of containment 1062 m ³ over 5.2 days	Hydrocarbon release caused by due to a vessel collision. Instantaneous release of 250 m ³
WCCS – residual volume remaining post-weathering	6.9% residue or 3840 m ³	6.9% residue or 73 m ³	5% residue or 13 m ³
Location	115°12'05.6357" E, 20°01'49.1571" S.	115°12'09.28" E, 20°01'53.43" S.	115°12'05.6357" E, 20°01'49.1571" S
Stochastic modelling results			
Surface area of hydrocarbons (>50 g/m²)	60 hrs at Montebello AMP	6 hrs at Montebello AMP	13 hrs to contact at Montebello AMP
Surface area of hydrocarbons (>50 g/m² and <10,000 cSt)	NA – stochastic modelling confirmed no surface area of hydrocarbons (>50 g/m ² and <10,000 cSt)	NA – stochastic modelling confirmed no surface area of hydrocarbons (>50 g/m ² and <10,000 cSt)	NA – stochastic modelling confirmed no surface area of hydrocarbons (>50 g/m ² and <10,000 cSt)
Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m²)	NA – stochastic modelling confirmed no floating oil at or above 10 g/m ²	6 hours at Montebello AMP	13 hours at Montebello AMP
Minimum time to commencement of hydrocarbon accumulation at any shoreline receptor (at a concentration of 100 g/m²)	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²
Maximum cumulative hydrocarbon volume accumulated at any individual shoreline receptor (at a concentration of 100 g/m²).	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²
Maximum cumulative hydrocarbon volume accumulated across all shoreline receptors contacted by accumulated hydrocarbons (at a concentration of 100 g/m²)	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²	NA – stochastic modelling confirmed no shoreline accumulation at or above 100 g/m ²
Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb)	126 hrs at Rankin Bank	3 hrs at Montebello AMP	6 hrs at Montebello AMP

The above modelling results predict the following:

MEE-01, CS-02 and CS-03

- The subsea and surface releases result in surface concentrations below thresholds for feasible containment and recovery and surface dispersant operations
- None of the scenarios result in shoreline accumulations at feasible shoreline response thresholds ($>100 \text{ g/m}^2$).
- Spreading and weathering of the surface oil occurs due to loss of light volatile components.
- Response operations cannot be implemented if the safety of response personnel cannot be guaranteed. Safety circumstances that limit the execution of this control measure include volatile concentrations of hydrocarbons in the atmosphere, high winds (>20 knots), waves and/or sea states ($>1.5\text{m}$ waves) and high ambient temperatures.

3 IDENTIFY RESPONSE PROTECTION AREAS (RPAs)

In a response, monitor and evaluate techniques including trajectory modelling and vessel/aerial observations, would be used to predict RPAs that may be impacted. For the purposes of planning and appropriately scaling a response, modelling has been used to identify RPAs.

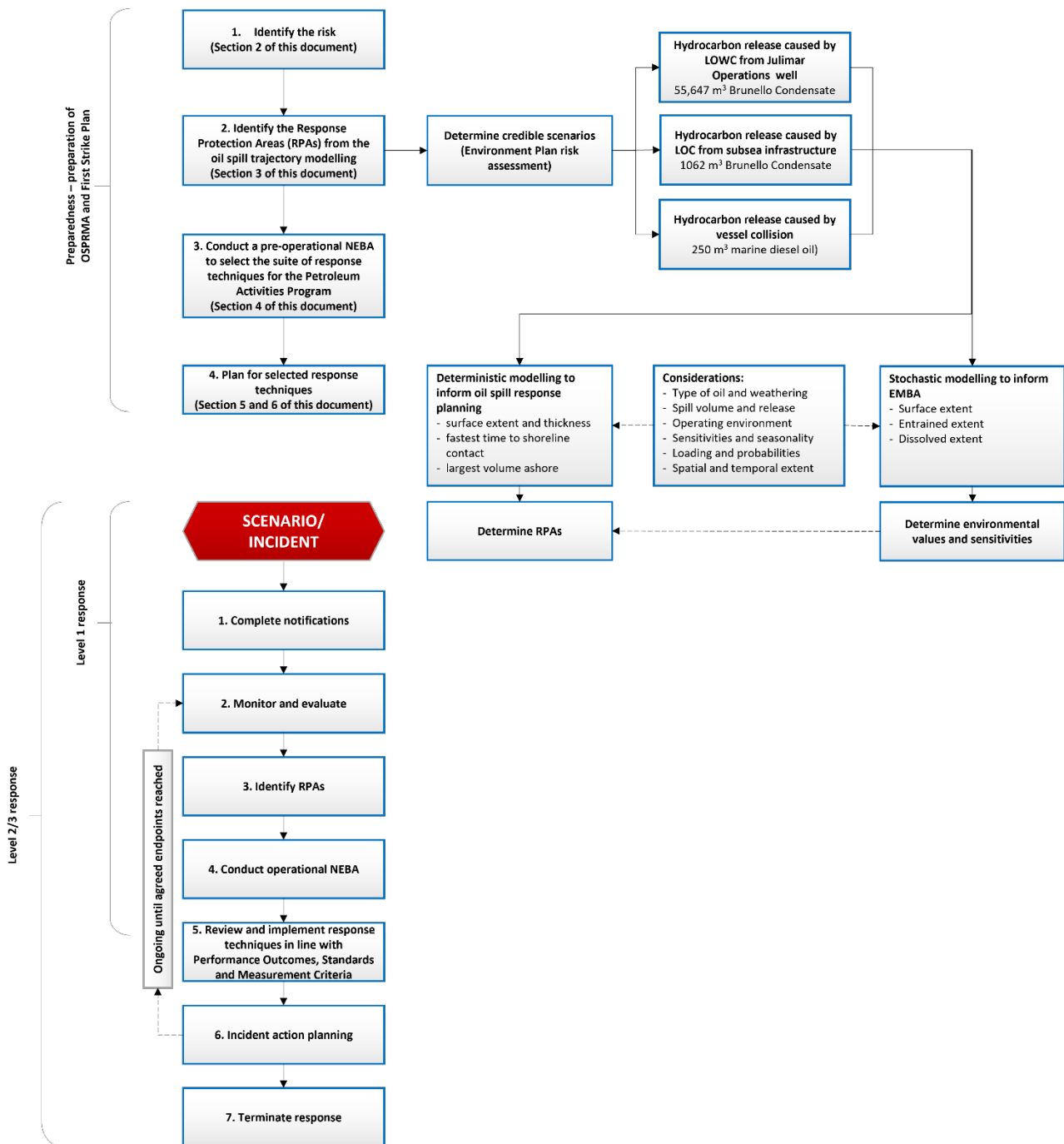


Figure 3-1: Identify Response Protection Areas (RPAs) flowchart

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 the following:
 - a number of 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)

RPAs are 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).

From the identified sensitive receptors described in Section 6 of the EP, only those which a shoreline response could feasibly be conducted (accumulation $>100 \text{ g/m}^2$ for shoreline assessment and/or contact with surface slicks $>10 \text{ g/m}^2$ for monitor and evaluate techniques) 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.

No RPAs were identified in the modelling runs for the WCCS. The full list of Priority Protection Areas (PPAs) potentially contacted from stochastic modelling (as per EMBA definition) is included in Section 6 of the EP.

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) considers the results from the stochastic modelling to allow consideration of all feasible response techniques are considered in the planning phase, therefore additional receptors are also included in the pre-operational NEBA.

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.

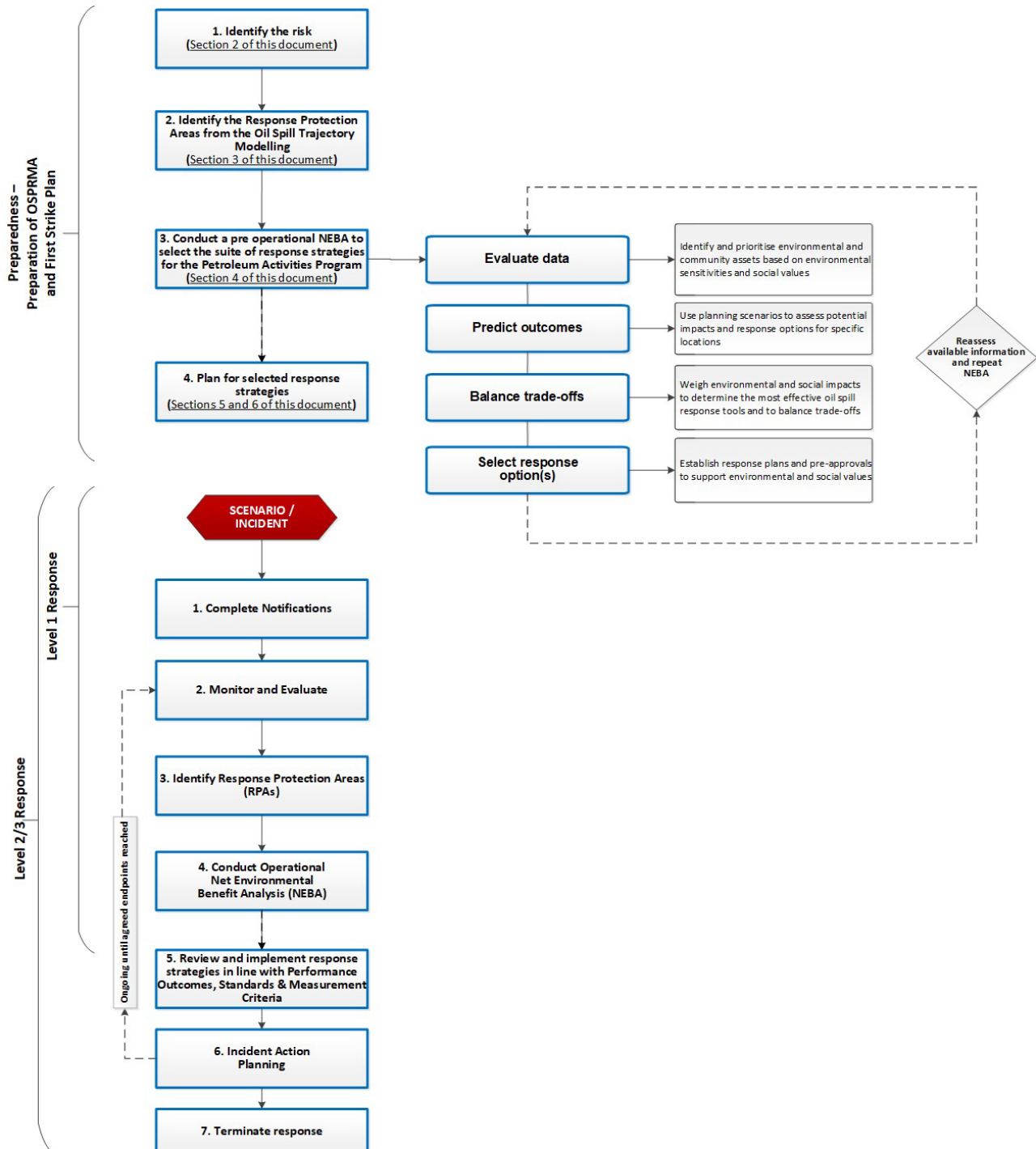


Figure 4-1: Net Environmental Benefit Analysis (NEBA) flowchart

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 deterministic 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 through the use of 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 activities.

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**.

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 effectiveness/ feasibility 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 effectiveness/ feasibility 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:

- Monitor and evaluate
- Source control

- Remotely operated vehicle (ROV) intervention
 - debris clearance and/or removal
 - capping stack
 - relief well drilling
- Source control via vessel SOPEP
- Subsea dispersant injection
- 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
- Operational and scientific monitoring

Table 4-1, Table 4-2 and Table 4-3 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 – Loss of Well Containment (LOWC) (MEE-01)

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: Brunello Condensate				
Monitor and evaluate	<p>Will be effective in tracking the location of the spill, informing when it has entered State Waters, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include:</p> <ul style="list-style-type: none"> Predictive modelling of hydrocarbons – used throughout spill. ‘Ground-truthed’ using the outputs of all other monitoring techniques. Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill. Pre-emptive assessment of sensitive receptors at risk – this will be triggered once monitor and evaluate techniques inform which RPAs are at risk. 	Monitoring of a Brunello Condensate spill is a feasible response technique and an essential element of all spill response incidents. Outputs will be used to guide decision making on the use of other monitoring/response techniques and providing required information to regulatory agencies including AMSA and Western Australia Department of Transport (WA DoT).	Yes	<p>Monitoring the spill will be necessary to:</p> <ul style="list-style-type: none"> validate trajectory and weathering models 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 well intervention using ROV and SFRT	Controlling a loss of well containment at source via well intervention would be the most effective way to limit the quantity of hydrocarbon entering the marine environment.	In the event of the worst-case scenario with a loss of well containment during drilling operations, ROV operations can be used to locally conduct well intervention.	Yes	The use of source control intervention via ROV may be feasible (depending on local concentration of atmospheric volatiles) and would reduce quantity of hydrocarbons entering the marine environment.
Source control via debris clearance and capping stack	Controlling a loss of well containment at source via capping stack would be an effective way to limit the quantity of hydrocarbon entering the marine environment.	<p>Capping the BRUA-2 well is considered feasible based on worst-case discharge rates.</p> <p>Though all capping stack deployment technologies are unproven, in the event of a loss of well containment, the use of a proven subsea deployment method such as a heavy lift vessel, which is more commonly used in industry, is a more reliable and, in turn, ALARP approach. If environmental conditions permit (wind speed, wave height, current and plume radius), deployment of a capping stack would be attempted with a heavy lift vessel.</p> <p>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. The location of suitable vessels for capping stack deployment are monitored monthly. Consideration to mobilise the capping stack from the supplier on a suitable vessel but then hand over to another vessel to conduct the capping activity will also be made to meet response time frames.</p>	Yes	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. 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 and high ambient temperatures.
Source control via relief well drilling	A release of condensate will be over approximately 75 days. Relief well drilling is one of the primary options to stop the release.	For a spill from the Julimar Operations wells, relief well drilling will be a feasible means of stopping a loss of well containment event. Relief well drilling is a widely accepted and utilised technique.	Yes	Relief well drilling will be the main technique employed to control a loss of well containment event.
Subsea dispersant injection	<p>Application of subsea dispersant may reduce the scale and extent of hydrocarbons reaching the surface and thus may reduce spill volumes contacting predicted RPAs.</p> <p>SSDI can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons.</p> <p>Entrained oil could potentially impact on sensitive shallow-water receptors e.g. corals and fish, which may be otherwise unaffected.</p> <p>Entrained oil plume likely to be increased resulting in greater spatial extent of entrained oil.</p>	<p>The goal of SSDI is to decrease the volume of oil that rises to the water surface and to reduce exposure to floating and entrained/dissolved oil. Based on the stochastic modelling analysis, no shoreline accumulation is predicted and no accumulation is predicted at any receptor.</p> <p>The use of SSDI would not be required in order to deploy a capping stack and unnecessary use of SSDI would increase the complexity of SIMOPS operations around the wellhead.</p> <p>Given the preceding information and that there is conflicting evidence on the efficacy of SSDI, despite the considerable amount of research and experimental work completed since the Deepwater Horizon spill (Quigg et al. 2021), the use of SSDI is considered unwarranted and would not provide net environmental or safety benefits.</p>	No	Due to the minimal surface and shoreline exposure together with this technique not being required to facilitate other source control techniques, the use of SSDI is not deemed appropriate. The application of subsea dispersant would unnecessarily introduce additional chemical substances to the marine environment and further increase exposure of subsea ecosystems to entrained hydrocarbons.
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</p>	<p>Surface dispersants are not generally considered a feasible response technique when applied to thin surface films such as condensate, as the dispersant droplets tend to pass through the surface films without binding to the hydrocarbon. EMSA (2010) recommends thin layers of spilled hydrocarbons should not be treated with surface dispersant, including surface slicks with Bonn Agreement Oil Appearance Codes (BAOAC) 1-3.</p> <p>Modelling of a Brunello Condensate spill for the Julimar Operations predicts that floating oil will be prone to rapid spreading and evaporation and will not reach the required threshold (>50 g/m²) for surface dispersant to be effective within any RPA.</p>	No	Brunello Condensate will rapidly evaporate and disperse, resulting in spill thicknesses too thin to effectively treat with surface dispersant. The use of surface dispersant could unnecessarily introduce additional chemical substances to the marine environment.

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
	<p>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>	The volatile nature of Brunello Condensate is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon spill, thus this response technique is deemed unsuitable for this activity.		
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 and where calm metocean conditions can be confirmed. Use of this technique would also cause an increase the release of atmospheric pollutants.	<p>There is a limited window of opportunity in which this technique can be applied (prior to evaporation of the volatiles) which would be difficult to achieve.</p> <p>Furthermore, this technique may be prevented from being undertaken due to personnel safety issues arising from predicted high local concentrations of atmospheric volatiles.</p>	No	The safety concerns and the predicted low effectiveness associated with implementing an in-situ burning response outweigh the potential environmental benefit.
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. It has the potential to reduce the magnitude, probability, extent, contact and accumulation of hydrocarbon on shorelines receptors when suitable encounter rates can be achieved. It also has the potential to reduce the magnitude and extent of contact with submerged receptors by removing oil before further natural entraining/dissolving of hydrocarbons occurs.	<p>Modelling of a Brunello Condensate spill for the Julimar Operations predicts that floating oil will be prone to rapid spreading and evaporation and will not reach the required threshold (>50 g/m²) for containment and recovery to be feasible within any RPA.</p> <p>The volatile nature of Brunello Condensate is also likely to lead to unsafe conditions near release location.</p>	No	Containment and recovery would be an ineffective response technique as it requires a hydrocarbon thickness of BAOAC 4-5 with a 50-100% coverage of 100-200 g/m ² . Modelling does not predict any surface hydrocarbons above 50 g/m ² , thus this response strategy is considered ineffective.
Shoreline protection and deflection	Shoreline protection and deflection can be effective at preventing contamination of sensitive resources and can be used to corral oil into slicks thick enough to skim effectively.	<p>For a spill of Brunello Condensate, modelling predicts no shoreline contact at or above threshold levels.</p> <p>Monitor and evaluate techniques will be deployed to inform whether any shorelines become at risk of contact. Pre-emptive assessments of sensitive receptors at risk and existing TRPs would be utilised to guide shoreline protection and deflection operations, in agreement with regulatory and control agencies (for Level 2/3 spills). Access to sensitive areas may cause more negative impact than benefit.</p>	No	<p>Stochastic modelling confirmed no shoreline contact at or above threshold levels and characteristics of Brunello Condensate are not conducive to shoreline protection and deflection efforts.</p> <p>If RPAs are 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 net environmental benefit.</p>
Shoreline clean-up	<p>Shoreline clean-up is an effective means of hydrocarbon removal from contaminated shorelines where coverage is at an optimum level of 250 g/m².</p> <p>Can reduce or prevent impact on sensitive receptors in most cases.</p>	<p>For a spill of Brunello Condensate, modelling predicts no shoreline contact at or above threshold levels. Additionally, no contact above 1g/m² is predicated at any shoreline receptor.</p> <p>Monitor and evaluate techniques will be deployed to inform whether any shorelines become at risk of contact. Pre-emptive assessments of sensitive receptors at risk, shoreline assessment and existing TRPs would be utilised to guide shoreline clean-up operations, in agreement with regulatory and control agencies (for Level 2/3 spills).</p> <p>Verify through shoreline assessment, 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>	No	<p>Stochastic modelling confirmed no shoreline contact at or above threshold levels.</p> <p>If RPAs are at risk, based on real-time 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	In the event that wildlife are at risk of contamination, oiled wildlife response will be undertaken in accordance with the Wildlife Response Operational Plan as and where required. In addition, any rehabilitation could only be undertaken by trained specialists.	Yes	This technique may prevent impact to and/or treat oiled wildlife providing net environmental benefit.

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Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
	wildlife from being contaminated and through rehabilitation of those already subject to contamination.	Due to the likely volatile atmospheric conditions surrounding a Brunello Condensate spill, response options may be limited to hazing to ensure the safety of response personnel.		

Table 4-2 Response technique evaluation – Loss of containment from subsea infrastructure (CS-02)

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: Brunello Condensate				
Monitor and evaluate	Will be effective in tracking the location of the spill, informing when it has entered State Waters, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include: <ul style="list-style-type: none"> Predictive modelling of hydrocarbons – used throughout spill. 'Ground-truthed' using the outputs of all other monitoring techniques. Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill. Pre-emptive assessment of sensitive receptors at risk – this will be triggered once monitor and evaluate techniques inform which RPAs are at risk. 	Monitoring of a Brunello Condensate spill is a feasible response technique and an essential element of all spill response incidents. Outputs will be used to guide decision making on the use of other monitoring/response techniques and providing required information to regulatory agencies including AMSA and Western Australia Department of Transport (WA DoT).	Yes	Monitoring the spill will be necessary to: <ul style="list-style-type: none"> validate trajectory and weathering models 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 - Remote Intervention	Following loss of containment, as a result of reduced flow from the Julimar Brunello field arriving at the Wheatstone platform, source control will be effective in isolating/ preventing forward flow from the reservoir by remotely shutting in the wells to the pipeline system, as well as remotely isolating each flowline (Julimar 1, Julimar 2 and Brunello) and isolating the subsea system from the platform inventory by actuating the riser ESDVs. This would effectively limit flow of hydrocarbons through the failed flowline section within minutes from detecting the abnormal condition. Source control actions will be taken from the Wheatstone platform Central Control Room, following established field operating procedures for a controlled field shutdown.	Source control via intervention from the WP Central Control Room is a feasible response technique and required by industry standards.	Yes	Capacity to apply source control responses via remote intervention is required to achieve compliance with industry standards. Provides for prevention and/or mitigation of LOC events and Process Safety events (fire, explosions at the platform).
Source control via debris clearance and capping stack	Not applicable for a loss of containment from subsea infrastructure.	Not applicable for a loss of containment from subsea infrastructure.	N/A	Not applicable for a loss of containment from subsea infrastructure.
Source control via relief well drilling	Not applicable for a loss of containment from subsea infrastructure.	Not applicable for a loss of containment from subsea infrastructure.	N/A	Not applicable for a loss of containment from subsea infrastructure.
Subsea dispersant injection	Not applicable for a loss of containment from subsea infrastructure.	Not applicable for a loss of containment from subsea infrastructure.	N/A	Not applicable for a loss of containment from subsea infrastructure.
Surface dispersant application	Application of surface dispersant would likely reduce the volumes of hydrocarbons contacting sensitive surface receptors. Dispersant can also enhance biodegradation and may reduce volatile organic compounds (VOCs) in some circumstances therefore reducing potential health and safety risk to responders. Dispersant can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons.	Surface dispersants are not generally considered a feasible response technique when applied to thin surface films such as condensate, as the dispersant droplets tend to pass through the surface films without binding to the hydrocarbon. EMSA (2010) recommends thin layers of spilled hydrocarbons should not be treated with surface dispersant, including surface slicks with Bonn Agreement Oil Appearance Codes (BAOAC) 1-3. Modelling of a Brunello Condensate spill for the Julimar Operations predicts that floating oil will be prone to rapid spreading and evaporation and will not reach the required threshold (>50 g/m ²) for surface dispersant to be effective within any RPA.	No	Brunello Condensate will rapidly evaporate and disperse, resulting in spill thicknesses too thin to effectively treat with surface dispersant. The use of surface dispersant could unnecessarily introduce additional chemical substances to the marine environment.

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
	Subsurface oil plume likely to increase in size resulting in greater spatial extent of entrained oil. Entrained oil could potentially impact on sensitive shallow-water receptors e.g. corals, which otherwise may have been unaffected.	The volatile nature of Brunello Condensate is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon spill, thus this response technique is deemed unsuitable for this activity.		
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.	Although the technique is feasible, highly volatile hydrocarbons are likely to weather, spread and evaporate quickly. The volatile nature of the oil likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon. 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. The decontamination of a vessel used for mechanical dispersion activities would result in additional quantities of oily waste requiring appropriate handling and treatment.	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 and where calm metocean conditions can be confirmed. Use of this technique would also cause an increase the release of atmospheric pollutants.	There is a limited window of opportunity in which this technique can be applied (prior to evaporation of the volatiles) which would be difficult to achieve. Furthermore, this technique may be prevented from being undertaken due to personnel safety issues arising from predicted high local concentrations of atmospheric volatiles.	No	The safety concerns and the predicted low effectiveness associated with implementing an in-situ burning response outweigh the potential environmental benefit.
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. It has the potential to reduce the magnitude, probability, extent, contact and accumulation of hydrocarbon on shorelines receptors when suitable encounter rates can be achieved. It also has the potential to reduce the magnitude and extent of contact with submerged receptors by removing oil before further natural entraining/dissolving of hydrocarbons occurs.	Modelling of a Brunello Condensate spill for the Julimar Operations predicts that floating oil will be prone to rapid spreading and evaporation and will not reach the required threshold (>50 g/m ²) for containment and recovery to be feasible within any RPA. The volatile nature of Brunello Condensate is also likely to lead to unsafe conditions near release location.	No	Containment and recovery would be an ineffective response technique as it requires a hydrocarbon thickness of BAOAC 4-5 with a 50-100% coverage of 100-200 g/m ² . Modelling does not predict any surface hydrocarbons above 50 g/m ² , thus this response strategy is considered ineffective.
Shoreline protection and deflection	Shoreline protection and deflection can be effective at preventing contamination of sensitive resources and can be used to corral oil into slicks thick enough to skim effectively.	For a spill of Brunello Condensate, modelling predicts no shoreline contact at or above threshold levels. Monitor and evaluate techniques will be deployed to inform whether any shorelines become at risk of contact. Pre-emptive assessments of sensitive receptors at risk and existing TRPs would be utilised to guide shoreline protection and deflection operations, in agreement with regulatory and control agencies (for Level 2/3 spills). Access to sensitive areas may cause more negative impact than benefit.	No	Stochastic modelling confirmed no shoreline contact at or above threshold levels and characteristics of Brunello Condensate are not conducive to shoreline protection and deflection efforts. If RPAs are 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 net environmental benefit.
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 . Can reduce or prevent impact on sensitive receptors in most cases.	For a spill of Brunello Condensate, modelling predicts no shoreline contact at or above threshold levels. Monitor and evaluate techniques will be deployed to inform whether any shorelines become at risk of contact. Pre-emptive assessments of sensitive receptors at risk, shoreline assessment and existing TRPs would be utilised to guide shoreline clean-up operations, in agreement with regulatory and control agencies (for Level 2/3 spills). Verify through shoreline assessment, 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.	No	Stochastic modelling confirmed no shoreline contact at or above threshold levels. If RPAs are at risk, based on real-time modelling during a spill event, shoreline clean-up techniques will be deployed to expedite clean-up of the impacted sites. Removal of hydrocarbons will help shorten the recovery window unless shoreline type is of a sensitive nature. This technique can help prevent remobilisation of hydrocarbon and impact on shorelines.
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.	In the event that wildlife are at risk of contamination, oiled wildlife response will be undertaken in accordance with the Wildlife Response Operational Plan as and where required. In addition, any rehabilitation could only be undertaken by trained specialists. Due to the likely volatile atmospheric conditions surrounding a Brunello Condensate spill, response options may be limited to hazing to ensure the safety of response personnel.	Yes	This technique may prevent impact to and/or treat oiled wildlife providing net environmental benefit.

Table 4-3: Response technique evaluation – vessel collision

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: MDO				
Monitor and evaluate	<p>Will be effective in tracking the location of the spill, informing when it has entered State Waters, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include:</p> <ul style="list-style-type: none"> Predictive modelling of hydrocarbons – used throughout spill. 'Ground-truthed' using the outputs of all other monitoring techniques. Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill. Pre-emptive assessment of sensitive receptors at risk – this will be triggered once monitor and evaluate techniques inform which RPAs are at risk. 	Monitoring of an MDO spill is a feasible response technique and an essential element of all spill response incidents. Outputs will be used to guide decision making on the use of other monitoring/response techniques and providing required information to regulatory agencies including AMSA and Western Australia Department of Transport (WA DoT).	Yes	<p>Monitoring the spill will be necessary to:</p> <ul style="list-style-type: none"> validate trajectory and weathering models 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 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 or not 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 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>MDO is non-persistent and is prone to rapid spreading and evaporation, thus the use of dispersant would be deemed an unnecessary response technique.</p> <p>Modelling predicts that floating oil will reach the minimum feasible threshold at which to commence surface dispersant application (>50 g/m²) within Montebello AMP. This technique is not considered suitable for MDO spills as this hydrocarbon is prone to rapid spreading and evaporation through which dispersant droplets tend to pass 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 Montebello AMP, 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>An MDO spill would be prone to rapid spreading and evaporation and modelling predicts that no shoreline receptors will be contacted at threshold.</p> <p>Furthermore, the volatile nature of MDO is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon.</p> <p>Monitor and evaluate techniques will, however, be deployed from the outset of a spill to track the spill location and fate in real-time.</p>	No	In addition to safety issues and the rapid spreading and evaporation of the diesel, the modelling undertaken predicts that no shoreline receptors would be contacted by floating oil concentrations at any of the assessed thresholds.
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>An MDO spill would be prone to rapid spreading and evaporation and the modelling 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>Furthermore, the volatile nature of MDO is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon.</p> <p>Monitor and evaluate techniques will, however, be deployed from the outset of a spill to track the spill location and fate in real-time.</p>	No	In addition to safety issues, the modelling undertaken predicts that no shoreline receptors would be contacted by floating oil concentrations at a recoverable threshold and a spill of MDO is unlikely to accumulate at concentrations appropriate for shoreline clean-up techniques.
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>Due to the likely volatile atmospheric conditions surrounding a diesel spill, response options may be limited to hazing to ensure the safety of response personnel.</p> <p>The modelling undertaken predicts that no sensitive areas will be impacted thus it is unlikely that this technique would be required.</p> <p>Monitor and evaluate will, however, be deployed from the outset of a spill to track the spill location and fate in real-time. Thus, in the event that wildlife are at risk of contamination, oiled wildlife response will be undertaken in accordance with the Wildlife Response Operational Plan as and where required. In addition, any rehabilitation could only be undertaken by trained specialists.</p>	Yes	The modelling undertaken predicts that no sensitive areas will be impacted thus it is unlikely that this technique would be required. However, in the event that wildlife are at risk of contamination, oiled wildlife response will be undertaken as and where required.

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* (2024) 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:

- considers the Response Planning Need identified in terms of surface area (km²) and available surface hydrocarbon volumes (m³) against existing Woodside capability
- 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.
- 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 clearly 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 purpose of 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 trouble taken in financial, safety, design/storage/installation, capital/lease, and/or operations/maintenance terms to adopt a control measure
- where the predicted change to environmental impact is compared against standard environmental values and sensitivities impacts using positive or negative criteria from the NEBA Impact Ranking Classification Guidance in Annex A.

5.1 Monitor and Evaluate

Monitor and evaluate 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.

Techniques may include:

- Predictive modelling of hydrocarbons to assess resources at risk
- Surveillance and reconnaissance to detect hydrocarbons and resources at risk
- Pre-emptive assessment of sensitive receptors at risk
- Shoreline assessment (SCAT).

Woodside maintains an *Operational Monitoring Operational Plan*. If shoreline contact is predicted, Response Protection Areas (RPAs) will be identified and assessed before contact. If shorelines are contacted, a shoreline assessment survey (SCAT) will be completed to guide effective shoreline clean-up operations per arrangements detailed in Woodside's Operational and Scientific Monitoring Bridging Implementation Plan (OSM-BIP) (see Section 5.6). This plan includes the process for the CIMT to mobilise resources depending on the nature and scale of the spill.

The proximity of Exmouth, Onslow or Dampier 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 Exmouth, Onslow or 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, Onslow or Dampier.

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 monitor and evaluate techniques ($>10 \text{ g/m}^2$) is expected to be limited to approximately 90 km from the spill source for CS-03. It should be noted that the modelling used for the CS-03 MDO scenario is conservative given that it is 500 m^3 , fifty percent larger than the 250 m^3 spill risk for this activity. For a subsea release of Brunello condensate (MEE-01 and CS-02), floating oil at sufficient concentrations for monitor and evaluate techniques are limited to within 24 km of the release location.
- Modelling for all scenarios confirmed no shoreline contact above response threshold levels for surface hydrocarbons or accumulated hydrocarbons.
- Fastest time to contact for entrained hydrocarbons at concentrations greater than 100 ppb at shoreline receptors is 3 hours at Montebello Islands (CS-02).
- 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 Sections. These should be reviewed and updated regularly.
- The duration of the spill may extend up to 75 days with response operations extending to 75 days based on the predicted time to complete shoreline clean-up operations.

5.1.2 Environmental performance based on need

Table 5-1: Environmental Performance – Monitor and evaluate

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 5.8)
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 Wheatstone facility and support vessel and ready for deployment 24/7.	1, 3A, 3C, 4
		2.2	Deploy tracking buoy from facility within two hours as per the FSP - deployment from Wheatstone Platform and/or a support vessel if vessel on location.	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 common operating picture (COP) daily to improve the accuracy of other monitor and evaluate 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 monitor and evaluate techniques.	1, 3B, 4
		3.6	Satellite Imagery services available and employed during response.	1, 3C, 4
4	Aerial surveillance	4.1	Two trained aerial observers available to be deployed by day 1 from resource pool.	1, 2, 3B, 3C, 4
		4.2	One 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 FSP. 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 Shoreline Contamination Assessment Technique (SCAT), containment and recovery and surface dispersal and pre-emptive assessments as contingency if required.	1, 2
5	Pre-emptive assessment	5.1	10 days prior to any predicted impact and in agreement with WA DoT (for Level 2/3 incidents), deployment of 2 specialists from resource pool in establishing the status of sensitive receptors.	1, 2, 3B, 3C, 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 5.8)
	of sensitive receptors	5.2	Daily reports provided to IMT on the status of the receptors to prioritise Response Protection Areas (RPAs) and maximise effective utilisation of resources.	1, 3B, 4
6	Management of environmental impacts of response risks	6.1	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
		6.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines.	
		6.3	Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves.	

The control measures and capability of Woodside and its third-party service providers are shown to support monitor and evaluate activities up to and including the identified WCCS. This is demonstrated by the following:

- Woodside has a documented, structured and tested capability for monitor and evaluate 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 and Well Intervention

The worst-case credible scenario for a loss of well containment from the BRUA-2 well (MEE-01), is considered to be major damage to, or complete loss of, the Xmas tree from a producing well. This scenario would result in an uncontrolled flow from the well as outlined in the EP. In the event of a complete break or separation of the tree, the primary response would be relief well drilling.

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 [subsea scenario] incident were to occur. The MoU commits the signatories to share rigs, equipment, personnel and services to assist another operator in need.

5.2.1 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 to confirm 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).
 - Successful ROV intervention on Xmas tree (dependent upon location of release).
 - A capping stack is in place.
 - A relief well is drilled and first attempt at well kill within 75 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 Sections. These should be reviewed and updated regularly.
- The duration of the spill may extend up to 75 days with response operations extending to 75 days based on the predicted time to complete shoreline clean-up operations.

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 5-2: Response Planning Assumptions – Source Control

Response planning assumptions	
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 option would be ROV intervention followed by relief well drilling for the Julimar Operations] and Julimar Operations wells.</p> <p>The following approaches outline Woodside's hierarchy for relief well drilling;</p> <ul style="list-style-type: none"> • Primary – Review internal drilling programs and MODU availability to source an appropriate rig 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.

5.2.2 Environmental performance based on need

Table 5-3: Environmental Performance – Source Control

Environmental Performance Outcome		To stop the flow of hydrocarbons into the marine environment		
Control measure		Performance Standard		Measurement Criteria (Section 5.8)
7	Subsea First Response Toolkit (SFRT)	7.1	Oceaneering support staff available all year round, via contract, to assist with the mobilisation, deployment, and operation of the SFRT equipment.	1, 3B, 3C
		7.2	Intervention vessel with minimum requirement of a working class ROV and operator.	1, 3C
		7.3	Mobilised to site for deployment within 11 days.	1, 3B, 3C
		7.4	Open communication line to be maintained between IMT and infield operations to confirm awareness of progress against plan(s).	1, 3A, 3B
8	Well intervention	8.1	Frame agreements with ROV providers in place to be mobilised upon notification. ROV equipment deployed within 7 days.	1, 3B, 3C
		8.2	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
		8.3	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
		8.4	Well intervention attempt made using ROV and SFRT within 11 days.	1, 3B, 3C
		8.5	Capping stack on suitable vessel mobilised to site within 16 days. Deployment and well intervention attempt will be made once plume size is acceptable and safety and metocean conditions are suitable.	1, 3C
		8.6	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
		8.7	MODU mobilised to site for relief well drilling within 21 days.	1, 3C
		8.8	First well kill attempt completed within 75 days	1, 3B, 3C
		8.9	Open communication line(s) to be maintained between IMT and infield operations to confirm awareness of progress against plan(s).	1, 3A, 3B
9	Support vessels	9.1	Access to 24/7 vessel tracking software to monitor availability of suitable vessels to meet specifications for source control.	3C
		9.2	Frame agreements for installation support vessels (ISVs) require vessels to maintain in-force Safety Case approvals covering ROV operations and provide support in the event of an emergency.	1, 3B, 3C
		9.3	MODU and vessel contracts include clause outlining requirement for support in the event of an emergency.	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 5.8)
10	Safety Case	10.1	Woodside will prioritise MODU or vessel(s) for intervention work(s) that have an existing Safety Case.	1, 3C
		10.2	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
		10.3	Woodside will maintain minimum safe operating standards that can be provided to MODU and vessel operators for Safety Case guidance.	1, 3C
		10.4	Wheatstone Production Operations Safety Case includes inspection, maintenance and repair to allow for ROV inspection.	1, 3C

The resulting source control capability has been assessed against the WCCS. The range of techniques provide a feasible and viable approach to 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 grossly 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 6.2.

5.3 Source Control via vessel Shipboard Oil Pollution Emergency Plan (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.

5.3.1 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 6.7 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.

5.4 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 (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.

5.4.1 Response need based on predicted consequence parameters

Wildlife response priority 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

Table 5-4 outlines the wildlife response areas for this activity. At the time of a spill, identification and allocation of wildlife RPA's should also take into consideration any key biological activities. Additional

detail regarding species and their key biological activities within the vicinity of the PAP are described in Section 4 of the Julimar Operations Environment Plan.

For WA, 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 5-4: Key at-risk species potentially in Response Protection Areas and open ocean

Species	Open ocean	Montebello AMP
Marine turtles (including foraging and inter-nesting areas and significant nesting beaches)	✓	✓
Whale sharks	✓	✓
Seabirds and/or migratory shorebirds	✓	✓
Cetaceans – migratory whales	✓	✓
Cetaceans – dolphins and porpoises	✓	✓
Dugongs		
Sharks and rays	✓	✓

The following statements identify the key parameters upon which a wildlife response need can be based:

- Modelling predicts that no shoreline contact above accumulation at response thresholds ($>100 \text{ g/m}^2$) will occur.
- 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 behavior of animals in the open marine environment. At sea, continued wildlife reconnaissance, carcass recovery, sampling of carcasses that cannot be retrieved and operational and scientific monitoring are more likely to be the focus of response efforts.
- 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 5-5).

Table 5-5: 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 operational and 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 is likely, requiring preventative actions and/or wildlife rescue, and formal handover 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, along with capture, intake and treatment require a higher degree of planning, approval (licenses) and skills and 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).

The OWR technique targets key wildlife populations at risk within Commonwealth open waters and the nearshore waters as described in **Section 4** of the EP.

5.4.2 Environmental performance based on need

Table 5-6: Environmental Performance – Oiled Wildlife Response (OWR)

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</i> .		
Control measure		Performance Standard		Measurement Criteria (Section 5.8)
11	Oiled wildlife response arrangements	11.1	Oiled Wildlife Operational Plan in place and utilised during a response to plan, coordinate, implement and terminate operations	1, 3A, 4
		11.2	Initiate a wildlife first strike response if oiled wildlife confirmed or imminent wildlife contact as directed by OMP: Marine Fauna Assessment and in liaison with DBCA	1
12	Oiled wildlife response equipment	12.1	Maintain contract with AMOSC for immediate access to oiled wildlife response equipment.	1, 3C, 3D, 4
		12.2	Maintain contract with OSRL to access additional oiled wildlife response equipment.	1, 3C, 3D, 4
13	Oiled wildlife responders	13.1	Two Oiled Wildlife Team Members to supervise the oiled wildlife operations who have completed an OWR Management course.	1, 2, 3B
		13.2	Maintain contract with AMOSC for immediate access to trained oiled wildlife response specialists	1, 3B, 3C
		13.3	Maintain contract with OSRL to access additional trained OWR specialists	1, 3B, 3C
		13.4	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
14	Management of environmental impacts of response risks	14.1	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:

- undertake OWR first strike response:
 - mobilisation of OMP: Marine Fauna Assessment to identify wildlife and RPAs contacted or at imminent risk of contact by hydrocarbons.
- 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.

5.5 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 wildlife response, and/or
- Solids/semi-solids (oily solids, garbage, contaminated materials) and debris (e.g. seaweed, sand, woods, and plastics) collected during wildlife response.

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 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.

5.5.1 Response need based on predicted consequence parameters

Table 5-7: Response Planning Assumptions – Waste Management

Response planning assumptions: Waste management	
Waste loading per m ³ oil recovered (multiplier)	Oiled wildlife response – approximately 1 m ³ of oily solid and liquid waste generated for each wildlife unit cleaned

5.5.2 Environmental performance based on need

Table 5-8: 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 5.8))
15	Waste Management	15.1	Contract with waste management services for transport, removal, treatment and disposal of waste	1, 3A, 3B, 3C, 4
		15.2	Access to at least 675 m ³ of solid and liquid waste storage available within 4 days upon activation of 3 rd party contract.	
		15.3	Recovered hydrocarbons and wastes will be transferred to licensed treatment facility for reprocessing or disposal.	
		15.4	Waste management provider support staff available year-round to assist in the event of an incident with waste management as detailed in contract.	
		15.5	Open communication line to be maintained between IMT and waste management services to ensure the reliable flow of accurate information between parties.	
		15.6	Waste management to be conducted in accordance with Australian laws and regulations	1, 3A, 3B
		15.7	Waste management services available and employed during response	1, 3A, 3B, 3C, 4
		15.8	Teams will segregate liquid and solid wastes at the earliest opportunity.	
16	Management of environmental impacts of response risks	16.1	Zoning of response locations to prevent secondary contamination and minimise the mixing of clean and oiled sediment and shoreline substrates.	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.

It indicates that the waste management capability has the following expected performance:

- Wildlife response may generate up to an additional 1 m³ oily waste per wildlife unit cleaned.
- Modelling predicts no shoreline accumulations at or below response thresholds, therefore no waste is expected to be generated as a result of shoreline clean-up 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 6.5.
- 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.

5.6 Operational and Scientific monitoring

Operational and scientific monitoring (OSM) is a key component of the environmental management document framework for offshore petroleum activities, which includes activity EPs and OPEPs. The key elements and differences between operational monitoring and scientific monitoring include:

- **Operational Monitoring (OM)** – The OM techniques outlined in Section 5.1 (predictive modelling, surveillance/ reconnaissance and pre-emptive assessment of sensitive receptors) will be deployed during every Level 2-3 incident. In addition, there are a suite of OMPs (as listed in Table 5-9) and their associated initiation and termination criteria within Table 9-1 of the Joint Industry OSM Framework. Information obtained through operational monitoring provides the IMT with situational awareness on the trajectory of the spill, its weathering state and hydrocarbon concentrations and its potential impacts to sensitive receptors. This phase of monitoring is also designed to inform the effectiveness of the response options being used to treat the spill, so that the IMT can make informed decisions as the response progresses through subsequent operational periods. Information needs to be collected and processed rapidly to suit response needs, with a lower level of sampling and accuracy needed than for scientific purposes.
- **Scientific Monitoring (SM)** – SM is the principal tool for determining the extent, severity and persistence of possible environmental impacts from a hydrocarbon spill and for informing resultant remediation activities. Consequently, such studies are required to account for natural or sampling variation, and study designs must be robust and produce defensible data. Scientific monitoring is typically conducted over a wider study area, extending beyond the spill footprint, and a longer time period, extending beyond the spill response. For the SMP initiation and termination criteria during a Level 2-3 spill event refer to Table 9-2 of the Joint Industry OSM Framework.

Woodside has developed a Woodside Operational and Scientific Monitoring Bridging Implementation Plan (Woodside OSM-BIP), which describes a program of monitoring oil pollution that will be adopted in the event of a hydrocarbon spill incident (Level 2–3) to marine waters. It aligns with the [Joint Industry OSM Framework](#) (APPEA, 2021) and describes how this Framework applies to Woodside activities and spill risks.

A series of Operational Monitoring Plans (OMPs) and Scientific Monitoring Plans (SMPs) form part of the Joint Industry OSM Framework and provide detail on monitoring design, standard operating procedures, data management, quality assurance and quality control and reporting.

Table 5-9 lists the Joint Industry OMPs and SMPs that are relevant to Julimar Operations.

The Woodside OSM-BIP is structured so that it can provide a flexible framework that can be adapted to individual spill incidents. The Combined Socio-Cultural EMBA (refer to section 2.1 of the Woodside OSM-BIP), derived from all Woodside worst-case scenarios, represents the geographical extent of the Woodside BIP. The Woodside OSM-BIP includes details on all locations possibly contacted within seven days of a spill based on stochastic modelling of all Woodside worst-case spill scenarios at the low exposure values and a probability of greater than 10 % (refer to Section 2.1 and Table 2.1 in the OSM-BIP for further detail). A baseline review has been conducted for all of these locations and associated receptors. Subsequently, a list of all possible first-strike monitoring priorities has been identified as those locations where baseline data is either not available or not sufficient. The specific first-strike monitoring priorities for the PAP credible spill scenarios are listed in ANNEX C: OSM Activity Specific Requirement and Verification of OSM-BIP Adequacy.

The Woodside OSM-BIP also includes the resourcing requirements for Woodside's worst-case scenario in terms of requiring the greatest first-strike and ongoing capability needs as described in Section 8 and 9 of the OSM-BIP. In summary, Woodside assessed the worst-case spill scenario for OSM capability as the scenario contacting the most receptors at the low thresholds at a probability >10% and within 7 days.

The OSM requirements for PAP credible spill scenarios and an assessment to demonstrate that the Woodside OSM-BIP adequately covers these requirements is provided in ANNEX C: OSM Activity Specific Requirement and Verification of OSM-BIP Adequacy.

Woodside will review the initiation criteria for OMPs and SMPs (provided in Table 9-1 [OMPs] and Table 9-2 [SMPs] of the [Joint Industry OSM Framework](#) (APPEA, 2021)) during the preparation of the initial IAPs, and subsequent IAPs. If any initiation criteria are met, then that relevant OMP and/or SMP will be activated via the OSM Services Provider.

Table 5-9: Joint industry OSM plans relevant to Julimar Operations

Operational Monitoring	Relevant for the activity	Scientific Monitoring	Relevant for the activity
OM1: Hydrocarbon Characterisation	✓	SM1: Water Quality Impact Assessment	✓
OM2: Hydrocarbon in Water Assessment	✓	SM2: Sediment Quality Impact Assessment	✓
OM3: Hydrocarbon in Sediment Assessment	✓	SM3: Intertidal & Coastal Habitat Assessment	✓
OM4a: Dispersant Effectiveness Monitoring (Subsea)	✗	SM4: Seabirds and Shorebirds Assessment	✓
OM4b: Dispersant Effectiveness Monitoring (Surface)	✗	SM5: Marine mega-fauna Assessment	✓
OM5: Rapid Marine Fauna Surveillance	✓	SM6: Benthic habitat Assessment	✓
OM6: Shoreline Clean-up Assessment (SCAT)	✓	SM7: Marine fish and elasmobranch assemblages assessment	✓
		SM8: Fisheries Impact Assessment	✓
		SM9: Heritage Features Assessment	✓
		SM10: Social Impact Assessment	✓

5.6.1 Response need for Shoreline Clean-Up Assessment (SCAT) based on predicted consequence parameters

The following statements identify the key parameters upon which the response need can be based:

- SCAT will be mobilised to RPAs contacted at 100 g/m².
- There is no shoreline accumulation at 100 g/m² predicted by modelling.

In addition, a number of assumptions are required to estimate the response need for SCAT. These assumptions have been described in Table 5-10. Consequently, for planning purposes and based on the modelling results for to contact at 100 g/m² there are no RPAs requiring SCAT specialists.

If required in the event of a spill, resourcing arrangements are outlined in Table 8-3 of the OSM-BIP.

Table 5-10: Response Planning Assumptions - SCAT

Response planning assumptions: SCAT	
Safety considerations	Shoreline assessment 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: <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.
SCAT	<ul style="list-style-type: none"> • Deployment of 1-2 x specialists in SCAT from resource pool for any RPAs with predicted impacts from monitor and evaluate activities. No RPAs are predicted to require SCAT specialists for this activity.

5.6.2 Summary – operational and scientific monitoring

Woodside confirms that the three Julimar Operations credible spill scenarios fit within the Woodside OSM-BIP EMBA and assessment criteria defined within Appendix A of the Woodside OSM-BIP. Further, receptors contacted are all included within the baseline assessment list in Section 2.2 of the Woodside OSM-BIP and the OSM capability requirement for the activity credible spill scenarios is less than the worst-case capability

outlined in the Woodside OSM-BIP. Section 10.13.2 of the Joint Industry OSM Framework (APPEA, 2021) details the roles and responsibilities required for implementation of the OSM.

The ALARP assessment for operational and scientific monitoring (Section 6.6) considers alternate, additional, and/or improved control measures on each selected response technique.

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 OSM program's main objectives can be met, with no additional, alternative or improved control measures providing further benefit.

5.6.3 Environmental performance based on need

Table 5-11: Operational and scientific monitoring

Environmental Performance Outcome		Implement OSM programs to assess and report on the impact, extent, severity, persistence and recovery of sensitive receptors contacted by a spill or affected by spill response.		
Control measure		Performance Standard		Measurement Criteria
17	OSM arrangements	17.1	Maintain access to OSM expertise qualified to fulfill OSM Implementation Lead role during a Level 2/3 spill event per Joint Industry OSM Framework requirements.	3A, 3B, 3C, 3D, 4
		17.2	OSM Implementation Lead responsible for overseeing implementation of OMP and SMP components in accordance with the Woodside OSM Bridging Implementation Plan.	
18	Access to adequate OSM capability to provide both first strike and ongoing monitoring	18.1	Maintain contract with third-party provider to provide access to suitably qualified and competent personnel and equipment to assist in the implementation of monitoring.	3A, 3B, 3C, 3D, 4
		18.2	Obtain monthly capability reports from OSM Service Provider to demonstrate suitable resources are available throughout any activity.	
		18.3	Annual testing of OSM Service Provider standby arrangements and activation process.	
19	Baseline studies assurance	19.1	Annual review of environmental baseline data for all locations where spill modelling has predicted contact at relevant hydrocarbon thresholds.	3D
20	OSM-BIP maintenance	20.1	Annual review will be conducted according to the criteria in the OSM-BIP.	3A, 3B, 3C, 3D, 4
21	OSM response	21.1	OMPs and SMPs will be activated in accordance with the initiation criteria provided in Tables 9-1 and 9-2 of the Joint Industry OSM Framework (APPEA, 2021).	1
		21.2	Initiation criteria of OMPs and SMPs will be reviewed during the preparation of the initial Incident Action Plan (IAPs) and subsequent IAPs; and if any criteria are met, relevant OMPs and SMPs will be activated.	
		21.3	OSM to be conducted in accordance with the Woodside OSM-BIP.	
		21.4	Implementation of OSM will comply with the minimum standards listed in Appendix A of the Joint Industry OSM Framework.	
		21.5	Once OSM data reports are drafted they will be peer reviewed by an expert panel for data integrity.	
		21.6	OMPs and SMPs will be terminated in accordance with the termination criteria provided in Table 9-1 and 9-2 of the Joint Industry OSM Framework (APPEA, 2021).	
22	Shoreline Clean-up Assessment Technique (SCAT)	22.1	Within 24 hours, in liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), deployment of 1-2 specialist(s) in SCAT from resource pool for each of the Response Protection Areas (RPAs) with predicted impacts.	1, 2, 3B, 3C, 4
		22.2	Reports from OMP: Shoreline Clean-up Assessment will be provided to the IMT daily, detailing the assessed areas to maximise effective utilisation of resources.	1, 3B, 4

23	Management of Environmental Impact of the response risks	23.1	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
		23.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines.	
		23.3	Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations.	
		23.4	Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves.	
		23.5	Oversight by trained personnel who are aware of the risks.	
		23.6	Trained unit leaders will brief personnel prior to operations of the environmental risks of presence of personnel on the shoreline.	

5.7 Incident Management System (IMS)

The Incident Management System (IMS) is both a control measure and a measurement criteria. As a control measure the IMS function is to prompt, facilitate and record the completion of three key response planning processes detailed below. As a measurement criteria the IMS records the evidence of the timeliness of all response actions included in the environmental performance standards and the plans used of 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.

5.7.1 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 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 either the CIMT DM or 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.

5.7.2 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.

5.7.3 Consultation engagement process

Woodside will consult relevant persons/ organisations are engaged 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.

5.7.4 Environmental performance based on need

Table 5-12: 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 5.8)
24	Operational SIMA	24.1	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
		24.2	Record the evidence and justification for any deviation from the planned response activities.	
		24.3	Record the information and data from operational and scientific monitoring activities used to inform the SIMA.	
25	Stakeholder engagement	25.1	Prompt and record all notifications (including government notifications) for persons/ organisations in the region are made.	
		25.2	In the event of a response, identification of relevant persons/ organisations will be re-assessed throughout the response period.	
		25.3	Undertake communications in accordance with: <ul style="list-style-type: none"> Functional Support Team Guideline – Reputation External Communication and Continuous Disclosure Procedure. 	
26	Personnel required to support any response	26.1	Action planning is an ongoing process that involves continual review to confirm the appropriateness of techniques to control the incident are appropriate to the situation at the time.	1, 3B
		26.2	A duty roster of trained and competent people will be maintained to maintain minimum manning requirements are met all year round.	3C
		26.3	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
		26.4	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.	
		26.5	S&EM advisors will be integrated into CIMT to monitor performance of all functional roles.	
		26.6	Continually communicate the status of the spill and support Woodside to determine the most appropriate response by delivering on the responsibilities of their role.	
		26.7	Follow the OPEA, Operational Plans, FSPs, support plans and the IAPs developed.	
		26.8	Contribute to Woodside's response in accordance with the aims and objectives set by the Incident Commander.	1, 2, 3A, 4
				1, 2, 3B, 3C, 4

5.8 Measurement Criteria for all Response Techniques

Woodside measures compliance with environmental performance outcomes and standards through four primary mechanisms. The aforementioned performance tables 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 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, development and the execution of the IAP.

2. The CEM Competency Dashboard

The CEM competency dashboard records the number of trained and competent responders that are available across Woodside 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 5-1 shows the minimum manning numbers for the different hydrocarbon spill response roles and the number of qualified persons against those roles.



Figure 5-1: Example screenshot of the CEM 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 filling certain response roles.

Figure 5-2 shows an example of the SCAT role and the training modules required to show competence.

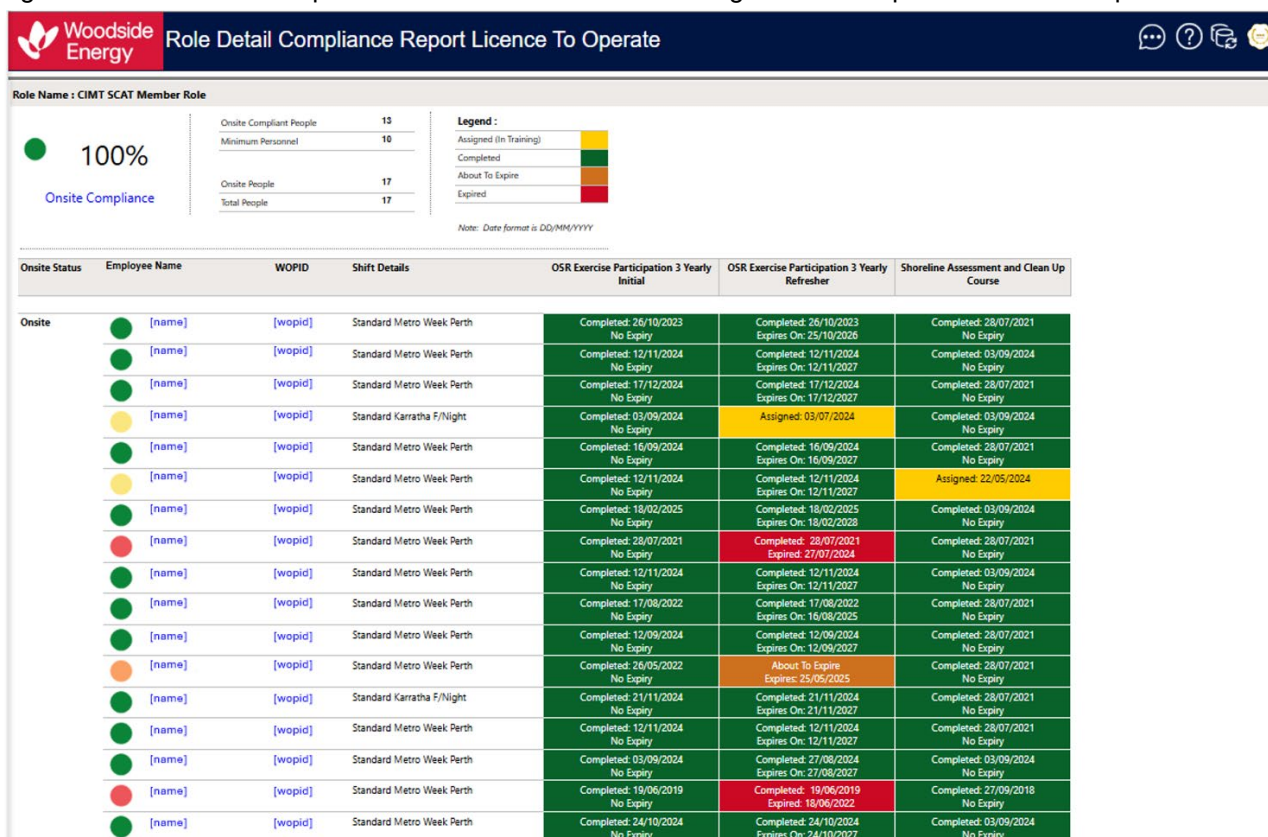


Figure 5-2: Example screenshot for the SCAT role

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Woodside's also maintains access to a pool of trained responders composed of, but not limited to, personnel from the following organisations:

- Australian Marine Oil Spill Centre (AMOSC) core group
- AMOSC
- Oil Spill Response Limited (OSRL)
- Marine Spill Response Corporation (MSRC)
- Woodside contracted workforce.

3. The Hydrocarbon Spill Preparedness ICE Assurance Process

The Hydrocarbon Spill Response Team has developed a Hydrocarbon Spill Preparedness and Response 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:

- 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.
- Competency** – confirms the competency dashboard is up to date and there are the minimum numbers 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 ensure compliance.
- Capability** – tracks and monitors capability that could be required in a hydrocarbon incident, including but not limited to: integrated fleet⁵ vessel schedule, dispersant availability, rig/vessels monitoring, equipment stockpiles, tracking buoy locations and the CIMT duty roster.
- 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 on a monthly basis through the S&EM Function.

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. (Note, this procedure does not apply to scenarios relating to gas releases in 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

⁵ 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

- 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
- 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
- priority response receptor determination
- ALARP determination
- 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 Monitor and Evaluate – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with 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 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.

6.1.1 Monitor and evaluate – 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 approx. 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 monitoring data used to inform all other response techniques. No improvement required.	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 approx. 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, additional needs are met from WEL 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\$6,000 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. WEL has access to a pool of trained, competent observers at strategic locations to ensure timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL.	Current capability meets need. WEL has a pool of trained, competent observers at strategic locations to ensure timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL Aviation standards & guidelines ensure all aircraft crews are competent for their roles. WEL 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 ensure training and competency is maintained.	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\$5000 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
Night time 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 rules.	This option is not adopted as the safety considerations outweigh any environmental benefit gained.	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 – ALARP Assessment

Woodside has based its response planning on the worst-case credible scenarios (as described in Section 2.2). This includes the following selection of primary source control and well intervention techniques which would be conducted concurrently:

- direct ROV intervention on Xmas tree
- debris clearance and/or removal
- capping stack
- relief well drilling.

6.2.1 ROV Intervention

Following confirmation of an emergency event, Woodside would mobilise inspection class ROVs to assess the status of the wellhead. Work class ROVs for well intervention are also available through the existing frame agreements and are available for deployment within seven days (Table 6-1). It is not expected that any additional regulatory approvals would be required as inspection, maintenance and repair is within the scope of activities for Frame Agreement vessels.

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.

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 Julimar Operations (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.

6.2.1.1 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 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.

6.2.2 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 ensure initial ROV surveys and debris clearance 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.

6.2.2.1 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.

6.2.3 Capping stack

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, 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 monitors the availability and location of vessels suitable for capping stack deployment via 24/7 vessel tracking software. Woodside maintain several frame agreements with various vessel service providers and maintains the ability to call off services with a capping stack and debris clearance agreement. Consideration to mobilise the capping stack from the supplier on a suitable vessel but then hand over to another vessel to conduct the capping activity will also be made to meet response time frames.

A capping stack will be mobilised to site within 16 days. Woodside will monitor the conditions around the wellsite and deployment for well intervention attempt will be undertaken once plume size is acceptable and safety and metocean conditions are suitable.

6.2.3.1 Safety Case considerations

Woodside has assessed against the NOPSEMA Safety Case guidance (NOPSEMA N-09000-GN1661) and can confirm that vessels conducting 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:

- existing frame agreement vessel, located outside the region with approved Australian Safety Case
- a Safety Case revision and scope of validation is required
- vessel meets the technical requirements for deploying capping stack as per the Source Control Emergency Response Planning Guideline

- 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 would be implemented concurrently with the actions required for the Safety Case revision development scenarios detailed in Figure 6-3 and Table 6-3. Woodside will execute the capping stack response in the fastest possible timeframe, provided the required safety and metocean conditions allow. Woodside has considered a broad range of alternate, additional, and improved options as outlined later in Section 6.2.5.

6.2.4 Relief Well drilling

The options analysis detailed in this section considers options to source, contract and mobilise a MODU and ensure necessary regulatory approvals are in place to meet timelines for relief well drilling. The screening for relief well drilling MODUs is based on the following and the process used for Julimar Operations 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.

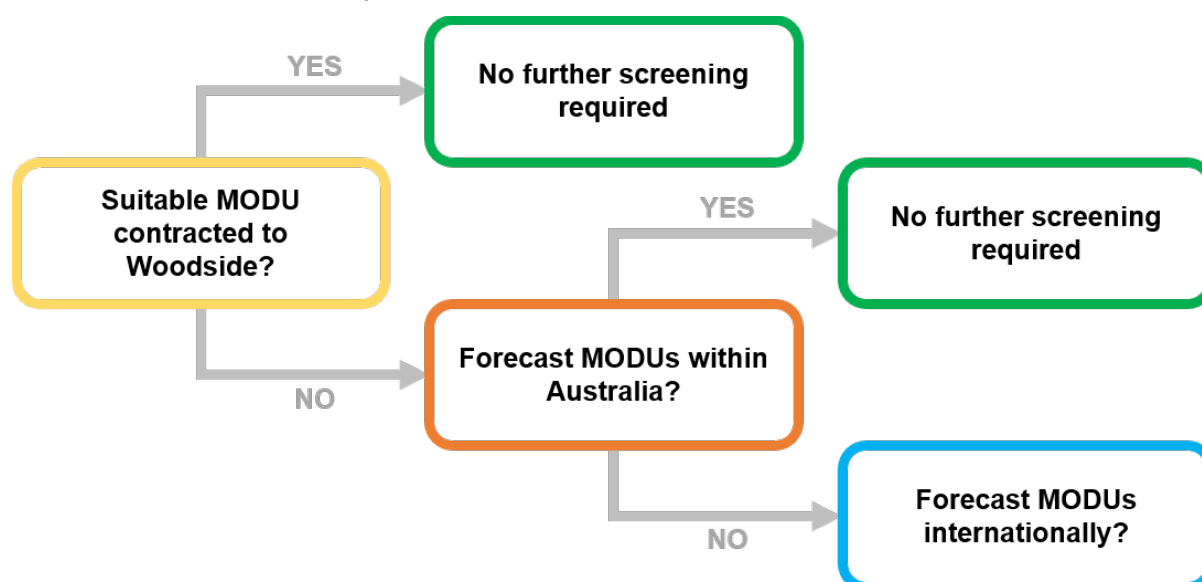


Figure 6-1: Julimar Operations process for sourcing relief well MODU

Woodside has not assessed the timeframe for obtaining a relief well MODU through international supply for this operation as the certainty of local supply has been confirmed. 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. The suitability and location of pre-identified relief well MODUs is tested again prior to the operation. Though the AEP MoU will serve as the instrument to facilitate the transfer of drilling units and well site services between operators in the event of an emergency, Woodside will engage each of the identified titleholders in advance to maintain confidence in MODU suitability and availability.

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 moored MODUs, plus MODU activities of registered operators and MODUs with approved Safety Cases, are tracked by Woodside on a monthly basis to ensure that the best available option can be sourced and utilised in the event of the worst-case credible 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 Drilling Industry Safety Committee. 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 timeframe would allow two years' warning of any potential gap. Woodside will execute relief well drilling in the fastest possible timeframe.

The detail of these arrangements demonstrates that the risks have been reduced to ALARP and Acceptable levels through the control measures and performance standards outlined in Section 5.2.

6.2.4.1 Relief Well drilling timings

The duration of a blowout (from initiation to a successful kill) is assessed as 75 days for Julimar 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 Julimar 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

Estimated Relief Well Duration		Moored Days
Rig Mobilisation		
Secure and suspend well. Complete Relief well design. Secure relief well materials.	8.0	21 days
Transit to location based on mobilisation from within the region	2.0	
Backload and loadout bulks and equipment, complete internal assurance of relief well design.	2.0	
Contingency for unforeseen event	9.0	
Mooring activities and relief well construction operations		40
Intersection & well kill comprising the following stages:		
Drill out shoe, conduct formation integrity test and drill towards intersection point	1.5	14 days
Execute well-specific ranging plan to accurately intersect wellbore in minimum timeframe	9.5	
Pump kill weight drilling fluid per the relief well plan. Confirm well is static with no further flow	0.5	
Contingency for unforeseen technical issues	2.5	
Total Discharge Duration		75

The above timings assume a dynamically positioned MODU is not available.

Woodside has considered a broad range of alternate, additional, and improved options as outlined in Section 6.2.5.

Intersect and kill duration is estimated at 14 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.

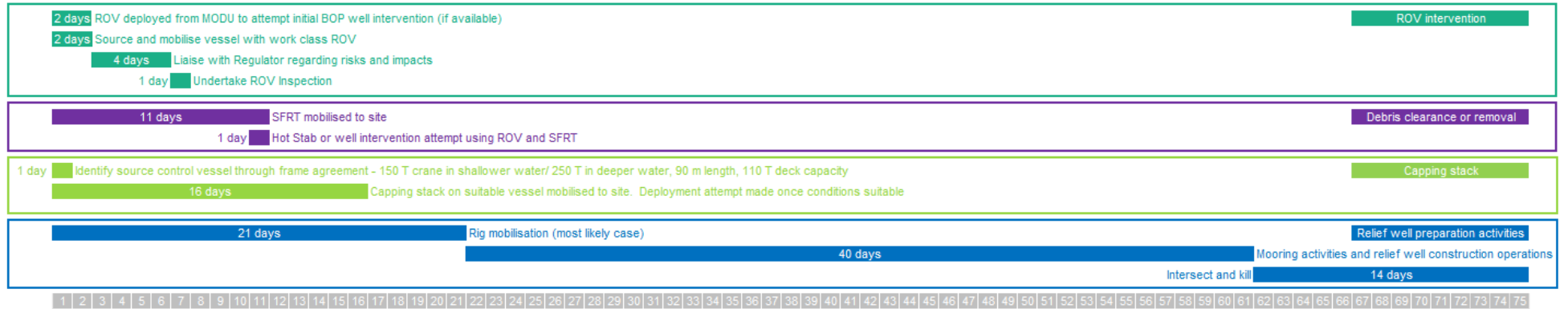


Figure 6-2: Source control and well intervention response strategy deployment timeframes for Julimar Operations

6.2.4.2 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. In the event that a revision to the Operator's Safety Case is required for relief well drilling, Woodside has identified measures to ensure 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 5.2.

These include;

- Access to Safety and Risk discipline personnel with specialist knowledge.
- Monitoring internal and external MODUs and vessel availability in the region and extended area through contracted arrangements on a monthly basis, with a two-year lookahead.
- Prioritisation of MODUs/vessels with current or historical contracting arrangements. Woodside maintains records of previous contracting arrangements and companies. All current contracts for vessels and MODUs 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) which can articulate need for, and deliver Woodside support, in key delivery tasks including 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.

The MODUs screened for contingency relief well drilling all operate under an Accepted base Safety Case. A relief well Safety Case Revision would leverage the previously accepted Safety Case Revision for the Julimar Operations, including the associated site-specific well hazards. As such, there is less new detail for the regulator to review and should present a short review timeframe with no impact expected to the commencement of relief well drilling activities.

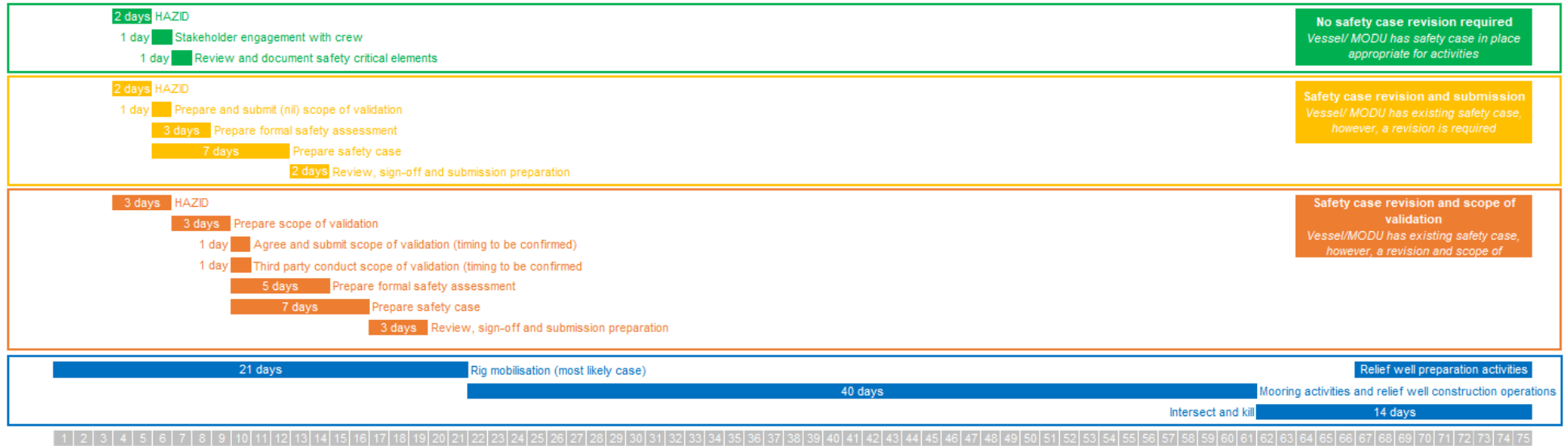


Figure 6-3: Timeline showing Safety Case revision timings alongside other relief well preparation activity timings for Julimar Operations

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 and available for workshops and Safety Case studies.	Safety case timing assumes vessel/ MODU selected and crew and 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.

6.2.5 Source Control – Control Measure Options Analysis

The assessment described in Section 6.2.1, 6.2.2, 6.2.3 and 6.2.4 outline the primary and alternate approach 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 options have been identified and assessed against the base capability described in Section 5 with 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 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.

- Alternative options, including potentially more effective and/or novel control measures 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.

6.2.6 Activation/Mobilisation – Control Measure Options Analysis

This section details the assessment of alternative, additional or improved control measures that were considered to ensure the selected level of performance in Section 5.2 reduces 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 clearly grossly disproportionate compared to the environmental benefit.

6.2.6.1 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 may allow the well to be killed up to 10 days sooner (total of 65 days for well kill) and may result in a reduction of up to 7420m ³ of Brunello Condensate for the worst-case credible scenario.	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\$1.1 B 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 Petroleum Activities Program 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 may result in a reduction of up to 5194 m ³ of Brunello Condensate for the worst-case credible scenario.	This option is not considered feasible for a number of 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 Petroleum Activities Program are disproportionate to the environmental benefit gained above finding a MODU through the MOU agreement for all spill scenarios.	No

6.2.6.2 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	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	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

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	for the rig and activities prior to commencing well kill operations.	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.			
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6.2.6.3 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 Petroleum Activities Program, 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 vessel and MODU availability through market intelligence services for location. 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. Woodside has outlined control measures and performance standards.	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 Petroleum Titleholders may be undertaken to potentially gain faster access to a rig and reduce the time taken to kill the well and therefore 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. Commercial and operational provisions do not allow WEL to discuss current and potential drilling programs in detail with other Petroleum Titleholders.	Associated cost of implementation is moderate to the environmental benefit gained. 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.	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) on a monthly basis. 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 hydrocarbon 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

6.2.7 Deployment Options Analysis

6.2.7.1 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					

6.2.7.2 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 feasibility issues surrounding an offset capping deployment in the water depths at the Julimar Operations well (149 m), together with mobilisation lead times for both a cap and required vessels/ support equipment, would minimise any environmental benefit gained.	<p>Technical feasibility:</p> <ul style="list-style-type: none"> The base case considerations for OIE requires a coordinated response by 4 to 7 vessels working simultaneously outside of the 500m exclusion zone. In the event of a worst-case shallow water gas discharge, the 10% LEL modelled radius extends beyond the area of activity required for the OIE deployment thereby introducing health and safety risk to any vessels required for the initial deployment of the carrier and subsequent operations with ROV during capping operations. Though manageable for single vessels, it is prohibitive for operations requiring SIMOPs with numerous vessels working at 180 degrees from one another. <p>Other factors:</p> <ul style="list-style-type: none"> Due to the OIE's size and 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. Screening indicates that mobilising some components of the OIE, based in Italy, can only be done so by sea and is likely to erode any time savings realised through killing the well via a relief well. <p>The March 2019 OSRL exercise in Europe tested deployment of the OIE and highlighted that it will require a 600+MT crane vessel for deployment to ensure there is 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 Pyxis 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	A dual vessel deployment is somewhat feasible provided a large enough deck barge can be located. Deck barges of 120 m are not, however, very common and will present a logistical challenge to identify and relocate to the region. Further, the	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

	deployment in the water depths at the Julimar Operations well (149 m), together with mobilisation lead times for both a cap and required vessels and support equipment, would minimise any environmental benefit.	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 actually be lowered on the AHV work wire so a crane would not be required on the barge.			
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 following a blowout due to equipment requirements and logistics. No environmental benefit is therefore predicted given the release duration is 75 days before drilling of a relief well under the adopted control measure.	The timing for mobilisation, deployment and activation of the subsea containment system is likely to be longer (>90 days), than the expected 75 day relief well drilling operations based on the location, size and scale of the equipment required, including seabed piles that can only be transported by vessel.	Woodside has investigated the logistics of reducing this timeframe by pre-positioning equipment but the costs of purchasing dedicated equipment by Woodside for this Petroleum Activities Program is not considered reasonably practical and are considered disproportionate to the environmental benefit gained.	This option would not provide an environmental benefit.	No
Pre-drilling top-holes	This option represents additional environmental impacts associated with discharge of additional drill cuttings and fluids along with benthic habitat disturbance. It is also not expected to result in a significant decrease in relief well timings	This option is not considered feasible due to the uncertainties related to the location and trajectory of the intervention well, which may vary according to the actual conditions at the time the loss of containment event occurs. Additionally, there is only expected to be a minor reduction in timing for this option of 1-2 days based on the drilling schedule. Duration to drill and kill may be reduced by 1-2 days, but top-hole may have to be relocated, due to location being unsafe or unsuitable and further works will be required each year to maintain the top holes.	Utilising an existing MODU and pre-drilling top-hole for relief well commencement would significantly increase costs associated the Petroleum Activities Program. Estimated cost over the program's life is approx. A\$1.6 M per day over the PAP based on 2-4 days of top-hole drilling (plus standby time) for each top-hole drilled.	This option would not provide an environmental benefit due to the additional environmental impacts coupled with a lack of improved relief well timings.	No
Purchase and maintain mooring system	Purchasing and maintaining a mooring system could provide a moderate environmental benefit as it may reduce equipment sourcing time. However, due to the continued need for specialists to install the equipment plus sourcing a suitable vessel, the timeframe reduction would be minimal.	Woodside is not a specialist in installing and maintaining moorings so would require specialists to come in to install the moorings and would also require specialist vessels to be sourced to undertake the work.	The cost of purchasing, storing and maintaining pre-lay mooring systems with anchors, chains, buoys and ancillary equipment is considered grossly disproportionate to the environmental benefit gained.	This option would not provide an environmental benefit as timeframe reductions would be minimal.	No
Contract in place with Wild Well Control 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 ensure that competent personnel are 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

6.2.7.3 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 \$600K 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

6.2.8 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 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.

6.3 Source Control via Vessel SOPEP – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with 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 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.

6.3.1 Source Control via Vessel SOPEP – Control Measure Options Analysis

6.3.1.1 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					

6.3.1.2 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					

6.3.1.3 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					

6.3.2 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.

6.4 Oiled Wildlife Response – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with 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 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 – 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.

6.4.2 Oiled Wildlife Response – Control Measure Options Analysis

6.4.2.1 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

6.4.2.2 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 ensure that these resources can 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 3. 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 and there is no additional environmental benefit in adopting the improvements.</p>	<p>Although hydrocarbon contact above wildlife response threshold concentrations (> 10 g/m²) with offshore waters is expected from day one (MEE-01), given the low likelihood of such an event occurring and that the current capability meets the need, the cost of implementing measures to reduce the mobilisation time is considered disproportionate to the benefit. Additionally, the remote offshore location of the release site, with an earliest impact on day 12, provides sufficient opportunity for the ongoing monitoring and surveillance operations to inform the scale of the response.</p> <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>Oiled wildlife response capacity would be addressed for open Commonwealth waters through the AMOSC arrangements, as informed by OMP: Marine Fauna Assessment.</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\$1,700 per operational site per day.	This option is not adopted as the existing capability meets the need.	No
Additional trained wildlife responders	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>Current numbers meet the needs required 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</p>	Additional wildlife response personnel cost A\$2,000 per person per day	This option is not adopted as the existing capability meets the need.	No

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	The potential environmental benefit of training additional personnel is expected to be low.	on the scale of the event and the impact to wildlife and maybe sourced via existing contracts with OSROs. Materials for holding facilities, portable pools, enclosures and rehabilitation areas would be sourced as required.			
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6.4.2.3 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 oiled wildlife response	<p>Response time is limited by specialist personnel mobilisation time. Current timing is sufficient for expected first shoreline contact.</p> <p>This control measure provides increased effectiveness through faster mobilisation of specialists. However, no significant net environmental benefit is expected due to shoreline stranding times.</p>	Pre-positioning vessels or equipment would reduce mobilisation time for oiled wildlife response activities. However, given the effectiveness of an oiled wildlife response is expected to be low, an earlier response would provide a marginal increase in environmental benefit.	<p>Wildlife response packages to preposition at vulnerable sites identified through the deterministic modelling cost A\$700 per package per day.</p> <p>The cost of having dedicated equipment and personnel available to respond faster is considered disproportionate to the environmental benefit.</p>	This option is not adopted as the existing capability meets the need.	No

6.4.3 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.

6.5 Waste Management – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with 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 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.

6.5.1 Existing Capability – Waste Management

Woodside's exiting 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 Waste Management - Control Measure Options Analysis

6.5.2.1 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					

6.5.2.2 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 Veolia'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 OSRL. Existing arrangements meet identified need for the PAP.	Cost for increased waste disposal capability would be approx. A\$1,300 per m ³ . Cost for increased onshore temporary waste storage capability would be approx. A\$40 per unit per day.	This option is not adopted as the existing capability meets the need.	No

6.5.2.3 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 as the existing capability meets the need.	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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6.5.3 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.

6.6 Operational and Scientific Monitoring – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with those that have been selected for implementation which 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.

6.6.1 Existing Capability – Operational and 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.

6.6.2 Operational and Scientific Monitoring – 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
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).	SM1ater quality monitoring requires water samples to be transported to National Association of Testing Authorities (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 OSM vessel (exclusive to Woodside)	Would provide faster mobilisation time of operational and 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 operational and 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 operational and scientific monitoring objectives, including collection of First-Strike Monitoring Priority data where baseline knowledge gaps are identified for receptor locations where spill predictions of time to contact are >7 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
Use of Autonomous Underwater Vehicles (AUVs) for hydrocarbon presence and detection.	Use of AUVs may be feasible and may provide an environmental benefit in assessing inaccessible areas for presence of hydrocarbons in the water however cost of purchase is disproportionate to the environmental benefit when compared to the monitoring types in place.	AUVs may be considered as an additional method of monitoring, should remote systems be required for health and safety reasons.	Cost A\$10,000 for mobilisation and A\$15,000 a day when deployed.	This control measure is not adopted as the costs and complexity are considered disproportionate to the environmental benefit that might be realised.	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
The need for resourcing to acquire adequate baseline in the event of a spill	Adequate baseline to quantify environmental impact of a spill event.	As part of Woodside's OSRL OSM Supplementary Service Agreement, and consistent with the Joint Industry OSM Framework, the OSM Service Provider will provide key OSM personnel and specialised field monitoring equipment in order to address First-strike monitoring priorities and reactive baseline.	No additional cost associated with baseline acquisition under the OSRL OSM Supplementary Service Agreement.	This control measure is not adopted as the current capability meets the need.	No

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6.6.2.3 Improved Control Measures considered

Improved Control Measures considered <i>Improved 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
Faster mobilisation time (for water quality monitoring).	<p>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.</p> <p>Shortening the timeframes for vessel availability would require dedicated response vessels on standby in KBSF or Exmouth.</p>	Operations are not feasible on day 1 as the hydrocarbon will take time to surface, and the volatile nature of the oil may lead to unsafe conditions in the vicinity of fresh hydrocarbon.	<p>The cost and organisational complexity of employing two dedicated response vessels (approximately A\$15M/year per vessel) is considered disproportionate to the potential environmental benefit to be realised by adopting this delivery options.</p> <p>Cost for purchase of equipment approx. 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.</p> <p>Dedicated equipment and personnel, living locally and on short notice to mobilise. The cost would be approx. A\$1M per annum, which is disproportionate to the incremental benefit this would provide, assets are already available on day 1. 2 integrated fleet vessels are available from day 1, however these could be tasked with other operations.</p>	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

6.6.3 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.

6.6.4 ALARP and Acceptability Summary

ALARP and Acceptability Summary		
Operational and Scientific Monitoring		
ALARP summary	X	Known reasonably practicable control measures have been adopted
	X	No additional, alternative and improved control measures would provide further benefit
	X	No reasonably practical additional, alternative, and/or improved control measure exists
	The resulting operational and 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. 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 operational and scientific monitoring's main objectives can be met, with the addition of one alternative control measures to provide further benefit.	
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.• Operational and 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.• Stakeholder consultation undertaken for the PAP did not receive feedback regarding concerns for operational and 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.	
On the basis from the ALARP and acceptability summary as presented above and in Section 6 of the EP Woodside considers the adopted controls discussed manage the impacts and risks associated with implementing operational and scientific monitoring activities to a level that is ALARP and acceptable.		

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 to ensure these impacts and risks have been considered and specific measures are put in place to continually review and manage these further impacts and risks to ALARP and Acceptable levels. 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. Refer to the EP for details regarding how these risks are being managed. They are not discussed further in this document.

- 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
- 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
Monitor and evaluate	✓	✓	✓		✓	✓	
Source control		✓	✓	✓	✓	✓	✓
Oiled wildlife					✓	✓	
Operational and 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).

A number of 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; and
- 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 Total Suspended Solids (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) (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, 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 (LOC) event a relief well drilling activity would be responding too).

Vessel operations and anchoring

During the implementation of response techniques, where water depths allow, it is possible that response vessels will be required to anchor e.g. source control vessels and for potential access to inaccessible sites. The use of vessel anchoring will be minimal and, for nearshore areas, likely only to occur when an 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;
- Damage or disturbance to wildlife during shoreline surveys;
- Removal of surface layers of intertidal sediments (potential habitat depletion); and
- Excessive removal of substrate causing erosion and instability of localised areas of the shoreline.

Human presence

Human presence during shoreline surveys or oiled wildlife response 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), recovered from oiled wildlife response operations.
- Semi-solids/solids (oily solids), collected during oiled wildlife response operations.
- Debris (e.g. seaweed, sand, woods, plastics), collected during oiled wildlife response operations.

If not managed and disposed of correctly, wastes generated during the response have the potential for secondary contamination similar to that described above, impacts to wildlife through contact with or ingestion of waste materials and contamination risks if not disposed of correctly onshore.

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 ensure that further injury and the removal of water proofing feathers are managed and mitigated. Finally, during the release phase it's 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) 6.1, PS 23.1).
- Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines (PS 6.2, PS 23.2).

Presence of personnel on the shoreline

- Oversight by trained personnel who are aware of the risks (PS 23.5).
- Trained unit leaders will brief personnel prior to operations of the environmental risks of presence of personnel on the shoreline (PS 23.6).

Human Presence

- Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations (PS 23.3).
- Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves. (PS 6.3, PS 23.4).

Waste generation

- Teams will segregate liquid and solid wastes at the earliest opportunity (PS 15.8).
- Zoning of response locations to prevent secondary contamination and minimize the mixing of clean and oiled sediment and shoreline substrates (PS 16.1).

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 14.1).

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 clearly 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 all of 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 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).

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11 GLOSSARY AND ABBREVIATIONS

11.1 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 it is capable of performing 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 their 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 in order for the control measure to be able to perform its intended function.
Environment that may be affected (EMBA)	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	<p>The parameters against which [risk] controls are assessed to ensure they reduce risk to ALARP.</p> <p>A statement of the key requirements (indicators) that the control measure has to achieve in order to perform as intended in relation to its functionality, availability, reliability, survivability and dependencies.</p>
Preparedness	Measures taken before an incident in order to improve the effectiveness of a response
Reasonably practicable	<p>... 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.</p> <p>(Judgement: Edwards v National Coal Board [1949])</p>
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.

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 – ≥ 100 ppb and entrained hydrocarbon concentrations – ≥ 500 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.

11.2 Abbreviations

Abbreviation	Meaning
ADIOS	Automated Data Inquiry for Oil Spills
AIIMS	Australasian Inter-Service Incident Management System
ALARP	As low as reasonably practicable
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
AUV	Autonomous Underwater Vehicle
BACI	Before/ After Control Impact
BAOAC	Bonn Agreement Oil Appearance Code
BOP	Blowout Preventer
CIMT	Corporate Incident Management Team
COP	Common Operating Picture
cSt	Centistokes
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)
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
ICE	Internal Control Environment
IMSA	Index of Marine Surveys for Assessment
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

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Abbreviation	Meaning
KIMC	Karratha Incident Management Centre
KSAT	Kongsberg Satellite
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
OSM	Operational and Scientific Monitoring
OSRL	Oil Spill Response Limited
OSTM	Oil Spill Trajectory Modelling
OWR	Oiled Wildlife Response
OWRP	Oiled Wildlife Response Plan
PAP	Petroleum Activities Program
PEARLS	People, Environment, Asset, Reputation, Livelihood and Services
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 and 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

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Abbreviation	Meaning
Woodside	Woodside Energy Limited
WCC	Woodside Communication Centre
WWCI	Wild Well Control Inc
WCCS	Worst Case Credible Scenario
ZoA	Zone of Application

ANNEX A: NET ENVIRONMENTAL BENEFIT ANALYSIS DETAILED OUTCOMES

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 MEE-01, CS-02 and CS-03. The complete list of potential receptor locations within the EMBA within the PAP is included in Section 6 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) – no contact predicted for any scenario at any time.
- Shoreline accumulation (>100 g/m²) – no contact predicted for any scenario at any time.

The detailed NEBA assessment outcomes are shown below. The Julimar Operations preoperational NEBAs contain the full assessments.

Table A-1: NEBA assessment technique recommendations for a release of Brunello Condensate due to a loss of well containment (MEE-01)

Receptor	Monitor and evaluate	Containment and recovery	Dispersant application: sub-sea	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	Well control and intervention
Montebello Marine Park*§	Yes	No	No	No	No	No	No	No	Yes	No	No	Yes

Overall assessment

Sensitive receptor (sites identified in EP)	Monitor and evaluate	Containment and recovery	Dispersant application: sub-sea	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	Well control and intervention
Is this response Practicable?	Yes	No	No	No	No	No	No	No	Yes	No	No	Yes
NEBA identifies response potentially of net environmental benefit?	Yes	No	No	No	No	No	No	No	Yes	No	No	Yes

Table A-2: NEBA assessment technique recommendations for a release of Brunello Condensate due to trunkline loss of containment (CS-02)

Receptor	Monitor and evaluate	Containment and recovery	Dispersant application: sub-sea	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 via ROV
Montebello Marine Park*§	Yes	No	Not applicable	No	No	No	No	No	Yes	No	No	Yes

Overall assessment

Sensitive receptor (sites identified in EP)	Monitor and evaluate	Containment and recovery	Dispersant application: sub-sea	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 via ROV
Is this response Practicable?	Yes	No	Not applicable	No	No	No	No	No	Yes	No	No	Yes
NEBA identifies response potentially of net environmental benefit?	Yes	No	Not applicable	No	No	No	No	No	Yes	No	No	Yes

Table A-3: NEBA assessment technique recommendations for a release of MDO due to vessel collision (CS-03)

Receptor	Monitor and evaluate	Containment and recovery	Dispersant application: sub-sea	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 via ROV
Montebello Marine Park*§	Yes	No	Not applicable	No	No	No	No	No	Yes	No	No	Yes

Overall assessment

Sensitive receptor (sites identified in EP)	Monitor and evaluate	Containment and recovery	Dispersant application: sub-sea	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 via ROV
Is this response Practicable?	Yes	No	Not applicable	No	No	No	No	No	Yes	No	No	Yes
NEBA identifies response potentially of net environmental benefit?	Yes	No	Not applicable	No	No	No	No	No	Yes	No	No	Yes

* Floating oil will not accumulate on submerged features and at open ocean locations.

§ Floating contact only predicted at 10 g/m².

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 ⁶	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))

⁶ 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: MONITOR AND EVALUATE ACTIVATION AND TERMINATION CRITERIA

Table B-1: Operational monitoring objectives, triggers and termination criteria

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan – Predictive Modelling of Hydrocarbons to Assess Resources at Risk	<p>Predictive modelling 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. Predictive modelling 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 predictive modelling 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 in order to reduce risks to ALARP 	Predictive modelling will be triggered immediately following a level 2/3 hydrocarbon spill.	<p>The criteria for the termination of predictive modelling 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 surveillance observations) predicts no additional natural resources will be impacted

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan – Surveillance and reconnaissance to detect hydrocarbons and resources at risk	Surveillance and reconnaissance aims to provide regular, on-going hydrocarbon spill surveillance throughout a broad region, in the event of a spill. The objectives of surveillance and reconnaissance are: <ul style="list-style-type: none"> • Verify spill modelling results and recalibrate spill trajectory models. • 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 in order 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. 	Surveillance and reconnaissance will be triggered immediately following a level 2/3 hydrocarbon spill.	The termination triggers for the Surveillance and reconnaissance are: <ul style="list-style-type: none"> • 72 hours has elapsed since the last confirmed observation of surface hydrocarbons. • Latest hydrocarbon spill modelling results do not predict surface exposures at visible levels.

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan – Pre-emptive assessment of sensitive receptors at risk	<p>Pre-emptive shorelines assessment 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 pre-emptive shorelines assessment is to confirm understanding of the status and characteristics of environmental resources, predicted by predictive modelling and surveillance, 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 pre-emptive shorelines assessment 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>Pre-emptive shorelines assessment 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 pre-emptive shorelines assessment include:</p> <ul style="list-style-type: none"> • Contact of a sensitive habitat or shoreline is predicted by predictive modelling and surveillance. • The pre-emptive assessment methods can be implemented before contact from hydrocarbons (once a receptor has been contacted by hydrocarbons it will be assessed via SCAT). 	<p>The criteria for the termination of pre-emptive shorelines assessment at any given location are:</p> <ul style="list-style-type: none"> • Locations predicted to be contacted by hydrocarbons have been contacted. <p>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>

ANNEX C: OSM ACTIVITY SPECIFIC REQUIREMENT AND VERIFICATION OF OSM-BIP ADEQUACY

The following 3 step process ensures that the OSM-BIP adequately covers the following requirements for this activity:

- activity-specific EMBA
- baseline assessment of activity-specific monitoring priorities
- activity-specific capability requirements.

Step 1: Determine if the new activity EMBA fits within the OSM-BIP Socio-Cultural EMBA

The Socio-Cultural EMBA for this credible spill scenario aligns to the EMBA included in the OSM-BIP (Figure C - 1).

Step 2: Determine the locations requiring a baseline review and whether these locations are currently included in the OSM-BIP

As per Section 2.2 of the OSM-BIP, receptors requiring a baseline data review were identified as sensitive receptors contacted by hydrocarbons at the low threshold for floating (≥ 1 g/m²), shoreline contact (≥ 10 g/m²), entrained (≥ 10 ppb), and dissolved (≥ 10 ppb) within 7.0 days at a probability $>10\%$.

The locations requiring a baseline data review for this activity are presented in **Table C - 1** and are included in Table 2-3 and Table 4-2 of the OSM-BIP.

As per the baseline review assessment outlined in Section 4 and Table 4-3 of the OSM-BIP, the locations listed in **Table C - 1** are deemed monitoring priorities for the activity. During an actual spill, the monitoring priorities will vary according to the spill event and it should be noted that the monitoring priorities provided in **Table C - 1** are listed for planning and guidance purposes.

Step 3: Determine if the capability requirements and monitoring arrangements of the new activity meet the capability requirements outlined in Sections 7 and 8 of the OSM-BIP and capability arrangements described in Sections 9 and 10 of the OSM-BIP

As per the criteria outlined in Appendix A of the Woodside OSM-BIP, oil spill modelling for the PAP credible spill scenarios predicts that up to a maximum of one emergent receptor and two submerged receptors could be contacted within 7 days at a probability of $>10\%$ (refer to Table C - 1; MEE-01 – loss of well containment of 55,647 m³ from BRUA-2 well). Given the resource estimates in Section 8 of the OSM-BIP are determined for 5 sites for week 1 and 6 sites for week 2, the available capability for PAP activities are met by the worst-case capability requirements presented in Section 8 of the Woodside OSM-BIP. Therefore, additional deterministic modelling for PAP activities is not required to inform OSM first-strike capabilities.

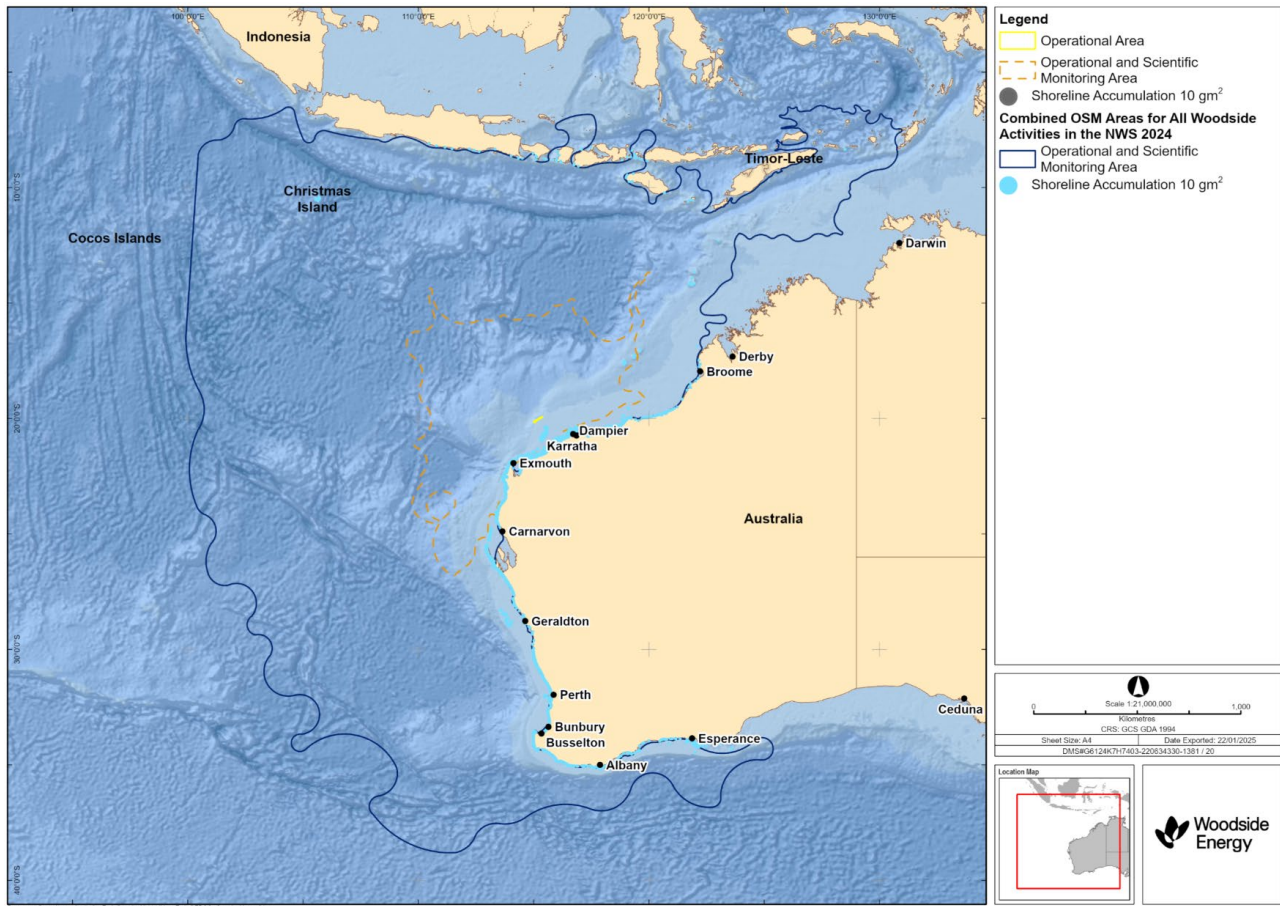


Figure C - 1: PAP Socio-Cultural EMBA based on the area potentially contacted by the low (below ecological impact) hydrocarbon thresholds in the event of the worst-case credible spill scenarios

Please note that the socio-cultural EMBA's illustrated in **Figure C - 1** represent the overall combined extent of the oil spill model outputs based on a total of 100-200 replicate simulations over an annual period and therefore represents the largest spatial boundaries of 100-200 oil spill combinations, not the spatial extent of a single spill.

Table C - 1: Modelling results for locations with a probability of contact $\geq 10\%$ and < 7 days

Location	Total contact probability (%) floating oil ≥ 1 g/m ²	Min. arrival time floating oil ≥ 1 g/m ² (days)	Total contact probability (%) shoreline accumulation ≥ 10 g/m ²	Min. arrival time shoreline accumulation ≥ 10 g/m ² (days)	Probability (%) entrained oil at ≥ 10 ppb	Min. arrival time entrained oil ≥ 10 ppb (days)	Probability (%) dissolved oil at ≥ 10 ppb	Min. arrival time dissolved oil ≥ 10 ppb (days)
MEE-01								
Montebello MP*	92	1	NC	NC	100	1	94	7
Montebello State Marine Park	NC	NC	NC	NC	64	7	15	168
Rankin Bank*	NC	NC	NC	NC	69	3	49	89
CS-02								
Montebello MP*	NC	NC	NC	NC	41	1	24	<i>Data unavailable**</i>
Rankin Bank*	NC	NC	NC	NC	18	2	NC	NC
CS-03								
Montebello MP*	NC	NC	NC	NC	33	1	12	<i>Data unavailable**</i>
Montebello Island Marine Park	NC	NC	NC	NC	13	7	NC	NC
Barrow Island MMA*	NC	NC	NC	NC	11	4	NC	NC

*Submerged receptor that has no features above the sea surface.

**Minimum arrival time for dissolved hydrocarbon unavailable. A conservative approach has therefore been undertaken when selecting locations requiring a baseline data review. Sensitive receptors that meet the low thresholds in dissolved hydrocarbon impact probability have been recorded as locations requiring a baseline data review regardless of whether they meet the low thresholds in minimum arrival time or not.

NC = No contact

ANNEX D: 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

APPENDIX E NOPSEMA Reporting Forms

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Page 685 of 445

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NOPSEMA Recordable Environmental Incident Monthly Reporting Form

<https://www.nopsema.gov.au/assets/Forms/A198750.doc>

Report of an Accident, Dangerous Occurrence or Environmental Incident

<https://www.nopsema.gov.au/assets/Forms/N-03000-FM0831-Report-of-an-Accident-Dangerous-Occurrence-or-Environmental-Incident-Rev-8-Jan-2015-MS-Word-2010.docx>

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APPENDIX F Consultation

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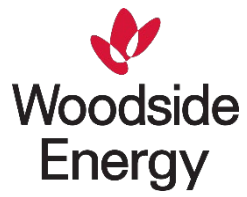
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Page 687 of 445

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Appendix F: Julimar Operations Environment Plan

February 2025

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TABLE OF CONTENTS

1.	CONSULTATION APPROACH.....	9
1.1	Tiered Consultation Approach.....	9
1.2	Building on the Existing Consultation Approach.....	9
1.3	Traditional Custodian Consultation Approach	10
1.4	NGO Consultation Approach.....	10
1.5	NGO response.....	11
2.	RELEVANCY ASSESSMENT	12
2.1	Table 1: Assessment of Relevance.....	12
2.2	Assessment of Relevant Persons for the Proposed Activity	39
3.	CONSULTATION ACTIVITIES.....	40
3.1	Julimar Operations EP Consultation Activities	40
3.2	Discharging Regulation 25 of the Environment Regulations.....	40
3.3	Proactive Consultation.....	41
3.3.1	Community engagement.....	41
3.3.1	Let's Talk – EP Newsletter	42
3.3.2	Community Liaison Group Engagement.....	42
3.4	Traditional Custodian Specific Consultation	42
4.	TABLE 2: CONSULTATION REPORT WITH RELEVANT PERSONS OR ORGANISATIONS	45
4.1	COMMONWEALTH AND WA STATE GOVERNMENT DEPARTMENTS OR AGENCIES – MARINE.....	45
4.1.1	Australian Border Force (ABF).....	45
4.1.2	Australian Communications and Media Authority (ACMA)	46
4.1.3	Australian Fisheries Management Authority (AFMA).....	50
4.1.4	Australian Hydrographic Office (AHO)	51
4.1.5	Australian Maritime Safety Authority (AMSA) – Marine Pollution.....	53
4.1.6	Australian Maritime Safety Authority (AMSA) – Maritime Safety	55
4.1.7	Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries	58
4.1.8	Department of Defence (DoD)	60
4.1.9	Department of Planning, Lands and Heritage (DPLH).....	62
4.1.10	Department of Primary Industries and Regional Development (DPIRD).....	63
4.1.11	Department of Transport (DoT).....	65
4.1.12	Pilbara Ports Authority (PPA).....	67
4.1.13	Western Australian Museum (WAM).....	69
4.2	COMMONWEALTH AND WA STATE GOVERNMENT DEPARTMENTS OR AGENCIES – ENVIRONMENT	70
4.2.1	Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)	70
4.2.2	Department of Biodiversity, Conservation and Attractions (DBCA).....	72
4.2.3	Department of Climate Change, Energy, the Environment and Water (DCCEE).....	77
4.2.4	Director of National Parks (DNP)	78
4.2.5	Ningaloo Coast World Heritage Advisory Committee (NCWHAC).....	81

4.3	COMMONWEALTH AND STATE GOVERNMENT DEPARTMENTS OR AGENCIES – INDUSTRY	83
4.3.1	Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)	83
4.3.2	Department of Industry, Science and Resources (DISR)	85
4.4	COMMONWEALTH COMMERCIAL FISHERIES AND REPRESENTATIVE BODIES	86
4.4.1	Commonwealth Fisheries Association (CFA)	86
4.4.2	North West Slope Trawl Fishery	88
4.4.3	Western Deepwater Trawl Fishery	90
4.5	STATE COMMERCIAL FISHERIES AND REPRESENTATIVE BODIES	91
4.5.1	Western Australian Fishing Industry Council (WAFIC)	91
4.5.2	Mackerel Managed Fishery (Area 2)	96
4.5.3	Onslow Prawn Managed Fishery	97
4.5.4	Pilbara Line Fishery	99
4.5.5	Pilbara Trap Fishery.....	101
4.6	RECREATIONAL MARINE USERS AND REPRESENTATIVE BODIES.....	102
4.6.1	Gascoyne Recreational Marine Users.....	102
4.6.2	Marine Tourism WA	104
4.6.3	Pilbara/Kimberley Recreational Marine Users	106
4.6.4	Recfishwest	107
4.6.5	WA Game Fishing Association.....	110
4.7	TITLEHOLDERS AND OPERATORS	112
4.7.1	BP Developments Australia	112
4.7.2	Carnarvon Energy.....	114
4.7.3	Chevron Australia	117
4.7.4	Coastal Oil and Gas.....	120
4.7.5	Eni Australia	122
4.7.6	Exxon Mobil Australia Resources Company	124
4.7.7	Finder Energy	125
4.7.8	INPEX Alpha.....	127
4.7.9	J Nippon O&G Exploration (Australia).....	129
4.7.10	KATO Energy / KATO Corowa/ KATO NWS / KATO Amulet.....	131
4.7.11	KUFPEC.....	132
4.7.12	Kyushu Electric Wheatstone	134
4.7.13	Longreach Capital Investment/Beagle No 1 Pty Ltd	136
4.7.14	OMV Australia.....	139
4.7.15	PE Wheatstone.....	140
4.7.16	Santos	142
4.7.17	Shell Australia.....	144
4.7.18	Skye Napoleon	146
4.7.19	Western Gas.....	147
4.8	PEAK INDUSTRY REPRESENTATIVE BODIES.....	149
4.8.1	Australian Energy Producers (AEP).....	149
4.9	TRADITIONAL CUSTODIANS AND NOMINATED REPRESENTATIVE CORPORATIONS 151	
4.9.1	Buurabalayji Thalanyji Aboriginal Corporation (BTAC).....	151

4.9.2	Kariyarra Aboriginal Corporation (KAC)	155
4.9.3	Murujuga Aboriginal Corporation (MAC)	161
4.9.4	Ngarluma Aboriginal Corporation (NAC)	165
4.9.5	Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	168
4.9.6	Robe River Kuruma Aboriginal Corporation (RRKAC)	173
4.9.7	Wirrawandi Aboriginal Corporation (WAC)	176
4.9.8	Yindjibarndi Aboriginal Corporation	180
4.9.9	Yinggarda Aboriginal Corporation (YAC)	183
4.10	NATIVE TITLE REPRESENTATIVE BODIES	189
4.10.1	Kimberley Land Council (KLC)	189
4.10.2	Yamatji Marlpa Aboriginal Corporation (YMAC)	191
4.11	SELF-IDENTIFIED FIRST NATION GROUPS	194
4.11.1	Ngarluma Yindjibarndi Foundation Ltd (NYFL)	194
4.12	LOCAL GOVERNMENT AND ELECTED PARLIAMENTARY REPRESENTATIVES, COMMUNITY GROUPS OR ORGANISATIONS	200
4.12.1	Onslow Chamber of Commerce and Industry (Onslow CCI)	200
4.12.2	Exmouth Community Liaison Group (Exmouth CLG)	201
4.12.3	Karratha Community Liaison Group (Karratha CLG)	203
4.12.4	City of Karratha	205
4.12.5	Karratha and Districts Chamber of Commerce and Industry (KDCCI)	207
4.12.6	Shire of Ashburton	208
4.12.7	Shire of Exmouth	210
4.12.8	Exmouth Chamber of Commerce and Industry	212
4.13	OTHER NON-GOVERNMENT GROUPS OR ORGANISATIONS	213
4.13.1	Telstra	213
4.14	RESEARCH INSTITUTES AND LOCAL CONSERVATION GROUPS OR ORGANISATIONS	215
4.14.1	Cape Conservation Group (CCG)	215
4.14.2	Protect Ningaloo	217
4.15	OTHER FIRST NATION GROUPS	218
4.15.1	Save our Songlines (SOS)	218
5.	TABLE 3: ENGAGEMENT REPORT WITH PERSONS OR ORGANISATIONS ASSESSED AS NOT RELEVANT	225
5.1	State Commercial Fishery	225
5.1.1	Pilbara Crab Managed Fishery	225
5.2	RESEARCH INSTITUTES AND LOCAL CONSERVATION GROUPS OR ORGANISATIONS	225
5.2.1	Australian Institute of Marine Science (AIMS)	225
5.2.2	Commonwealth Scientific and Industrial Research Organisation (CSIRO)	226
5.2.3	Western Australian Marine Science Institution (WAMSI)	227
5.2.4	University of Western Australia (UWA)	227
5.2.5	Curtin University	228
5.2.6	Murdoch University	229
5.3	OTHER NON-GOVERNMENT GROUPS OR ORGANISATIONS	229
5.3.1	350 Australia (350A)	229

5.3.2	Australian Conservation Foundation (ACF).....	230
5.3.3	Australian Marine Conservation Society (AMCS).....	230
5.3.4	Conservation Council of Western Australia (CCWA).....	231
5.3.5	Greenpeace Australia Pacific (GAP).....	232
5.3.6	Doctors for the Environment Australia (DEA).....	232
5.3.7	Market Forces.....	233
5.3.8	Australian Centre for Corporate Responsibility (ACCR)	234
6.	RECORD OF CONSULTATION.....	235
6.1	Initial Consultation	235
6.1.1	Consultation Information Sheet.....	235
6.1.2	Defence zones map.....	245
6.1.3	Summary Information Sheet	246
6.1.4	Vessel density map.....	249
6.1.5	Shipwrecks	250
6.1.6	Submarine communication cables map.....	251
6.1.7	Email sent to Australian Border Force (ABF), Pilbara Ports Authority (PPA_, 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), Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA) , Greenpeace Australia Pacific (GAP), 350 Australia (350A), Australasian Centre for Corporate Responsibility (ACCR), Doctors for the Environment Australia (DEA), Market Forces, Australian Energy Producers (AEP), Cape Conservation Group (CCG), Protect Ningaloo – 16 July 2024	251
6.1.8	Email sent to Australian Communications and Media Authority (ACMA)– 16 July 2024	253
6.1.9	Email sent to Australian Fisheries Management Authority (AFMA), North West Slope Trawl Fishery, Western Deepwater Trawl Fishery, Commonwealth Fisheries Association (CFA) – 16 July 2023	255
6.1.10	Email sent to Australian Hydrographic Office (AHO) – 16 July 2024	257
6.1.11	Email sent to Australian Maritime Safety Authority (AMSA) - Maritime Safety - 16 July 2024	259
6.1.12	Email sent to Australian Maritime Safety Authority (AMSA) - Marine Pollution – 16 July 2024	261
6.1.13	Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries– 16 July 2024	263
6.1.14	Email sent to Department of Defence (DoD) – 16 July 2024	265
6.1.15	Email sent to Department of Primary Industries and Regional Development (DPIRD) – 16 July 2024	267
6.1.16	Email sent to Department of Transport (DoT) – 16 July 2024.....	270
6.1.17	Email sent to Department of Planning, Lands and Heritage (DPLH) - 16 July 2024	271
6.1.18	Email sent to Western Australian Museum (WAM) – 16 July 2024.....	273
6.1.19	Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel) – 16 July 2024	275
6.1.20	Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEE) – 16 July 2024	278
6.1.21	Email sent to Director of National Parks (DNP) – 16 July 2024	280
6.1.22	Email sent to Telstra – 16 July 2024	282

6.1.23	Email sent to Gascoyne Recreational Marine Users , Pilbara/Kimberley Recreational Marine Users – 16 July 2024	284
6.1.24	Letter sent to Gascoyne Recreational Marine Users, Pilbara/Kimberley Recreational Marine Users – 15 July 2024	286
6.1.25	Email sent to Recfishwest, Marine Tourism WA, WA Game Fishing Association – 16 July 2024	290
6.1.26	Email sent to Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, bp Developments Australia , Carnarvon Energy, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, FINDER Energy, KUFPEC Australia, Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG; Coastal Oil and Gas / Fox Resources, OMV Australia, KATO Energy / KATO Corowa, INPEX Alpha, Longreach Capital Investment / Beagle No. 1, Skye Napoleon, J Nippon O&G Exploration (Australia) - 16 July 2024	291
6.1.27	Email sent to Shire of Exmouth, Exmouth Community Liaison, Exmouth Chamber of Commerce and Industry, City of Karratha, Karratha Community Liaison Group, Karratha and Districts Chamber of Commerce and Industry, Onslow Chamber of Commerce – 16 July 2024..	293
6.1.28	Email sent to Shire of Ashburton – 16 July 2024.....	295
6.1.29	Email sent to University of Western Australia (UWA), Curtin University, Murdoch University, Western Australian Marine Science Institution (WAMSI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Institute of Marine Science (AIMS) - 16 July 2024	298
6.1.30	Email to Buurabalyji Thalanyi Aboriginal Corporation (BTAC) – 16 July 2024	300
6.1.31	Email to Kariyarra Aboriginal Corporation (KAC) – 15 July 2024.....	301
6.1.32	Email to Murujuga Aboriginal Corporation (MAC) – 16 July 2024.....	303
6.1.33	Email to Ngarluma Aboriginal Corporation (NAC) – 12 July 2024	305
6.1.34	Email to Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) via YMAC – 16 July 2024	306
6.1.35	Email to Robe River Kuruma Aboriginal Corporation (RRKAC) – 15 July 2024	308
6.1.36	Email to Wirrawandi Aboriginal Corporation (WAC) – 15 July 2024	310
6.1.37	Email to Yindjibarndi Aboriginal Corporation – 15 July 2024	311
6.1.38	Email to Yinggarda Aboriginal Corporation (YAC) – 15 July 2024.....	313
6.1.39	Email to Kimberley Land Council (KLC) – 22 July 2024	315
6.1.40	Email to Yamatji Marlpa Aboriginal Corporation (YMAC) – 15 July 2024	316
6.1.41	Email to Ngarluma Yindjibarndi Foundation Ltd (NYFL) – 15 July 2024.....	318
6.1.42	Email to Save Our Songlines (SOS) – 15 July 2024	319
6.1.43	Email sent to Chevron Australia, Osaka Gas Gorgon, Tokyo Gas Gorgon, JERA Gorgon – 16 July 2024	321
6.2	Follow-Up Consultation.....	323
6.2.1	Email sent to Australian Border Force (ABF), Australian Fisheries Management Authority (AFMA), Australian Hydrographic Office (AHO), Australian Maritime Safety Authority (AMSA) - Marine Pollution, Department of Agriculture Fisheries and Forestry (DAFF) - Fisheries, Department of Defence (DOD), Department of Planning, Lands and Heritage (DPLH), Western Australian Museum, Pilbara Ports Authority, , Department of Agriculture Fisheries and Forestry (DAFF) - Biosecurity, Department of Climate Change, Energy, the Environment and Water (DCCEE), Director of National Parks (DNP), 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), North West Slope Trawl Fishery, Western Deepwater Trawl Fishery, Commonwealth Fisheries Association (CFA), Gascoyne Recreation Marine Users,	

Pilbara/Kimberley Recreation Marine Users, Marine Tourism WA, WA Game Fishing Association, Chevron Australia, Osaka Gas Gorgon, Tokyo Gas Gorgon, JERA Gorgon Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, KUFPEC Australia, Santos, Coastal Oil and Gas / Fox Resources, OMV Australia, KATO Energy / KATO Corowa, INPEX Alpha, Longreach Capital Investment / Beagle No. 1, Skye Napoleon, J Nippon O&G Exploration (Australia), Shire of Exmouth, Shire of Ashburton, City of Karratha, Exmouth Community Liaison Group (CLG), Karratha Community Liaison Group (CLG), Karratha & Districts Chamber of Commerce and Industry, Exmouth Chamber of Commerce and Industry, Onslow Chamber of Commerce and Industry, Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA) , Greenpeace Australia Pacific (GAP), 350 Australia (350A), Australasian Centre for Corporate Responsibility (ACCR), Doctors for the Environment Australia (DEA), Market Forces, Australian Energy Producers (AEP), Cape Conservation Group (CCG), Protect Ningaloo, University of Western Australia (UWA), Curtin University, Murdoch University, Western Australian Marine Science Institution (WAMSI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Institute of Marine Science (AIMS), Telstra - 31 July 2024.....	323
6.2.2 Letter sent to Individual Gascoyne and Pilbara/Kimberley Recreational Marine Users – 26 July 2023	325
6.3 Newspaper Advertisements	326
6.3.1 Summary Table	326
6.3.1.1 The Australian – 15 July 2024	327
6.3.1.2 The West Australian – 15 July 2024	328
6.3.1.3 Pilbara News - 17 July 2024	329
6.3.1.4 Country Man - 17 July 2024	330
6.3.1.5 North West Telegraph - 17 July 2024	331
6.3.1.6 Koori Mail - 17 July 2024	332
6.3.1.7 National Indigenous Times - 30 July 2024	333
6.4 Ngaarda Radio Advertisements	334
6.4.1 Summary Table	334
6.4.1.1 Scripts	334
6.5 Social Media	335
6.5.1 Social Media EP targeted campaign: Tiles 1 and 2	335
6.6 Community Information Sessions.....	337
6.6.1 Pilbara Region	337
6.6.1.1 Community Pop-up – 26 July 2024.....	337
6.6.1.2 FeNaCING Festival – 3-4 August 2024	341
6.6.1.3 Mack10 Fishing Competition – 23-25 August 2024.....	347
6.6.1.4 Developing Northern Australia (DNA Conference) 26-28 August 2024	347
6.6.1.5 Dampier Beachside Markets – 12 October 2024	350
6.7 Community Newsletters	357
6.7.1 Karratha Community Update.....	357
6.7.2 Let's Talk – Our Plans, Your Say	361
6.7.2.1 Let's Talk July 2024 Q3	361
6.7.2.2 Let's Talk November 2024 Q4	366

1. CONSULTATION APPROACH

Consultation under regulation 25 of the OPGGS(E) Regulations provides that 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)), must allow a relevant person a reasonable period for 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 paragraph 104). The EP must contain a report that contains 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 Julimar Operations Environment Plan (EP), Woodside has taken a broad and proactive tiered consultation approach over a period of 6 months.

This approach was aimed at raising public awareness of the consultation opportunity and to enable self-identification. It included a social media campaign and advertising in national, state, regional and Indigenous newspapers.

The tiered consultation approach discharges regulation 25 of the Environment Regulations' requirements. The approach is proactive, extended, has enabled self-identification, and has raised broad awareness of Woodside's activities related to this EP.

1.1 Tiered Consultation 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 comfortably satisfies the requirements of regulation 25: to give relevant persons sufficient information and allow a reasonable period of time for consultation (see Section 5 in the EP).
Proactive	To raise awareness of the consultation process, and to enable grass-roots consultation, Woodside undertook advertised regional consultation roadshows and facilitated consultation at regional community events.
Broad Understanding	Broad communication activities were undertaken to build awareness of consultation and enable self-identification, supported by targeted education materials.

1.2 Building on the Existing Consultation Approach

For this EP, Woodside has built on its consultation methodology and undertaken additional consultation activities throughout the consultation period to ensure a reasonable period of time and sufficient information has been provided 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 this included:

- a consultation period of up to 6 months

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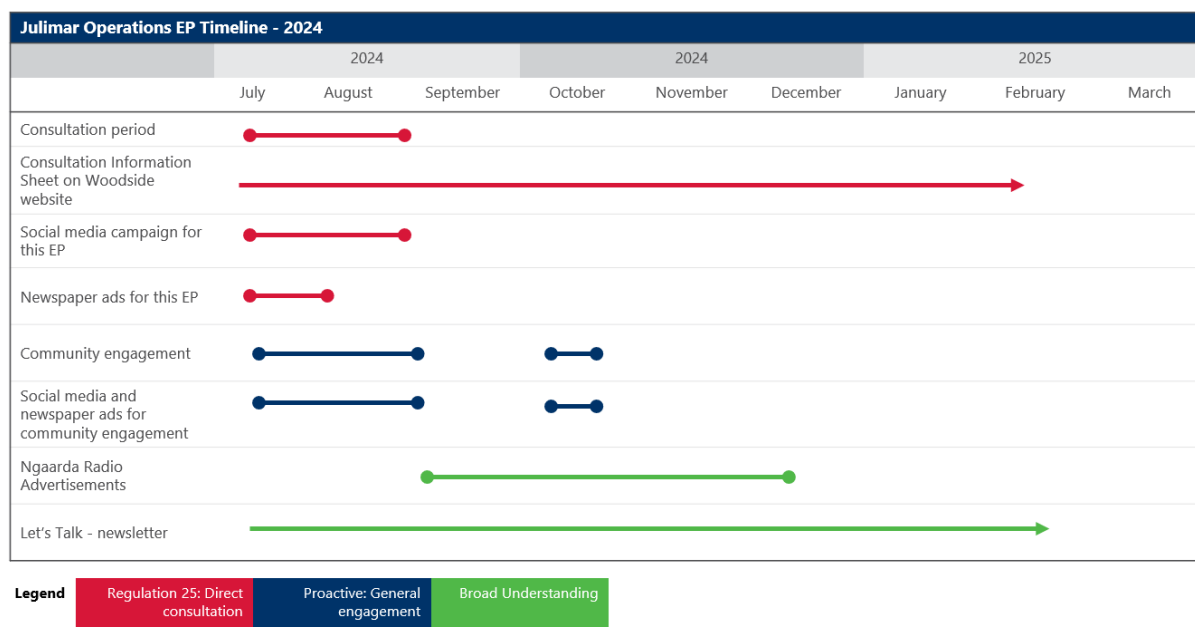
Controlled Ref No:
JU-00-RI-10006

Revision 0

Page 9 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- undertaking proactive consultation activities to provide sufficient information to relevant persons
- raising awareness of the consultation process and opportunity to provide feedback
- driving participation in the consultation process
- an overview of this approach is shown below:



1.3 Traditional Custodian Consultation Approach

Woodside's aim is to have meaningful, long-term relationships with relevant Traditional Owners which support consultation, are continuous and not confined to individual EPs. Through these relationships, Woodside aims to consult on its portfolio of EPs and provide a forum for discussion about other issues. Woodside has meaningful long-term relationships with relevant Traditional Owners specifically tailored to provide for effective engagement which is continuous and is not confined to individual EPs, instead covering all EPs and other issues that are relevant at the time of engagement.

To this end, consultation on any particular EP, including the Julimar Operations EP, happens before, during and after the designated consultation period in a more holistic manner allowing for an understanding of the bigger picture and accommodating cultural requirements. Ongoing consultation remains an important part of consulting with Traditional Custodians based on availability, cultural protocols and the preferred method of consultation for each relevant person.

Since as early as February 2024, where requested, Woodside has been working with nominated representative bodies to develop Consultation Agreement Frameworks which aim to enable each group to be consulted in a manner requested by the group.

1.4 NGO Consultation Approach

Woodside has an established history of consulting with environmental non-government organisations (NGOs) as part of its EP consultation. In its methodology (Section 5.3.4, Table 5-2), NGOs are considered "Other non-government groups or organisations" and "Research

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Controlled Ref No:
JU-00-RI-10006

Revision 0

Page 10 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 activities relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation.

So that NGOs were given sufficient information and a reasonable period of time to consult, Woodside:

- advertised the consultation period (social and traditional media)
- directly consulted NGOs.

1.5 NGO response

During consultation for the Julimar Operations EP, no responses from NGOs were received.

2. RELEVANCY ASSESSMENT

2.1 Table 1: Assessment of Relevance

Person or Organisation	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 maybe 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. No Commonwealth fisheries are active in the Operational Area. The North West Slope Trawl Fishery and Western Deepwater Trawl Fishery are active in the Environment That May Be Affected (EMBA). AFMA's responsibilities may be relevant to the activity as the North West Slope Trawl Fishery and Western Deepwater Trawl Fishery are active in 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 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

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 12 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Australian Maritime Safety Authority (AMSA) – Maritime 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
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. No Commonwealth fisheries are active in the Operational Area. The North West Slope 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 Trawl Fishery and Western Deepwater Trawl Fishery are active in 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 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
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. The Mackerel Managed Fishery (Area 2), Marine Aquarium Managed, Onslow Prawn Managed Fishery Pilbara Trap Managed Fishery, Pilbara Line Fishery have been active in the Operational Area within the last five years. The West Australian Sea Cucumber Fishery, Exmouth Gulf Prawn Managed Fishery, Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Nickol Bay Prawn Managed Fishery, Onslow Prawn Managed Fishery, Pilbara Crab Managed Fishery, Pilbara fish Trawl Managed Fishery, Pilbara Trap Managed Fishery, Pilbara Line Fishery (Condition), Specimen Shell Managed Fishery and West Coast Deep Sea Crustacean Managed Fishery have been active in the EMBA within the last 5 years. DPIRD’s responsibilities may be relevant to the activity as the government department responsible for State fisheries.	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 13 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

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
Pilbara Ports Authority (PPA)	PPA encompasses the Ports of Ashburton, Dampier, Port Hedland and Varanus Island. PPA oversees the operation of the greenfield ports of Anketell, Balla Balla, Cape Preston East, Cape Preston West and Urala. PPA oversees the Shipping and Pilotage Act 1967 (SPA) ports of Barrow Island, Cape Preston, Onslow and Port Walcott.	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 EMBA overlaps the Pilbara Ports Authority's area of responsibility.	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 'Historical cultural heritage groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There is known shipwrecks overlapping the EMBA which the Western Australian Museum may be responsible for.	Yes
Commonwealth and WA State Government Departments or Agencies – Environment			
Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)	DAFF administers, implements and enforces the <i>Biosecurity Act 2015</i> . The Department requests to be consulted where an activity has the potential to transfer marine pests. DAFF also has inspection and reporting requirements to ensure that all conveyances (vessels, installations and aircraft) arriving in Australian	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. DAFF – Biosecurity's responsibilities may be relevant to the proposed activities in the EMBA in the prevention of introduced marine species.	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 14 of 370

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	territory comply with international health regulations and that any biosecurity risk is managed. 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.		
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 DBCA's responsibilities may be relevant to the activity as EMBA overlaps WA parks, forests or reserves. Activities have the potential to impact marine tourism in the EMBA.	Yes
Department of Climate Change, Energy, the Environment and Water (DCCEEW)	Responsible for implementing Commonwealth policies and programs to support climate change, sustainable energy use, water resources, the environment and our heritage. Administers the Underwater <i>Cultural Heritage Act 2018</i> 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.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. DCCEEW's responsibilities may be relevant to the proposed activities in the EMBA as there are potential environmental impacts from the proposed activity. There is known Maritime Cultural Heritage overlapping the EMBA.	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 15 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 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
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 NCWHAC's responsibilities may be relevant to the activity as the EMBA overlaps the Ningaloo Marine Park.	Yes
Commonwealth and State Government Departments or Agencies – Industry			
Department of Energy, 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
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
Commonwealth Commercial fisheries and peak representative bodies			
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	Represents the interests of the Southern Bluefin Tuna Fishery and Western Skipjack 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 Southern Bluefin Tuna Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the Southern Bluefin Tuna Fishery, the ASBTIA has also been assessed as not relevant.	No
Commonwealth Fisheries Association (CFA)	Represents the interests of commercial fishers with licences in Commonwealth waters	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. No fisheries are active in the Operational Area. The North West Slope Trawl Fishery and Western Deepwater Trawl Fishery are active in the EMBA.	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 16 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

		CFA's functions may be relevant to the activity as the North West Slope Trawl Fishery and Western Deepwater Trawl Fishery are active in the EMBA.	
North West Slope Trawl Fishery	Commonwealth 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 Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
Pearl Producers Association (PPA)	Peak representative organisation of The Australian South Sea Pearling Industry, with members in Western Australia and the Northern Territory	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 Pearl Oyster Managed Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the Pearl Oyster Managed Fishery, the PPA has also been assessed as not relevant.	No
Southern Bluefin Tuna Fishery	Commonwealth 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. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. Woodside does not consider that the proposed activity will present a risk to licence holders, given since 1992, the majority of Australian catch has concentrated in south-eastern Australia. (Patterson et al., 2022). In addition, given fishing methods by licence holders for species fished in this fishery (Australia has a 35% share of total global allowable catch of Southern Bluefin Tuna, which is value-added through tuna ranching near Port Lincoln (South Australia), or fishing effort in New South Wales (Australian Southern Bluefin Tuna Industry Association).	No
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. The Western Tuna and Billfish Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the Western Tuna and Billfish Fishery, Tuna Australia has also been assessed as not relevant.	No
Western Deepwater Trawl Fishery	Commonwealth 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 Operational Area. The fishery overlaps EMBA and has been active in the EMBA within the last 5 years.	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 17 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Western Skipjack 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>Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years.</p> <p>Woodside does not consider that the activity will present a risk to licence holders, given the fishery spans the Australian Fishing Zone west of Victoria and the Torres Strait. The Fishery is not currently active and no fishing has occurred since 2009 (Patterson et al., 2022). In addition, interactions are not expected given the species' pelagic distribution fishing methods for species fished by licence holders.</p>	No
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>Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years.</p>	No
State Commercial fisheries and peak representative bodies			
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>Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Onslow Prawn Managed Fishery, Pilbara Trap Managed Fishery and Pilbara Line Fishery have been active in the Operational Area within the last five years.</p> <p>The West Australian Sea Cucumber Fishery, Exmouth Gulf Prawn Managed Fishery, Mackerel Managed Fishery (2), Marine Aquarium Managed Fishery, Nickol Bay Prawn Managed Fishery, Onslow Prawn Managed Fishery, Pilbara Crab Managed Fishery, Pilbara Trawl Fishery, Pilbara Trap Fishery, Pilbara Line Fishery, Specimen Shell Managed Fishery and West Coast Deep Sea Crustacean Managed Fishery have been active in the EMBA within the last 5 years.</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> <p>Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting, via WAFIC, fisheries that are assessed as having a potential for interaction in the Operational Area.</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 be undertaken only in the event of an unplanned emergency scenario.</p>	Yes

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Abalone 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. Although the fishery overlaps the Operational Area and EMBA, the fishery has not been active in the Operational Area or EMBA within the last 5 years.	No
Developmental Octopus Interim 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 does not overlap the Operational Area or the EMBA.	No
Exmouth Gulf Prawn 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 does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years. While Woodside assessed the fishery as relevant in the EMBA, WAFIC has advised there is no need to consult this fishery given the proposed activities. 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	No
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 Operational Area or the 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. The fishery does not overlap the Operational Area or the EMBA.	No
Mackerel Managed Fishery (Area 2 and 3)	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. 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 Mackerel Managed Fishery (Area 2) overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. The Mackerel Managed Fishery (Area 3) is in the EMBA but has not been active in the last 5 years.	Yes (Area 2)

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 19 of 370

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		<p>Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting Mackerel Managed Fishery (Area 2), via WAFIC, fisheries that are assessed as having a potential for interaction in the Operational Area.</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>	
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 it has been active in the Operational Area and the EMBA within the last 5 years.</p> <p>While Woodside assessed the fishery as relevant in the Operational Area, WAFIC has advised there is no need to consult this fishery. The proposed activities operate in depths ~71-192 m which is outside the depth of the hand collection and diving methods used by this fishery.</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>	No
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.</p> <p>While Woodside assessed the fishery as relevant in the EMBA, WAFIC has advised there is no need to consult this fishery given the proposed activities.</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>	No
Northern Demersal Scalefish 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 or the EMBA.</p>	No
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>	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 20 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

		<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>Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting, via WAFIC, fisheries that are assessed as having a potential for interaction in the Operational Area.</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>	
Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions	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 or the EMBA.</p>	No
Pearl Oyster 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>Although the fishery overlaps the Operational Area and EMBA, the fishery has not been active in the Operational Area or EMBA within the last 5 years.</p>	No
Pilbara Crab 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 but has not been active within the last 5 years. It 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>While Woodside assessed the fishery as relevant in the EMBA, WAFIC has advised there is no need to consult this fishery given the proposed activities.</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>Woodside chose to have WAFIC contact Pilbara Crab Managed Fishery at its discretion in line with Section 5.3.7.</p>	No
Demersal Scalefish Fishery: Pilbara Trawl 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 but has not been active in the past 5 years. It overlaps the EMBA and has been active in the EMBA within the past 5 years.</p>	No

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 21 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

		<p>While Woodside assessed the fishery as relevant in the EMBA, WAFIC has advised there is no need to consult this fishery given the proposed activities.</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>	
Demersal Scalefish Fishery: Pilbara Trap 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>Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting, via WAFIC, fisheries that are assessed as having a potential for interaction in the Operational Area.</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>	Yes
Demersal Scalefish Fishery: Pilbara Line 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>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>Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting, via WAFIC, fisheries that are assessed as having a potential for interaction in the Operational Area.</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>	Yes
Shark Bay Crab 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 or the EMBA.</p>	No
Shark 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>	No

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 22 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

		The fishery does not overlap the Operational Area or the EMBA.	
Shark Bay Scallop 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 does not overlap the Operational Area or the EMBA.	No
South West Coast Salmon 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 the EMBA, but it has not been active within the last 5 years. Woodside does not consider that the activity will present a risk to licence holders, given fishers are active south of Perth and from the beach (previous WAFIC advice). Further, no fishing occurs north of the Perth Metropolitan Area and therefore, no effort occurs within the Operational Area or EMBA.	No
Specimen Shell 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 but has not been active within the last 5 years. It overlaps the EMBA and has been active in the EMBA within the past 5 years. While Woodside assessed the fishery as relevant in the EMBA, WAFIC has advised there is no need to consult this fishery given the proposed activities. 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.	No
West Coast Deep Sea Crustacean 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 but has not been active within the last 5 years. It overlaps the EMBA and has been active in the EMBA within the past 5 years. While Woodside assessed the fishery as relevant in the EMBA, WAFIC has advised there is no need to consult this fishery given the proposed activities. 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.	No

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 23 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

West Coast 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 Operational Area or EMBA.	No
West Coast Rock Lobster 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 Operational Area. The fishery overlaps the EMBA, but has not been active in the past 5 years. Woodside does not consider that the activity will present a risk to licence holders, given fishers are active south of Perth and from the beach (previous WAFIC advice). Further, no fishing occurs north of the Perth Metropolitan Area and therefore, no effort occurs within the Operational Area or EMBA.	No
Western Australian Sea Cucumber 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 is not in the Operational Area. The fishery has been active in the EMBA in the last 5 years. While Woodside assessed the fishery as relevant in the EMBA, WAFIC has advised there is no need to consult this fishery given the proposed activities. 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.	No
Western Rock Lobster Council	Represents the interests of the Western Rock Lobster Managed 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 West Coast Rock Lobster Managed Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the West Coast Rock Lobster Managed Fishery, the Western Rock Lobster Council has also been assessed as not relevant.	No
Recreational marine users and peak representative bodies			
Gascoyne Recreational Marine Users	Gascoyne-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. Andro Maritime Services Australia, Aquatic Adventure Exmouth, Birds Eye View, Blue Horizon Charters, Blue Lightning Charters, 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, Indian Chief Charters, Innkeeper Sport Fishing,	Yes

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		<p>Innkeeper Sport Fishing Charter, Kings Ningaloo Reef Tours, Live Ningaloo, Mahi 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, Peak Sportfishing Charters, Pelican Charters, Sail Ningaloo, Sea Force Charters, Set The Hook, Three Islands, Top Gun Charters, Ultimate Watersports, Venture Ningaloo, View Ningaloo, Warrior Princess Charters, Yardi Creek Boat Tours, Aoa International Pty Ltd, , Austanley Pty Ltd, Blue Juice Tours Pty Ltd, Bondall Pty Ltd, C Emery Fishing Pty Ltd, Chapel Nominees Pty Ltd, D & N Nominees Pty Ltd, Eco-Abrolhos Pty Ltd, Fawesome Expeditions Pty Ltd, Fire Tiger Pty Ltd, G. C. Bass nominees Pty Ltd, Jostan Holdings Pty Ltd, Km Charters Pty Ltd, Kw Marine Pty Ltd, L & S Family Holdings Pty Ltd, Lulamanzi Investments Pty Ltd, Lyons Family Super Pty Ltd, Makalee Pty Ltd, Maritime Engineering Services Pty Ltd, Melkit Pty Ltd, Millennial Charters Pty Ltd, Monkey Mia Yacht Charters Pty Ltd, Monster Sportfishing Adventures Pty Ltd, , North Star Cruises Australia Pty Ltd, On Strike Charters (Wa) Pty Ltd, Reel Force Charters Pty Ltd, Regalchoice Holdings Pty Ltd, Seafresh Holdings Pty Ltd, Sharkbay Charters Pty Ltd, Surefire Marine Services Pty Ltd, The Great Escape Charter Company Pty Ltd, W.A Maritime Investments 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>	
Marine Tourism WA	Represents the interests of marine tourism in WA.	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(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
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> <p>Marine Rescue Dampier, Port Walcott Volunteer Marine Rescue , West Pilbara Volunteer Sea Search and Rescue Group, Archipelago Adventures, Hampton Harbour Boat & Sailing Club, Port Walcott Yacht Club , Reef Seeker Charters, King Bay Game Fishing Club, Nickol Bay Sport Fishing Club, Bardina Pty Ltd, Down the Line Charters Pty Ltd, Mackerel Islands Pty Ltd, Ocean Charters Pty Ltd, Serenity Isles Trading Company Pty Ltd, Wyndham Fishing Tours Pty Ltd, Charter Travel Company Pty Ltd, Kw Marine Pty Ltd, Norbrick Pty Ltd, Sail Ningaloo Pty Ltd, Tiffom Pty Ltd, Aoa International Pty Ltd, Australian Port And Marine Services Pty Ltd, Bloor Street Investments Pty Ltd, Blue Juice Tours Pty Ltd, Bondall Pty Ltd, Brefjen Nominees Pty Ltd, Broome Chiropractic Pty Ltd, Broome Tours Pty Ltd, C Emery Fishing Pty Ltd, Chapel Nominees Pty Ltd, Charter Express Pty Ltd, CM Ventures Pty Ltd, Coastway Investments Pty Ltd, Coral</p>	Yes

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		<p>Princess Cruises (Nq) Pty Ltd, Discovery Holiday Parks Pty Limited, Diversity Charter Company Wa Pty Ltd, Eco-Abrolhos Pty Ltd, Fawesome Expeditions Pty Ltd, G. C. Bass nominees Pty Ltd, Hartley Motorcycles Pty Ltd, Hotel And Resort Investments Pty Ltd, Humbug Fishing Pty Ltd, Kcc Group Pty Ltd, Kimberley Getaway Cruises Pty Ltd, Kimberley Marine Pty Ltd, Kimberley Quest Adventures Pty Ltd, King Sound Resort Hotel Pty Ltd, Kw Marine Pty Ltd, L & S Family Holdings Pty Ltd, Lake Argyle Cruises Pty Ltd, Lombadina Aboriginal Corporation, Lugger Enterprises Pty Ltd, Lulamanzi Investments Pty Ltd, Mackerel Islands Pty Ltd, Mal Miles Adventures Pty Ltd, Marine Agents Australia Pty Ltd, Maritime Engineering Services Pty Ltd, Melkit Pty Ltd, Millennial Charters Pty Ltd, Monster Sportfishing Adventures Pty Ltd, North Star Cruises Australia Pty Ltd, Ocean Charters Pty Ltd, RSTG Pty Limited, Sea 2 Pty Ltd, Sealife Charters Pty Ltd, Split Tide Pty Ltd, , Super Yachts Perth Pty Ltd, The Great Escape Charter Company Pty Ltd, W.A Maritime Investments Pty Ltd, Willie Creek Pearl Farm Pty Ltd</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>	
Recfishwest	Represents the interests of recreational fishers in WA.	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(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
WA Game Fishing Association	Represents the interests of game fishers in WA.	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.</p> <p>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.</p>	Yes
Titleholders and Operators			
BP Developments Australia	Titleholder or Operator	<p>Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Titleholder or Operator's permit areas overlaps the EMBA.</p>	Yes
Carnarvon Energy	Titleholder or Operator	<p>Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Titleholder or Operator's permit areas overlaps the EMBA.</p>	Yes
Chevron Australia	Titleholder or Operator	<p>Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Titleholder or Operator's permit areas overlaps the EMBA.</p>	Yes

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Coastal Oil and Gas (outreach through Fox Resources)	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
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
Finder Energy No 16	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	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
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.	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 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
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
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

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 27 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Longreach Capital Investments/Beagle No 1 Pty 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
OMV 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.	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
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
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
Skye Napoleon / Skye Resources	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
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.	Yes
Western 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

Peak Industry Representative Bodies

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 28 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Australian Energy Producers (AEP)	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			
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 is coastally adjacent to the EMBA, for which BTAC is the Registered Native Title Body Corporate. BTAC is also party to the Macedon Indigenous Land Use Agreement (the ILUA), which is coastally adjacent to the EMBA.	Yes
Kariyarra Aboriginal Corporation (KAC)	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 is coastally adjacent to the EMBA, for which the Kariyarra Aboriginal Corporation is the Registered Native Title Body Corporate. The KAC is also party to the Kariyarra and State ILUA, which is coastally adjacent to the EMBA.	Yes
Murujuga Aboriginal Corporation (MAC)	Representative Aboriginal Corporation	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. 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 National Heritage Place and is progressing the World Heritage nomination of the Murujuga Cultural Landscape.	Yes
Nganhurra Thanardi Garbu 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.	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 29 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

		<p>The NTGAC and Yinggarda Aboriginal Corporation (YAC) are the Registered Native Title Bodies Corporate holding native title on behalf of the Baiyungu, Thalanyji and Yinggarda people.</p> <p>The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim, which the Baiyungu, Thalanyji and Yinggarda people are party to, overlaps the EMBA.</p> <p>The NTGAC is also party, with the West Australia (WA) State Government, to the Ningaloo Conservation Estate ILUA, which is coastally adjacent to the EMBA.</p> <p>NTGAC is responsible for the joint management of the inner Ningaloo Marine Park (State Waters), the Cape Range National Park and new conservation areas extending along the Ningaloo Coast, which runs in parallel to the outer Ningaloo Marine Park in Commonwealth waters.</p> <p>The NTGAC's nominated representative is the Yamatji Marlpa Aboriginal Corporation (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.</p>	
Ngarluma Aboriginal Corporation (NAC)	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 Ngarluma/Yindjibarndi People native title claim is coastally adjacent to the EMBA, for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Bodies Corporate.</p> <p>NAC is also party to the Anketell Port, Infrastructure corridor and Industrial Estates Agreement and the RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement), which are coastally adjacent to the EMBA.</p>	Yes
Robe River Kuruma 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 Robe River Kuruma Aboriginal Corporation is party to the KM & YM Indigenous Land Use Agreement 2018, which overlaps the EMBA.</p>	Yes
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 Yaburara & Mardudhunera People native title claim is coastally adjacent to the EMBA, for which WAC is the Registered Native Title Body Corporate.</p> <p>WAC is party to the Cape Preston Project Deed (YM Mardie ILUA), Cape Preston West Export Facility and KM & YM Indigenous Land Use Agreement 2018, which are coastally adjacent to the EMBA.</p>	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 30 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Yindjibarndi 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 Ngarluma/Yindjibarndi People native title claim is coastally adjacent to the EMBA, for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Bodies Corporate.	Yes
Yinggarda Aboriginal Corporation (YAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d). The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim, which the Baiyungu, Thalanyji and Yinggarda people are party to, overlaps the EMBA. The NTGAC and YAC are the Registered Native Title Bodies Corporate holding native title on behalf of the Baiyungu, Thalanyji and Yinggarda people.	Yes
Native Title Representative Bodies			
Kimberley Land Council (KLC)	Native Title Representative Body	Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 25(1)(d) of the Environment Regulations. KLC is the Native Title Representative Body for the Kimberley region 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. KLC'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.	Yes
Yamatji Marlpa Aboriginal Corporation (YMAC)	Native Title Representative Body	Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 25(1)(d) of the Environment Regulations. 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. The NTGAC's nominated representative is YMAC. Woodside has therefore consulted the NTGAC via YMAC. YMAC is party to the Ashburton Salt Project ILUA which is adjacent to the EMBA and the Ningaloo Conservation Estate ILUA which overlaps the EMBA. 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. 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.	Yes

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Self-identified First Nations groups			
Ngarluma Yindjibarndi Foundation Ltd (NYFL)	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 Ngarluma and Yindjibarndi People, the NWS Joint Venture's and Woodside entered into an agreement on 22 December 1998 (Agreement).</p> <p>NYFL was subsequently incorporated under the terms of the Agreement to act as trustee for the trust established to benefit the Ngarluma and Yindjibarndi People and the Roebourne Aboriginal Community.</p> <p>Subsequent to that, the Ngarluma people settled their native title claim and established their nominated representative corporation, the Ngarluma Aboriginal Corporation Prescribed Body Corporate (PBC); and the Yindjibarndi people settled their native title claim and established their nominated representative corporation, the Yindjibarndi Aboriginal Corporation (PBC). The Ngarluma Aboriginal Corporation and the Yindjibarndi Aboriginal Corporation are the appropriate representative bodies for consultation in relation to cultural interests.</p> <p>NYFL's functions may be relevant to the proposed activity in relation to its functions under the Agreement.</p>	Yes
Local government and elected Parliamentary representatives, community groups or organisations			
Onslow 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 Onslow and surrounding areas.	<p>Woodside has applied its methodology for 'Local government and 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>	Yes
Exmouth Community Liaison Group (CLG)	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>Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.</p> <p>Base Marine, Bhagwan Marine, Cape Conservation Group Inc, Cape Range Riders, DBCA, Department of Defence, Department of Transport, Exmouth Bus Charter, Exmouth Chamber of Commerce and Industry, Exmouth District High School, Exmouth Escape Resort, 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 Centre, Ningaloo Lodge, Ningaloo</p>	Yes

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 32 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

		Coast World Heritage Advisory Council, PHI Aviation, Offshore Unlimited, Shire of Exmouth, Santos, Terraforma Offshore, WA Country Health Service. The Exmouth CLG's area of responsibility under its terms of reference overlaps the EMBA.	
Karratha Community Liaison Group (CLG)	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.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Karratha CLG's area of responsibility under its terms of reference does not overlap the EMBA. 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)*. *NFYL and MAC were consulted directly as described above. Under regulation 25(1)(e), Woodside, at its discretion, chose to assess the KLG as a relevant person.	Yes
Karratha and 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.so we	Yes
City of Karratha	Local government governed by the <i>Local Government Act 1995</i> 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.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The City of Karratha's area of responsibility overlaps the EMBA.	Yes

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Shire of Ashburton	Local government governed by the <i>Local Government Act 1995</i> representing the suburbs and localities of Onslow, Pannawonica, Paraburdoo and Tom Price.	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 Ashburton's area of responsibility overlaps the EMBA.	Yes
Shire of Exmouth	Local government governed by the <i>Local Government Act 1995</i> representing the suburbs and localities of Exmouth, Learmonth and North West Cape.	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 Exmouth's area of responsibility overlaps the EMBA.	Yes
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 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
Other First Nations Groups			
Save Our Songlines (SOS) and/or Individual 1	Representatives of Non-Government Organisation Save Our Songlines and/or Individual 1	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' and 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Save Our Songlines (SoS) and/or [Individual 1] relevance for the proposed activity. Save Our Songlines and/or [Individual 1] stated interest is to stop or pause Scarborough gas and to stop new industry on the Burrup; and oppose planned expansion of the Burrup Hub industry by Woodside, Perdaman and Yara. In addition, their stated interests also include the protection of Murujuga rock art. As Save Our Songlines have raised concerns relating to the processing of greenhouse gases on Murujuga, Woodside considers that Save Our Songlines and/or [Individual 1] are relevant for this activity.	Yes
Other non-government groups or organisations or individuals			

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 34 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Australian Conservation Foundation (ACF)	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 Australian Conservation Foundation's (ACF) relevance for the proposed activity.</p> <p>Woodside has assessed that ACF does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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>Woodside chose to ACF at its discretion in line with Section 5.3.7.</p>	No
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(1)(d) of the Environment Regulations to Australian Marine Conservation Society's (AMCS) relevance for the proposed activity.</p> <p>Woodside has assessed that AMCS does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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>Woodside chose to contact AMCS at its discretion in line with Section 5.3.7.</p>	No
Conservation Council of Western Australia (CCWA)	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 Conservation Council of Western Australia's (CCWA) relevance for the proposed activity.</p> <p>Woodside has assessed that CWA does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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>Woodside chose to contact CWA at its discretion in line with Section 5.3.7.</p>	No
Greenpeace Australia Pacific (GAP)	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 Conservation Council of Western Australia's (CCWA) relevance for the proposed activity.</p> <p>Woodside has assessed that CWA does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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>Woodside chose to contact CWA at its discretion in line with Section 5.3.7.</p>	No

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 35 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

350 Australia (350A)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to 350 Australia's (350A) relevance for the proposed activity. Woodside has assessed that 350A does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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). Woodside chose to contact 350A at its discretion in line with Section 5.3.7 of the EP.	No
Australasian Centre for Corporate Responsibility (ACCR)	Non-government organisation	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 Australasian Centre for Corporate Responsibility's (ACCR) relevance for the proposed activity. Woodside has assessed that ACCR does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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). Woodside chose to contact ACCR at its discretion in line with Section 5.3.7.	No
Doctors for the Environment Australia (DEA)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to Doctors for the Environment Australia's (DEA) relevance for the proposed activity. Woodside has assessed that DEA does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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). Woodside chose to contact DEA at its discretion in line with Section 5.3.7.	No
Friends of Australian Rock Art. Inc (FARA)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations or individuals' under regulation 25(1)(d) of the Environment Regulations to Friends of Australian Rock Art. Inc's (FARA) relevance for the proposed activity. Woodside has assessed that FARA does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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).	No
Market Forces	Non-government organisation	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.	No

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 36 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

		<p>Woodside has assessed that Market Forces does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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>Woodside chose to contact Market Forces at its discretion in line with Section 5.3.7.</p>	
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 Sea Shepherd Australia's (SSA) relevance for the proposed activity.</p> <p>Woodside has assessed that SSA does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to 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
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 Telstra 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' relevance for the proposed activity.</p> <p>There are no known Vocus communication cables that intersect within the Operational Area.</p>	No
Research institutes and local conservation groups or organisations			
Australian Institute of Marine Science (AIMS)	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 is no known research being undertaken by AIMS that intersects within the EMBA.</p> <p>Woodside chose to contact AIMS at its discretion in line with Section 5.3.7 of the EP.</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.</p> <p>There is no known research being undertaken by the CSIRO that intersects within the EMBA.</p> <p>Woodside chose to contact CSIRO at its discretion in line with Section 5.3.7 of the EP.</p>	No

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Controlled Ref No: JU-00-RI-10006

Revision 0

Page 37 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Western Australian Marine Science Institution (WAMSI)	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 is no known research being undertaken by the WAMSI that intersects within the EMBA. Woodside chose to contact WAMSI at its discretion in line with Section 5.3.7 of the EP.	No
Curtin University	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 is no known research being undertaken by Curtin University that intersects within the EMBA. Woodside chose to contact Curtin University at its discretion in line with Section 5.3.7 of the EP.	No
Murdoch University	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 is no known research being undertaken by Murdoch University that intersects within the EMBA. Woodside chose to contact Murdoch University at its discretion in line with Section 5.3.7 of the EP.	No
University of Western Australia (UWA)	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 is no known research being undertaken by the UWA that intersects within the EMBA. Woodside chose to contact UWA at its discretion in line with Section 5.3.7 of the EP.	No
Cape Conservation Group (CCG)	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. 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. 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: JU-00-RI-10006

Revision 0

Page 38 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

2.2 Assessment of Relevant Persons for the Proposed Activity

The result of Woodside's assessment of relevant persons in accordance with regulation 25 (1) of the Environment Regulations is outlined below at Table 1 and Table 2.

Persons or organisations that Woodside assessed as not relevant but nonetheless chose to contact at its discretion in accordance with Section 5.3.4 in the EP or self-identified and Woodside assessed as not relevant are summarised below at Table 1 and Table 3.

As per Woodside's methodology (Section 5 in the EP), assessment of relevant persons is informed by the EMBA, shown in Figure 2-1.

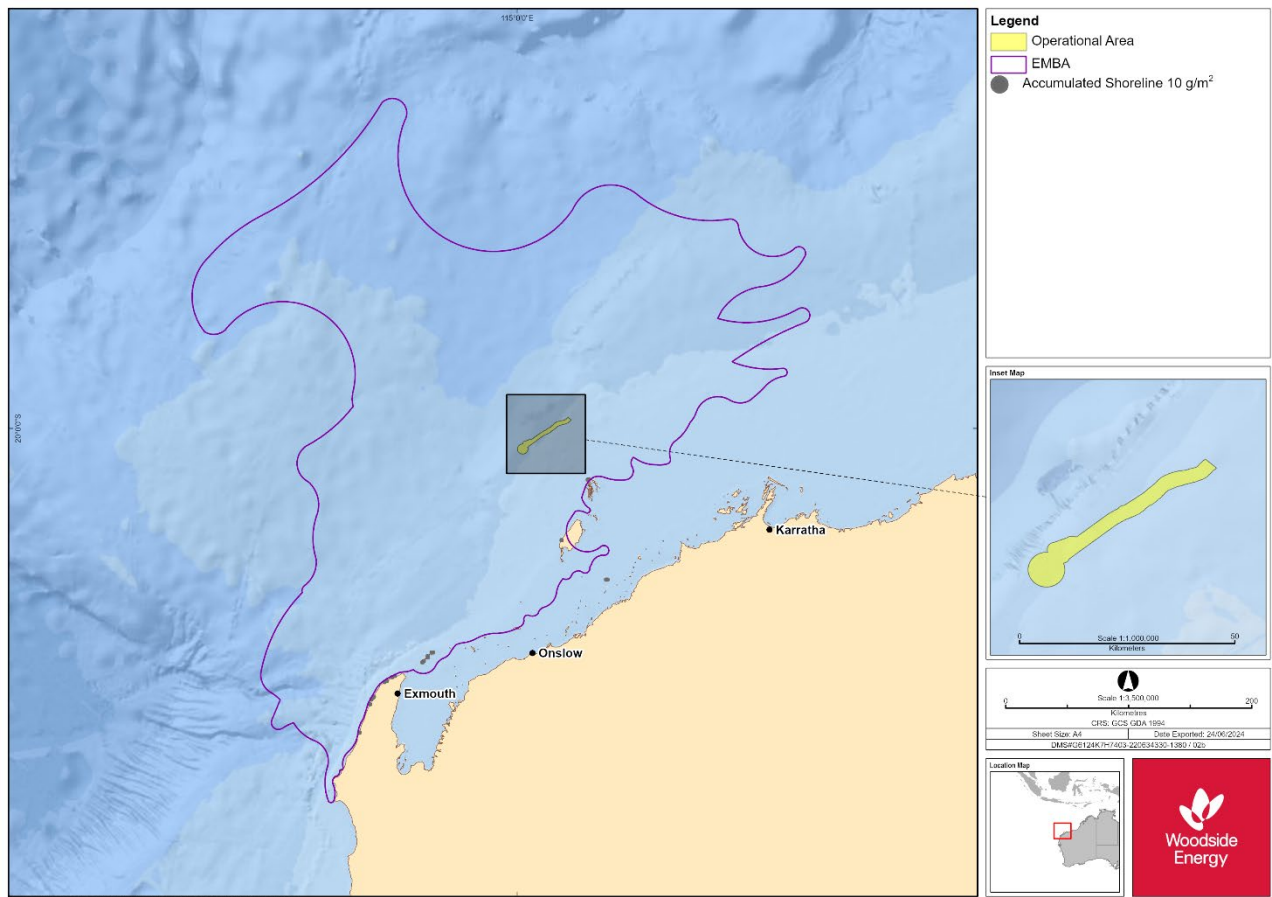


Figure 2-1: Operational Area and EMBA for this EP

3. CONSULTATION ACTIVITIES

3.1 Julimar Operations EP Consultation Activities

Woodside has been conducting extensive consultation with relevant persons and other parties for this EP since July 2024 when consultation commenced with interested and affected stakeholders as part of a planned, integrated and consistent approach to stakeholder engagement for Woodside's proposed activities.

A broad consultation process has been undertaken with relevant persons for the Julimar Operations EP. Consultation aims to be inclusive, transparent, voluntary, respectful and two-way. Consultation was undertaken by email, letter, phone call and/or meetings and through advertising.

3.2 Discharging Regulation 25 of the Environment Regulations

Woodside advertised the planned activities proposed for this EP in national, state and relevant local newspapers with an estimated readership of more than 853,000. Regional newspapers do not require subscription and are available directly to households. All communities within or adjacent to the EMBA were targeted during consultation with advertising schedule.

No direct comments or feedback were received from the advertisements.

Newspaper	Coverage & readership	Publication dates
The Australian	National (464,000)	15 July 2024
The West Australian	Metro (WA) (349,000)	15 July 2024
Pilbara News	Regional (WA) (17,611)	17 July 2024
Country Man	Regional (WA) (14,474)	17 July 2024
North West Telegraph	Regional (WA) (8,154)	17 July 2024
Koori Mail	Indigenous	17 July 2024
National Indigenous Times	Indigenous	30 July 2024

A Consultation Information Sheet was provided to relevant persons and persons Woodside chose to contact (see Section 5.3.4 in the EP). The Consultation Information Sheet included details including an activity overview, maps, a summary of key risks and/or impacts and management measures (Record of Consultation, reference 6.1.1).

Since the commencement of the initial consultation period (15 July 2024), the Consultation Information Sheet has been available on Woodside's website. The Woodside Consultation Information Sheets include a toll-free 1800 phone number and Woodside's feedback email address (feedback@woodside.com).

The Woodside [Consultation Activities](#) webpage (accessible on the Consultation Information Sheet via a QR code, banners at community events and via social media content and advertisements) includes Consultation Information Sheets for the EPs on which Woodside is currently consulting, including this EP. The website page also features a subscribe field for EP-focused communications from Woodside.

Additional targeted information was provided to select relevant persons based on their roles and responsibilities such as a vessel density map (Record of Consultation, reference 6.1.3), GIS shape files, shipwreck information (Record of Consultation, reference 6.1.5.), a submarine

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communication cable map (Record of Consultation, reference 6.1.6) and a defence zone map (Record of Consultation, reference 6.1.2).

The relevant persons had a 30-day period in which to provide feedback.

Where appropriate, Woodside conducted phone calls and meetings with relevant persons.

Where appropriate, targeted follow-up emails were sent to relevant persons and persons Woodside chose to contact who had not provided a response prior to the close of the target 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 5.2 in the EP).

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 (see Section 5.3.4 in the EP) or self-identified and Woodside assessed as not relevant are summarised at Appendix F, Table 3.

From 15 July 2024, Woodside commenced a geotargeted sponsored social media campaign (Record of Consultation, reference 6.4) covering various local government authorities within, or coastally adjacent to, the EMBA for the proposed activities. The campaign brought the proposed activities to the attention of persons who may be interested and advised persons or organisations on how they can find out about Woodside's proposed activities by visiting Woodside's website.

Platform	Geotargeted Reach	Dates	Impact
Meta: Facebook & Instagram	Exmouth, Marble Bar, Newman, Nullagine, Onslow, Port Hedland, Tom Price, Karratha, Paraburdoo, Coral Bay, Balla Balla, Indee, Lyndon, Milstream Chister National Park, Mulga Downs, Nanutarra, Pannawonica, Cape Keraudren, Yannarie, Pilbara Region	15 July 2024 – 17 August 2024	Reach: 298,288 Frequency: 2.23 Impressions: 663,940 Clicks: 1974 Click Through Rate: 0.59%

Below is a summary of comments and reactions to the social media campaign. Comments and reactions are not available for Instagram.

Platform	Number of reactions	Number of comments	Comments Relevant to EP
Meta - Facebook	193 👍 3 shares	54	0

3.3 Proactive Consultation

3.3.1 Community engagement

The community information sessions or community events that Woodside has conducted or attended are outlined below and captured in more detail in Record of Consultation, reference 6.5. Woodside published advertisements ahead of these sessions and events in relevant local newspapers and on social media to support attendance.

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Date (2024)	Location	Event (if applicable)
26 July 2024	Karratha	Community pop-up at Lo's Cafe
3-4 August 2024	Karratha	FeNaCING Festival 2024
24-25 August 2024	Onslow	Onslow Mack10 Fishing Competition
26-28 August 2024	Karratha	DNA Conference
12 October 2024	Dampier	Dampier Beachside Markets

3.3.1 Let's Talk – EP Newsletter

In July 2024, the third edition of Woodside's EP-focused newsletter *Let's Talk* reached existing and potential new relevant persons to inform them about EP consultation. The newsletter shared updates about EP consultation activities, including the Julimar Operations EP, case studies on effective consultation with relevant persons and other EP focused updates such as upcoming events where Woodside personnel were consulting with the local community. It was distributed in a variety of locations (Record of Consultation, reference 6.6.2.1) as well as across digital platforms including on woodside.com, and social media platforms. People can also subscribe to receive it.

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 6.6.1).

3.3.2 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. Both were relevant for this EP.

3.4 Traditional Custodian Specific Consultation

In addition to the approaches above including community information sessions, additional resources and activities were offered to relevant Traditional Custodians, which are specifically designed to provide for effective engagement with Traditional Custodians so that information can be provided in a form that is readily accessible and appropriate (see Section 5.5 in the EP).

Consultation undertaken specifically with Traditional Custodians for this EP includes direct engagement 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 whether other members and/or individuals should be consulted. This has resulted in:

- the EP's Summary Information Sheet, was provided to relevant Traditional Custodian groups (Record of Consultation, reference 6.1.3). The resource is developed and reviewed by subject matter experts with knowledge and experience in Indigenous affairs, in collaboration with technical experts to ensure content is appropriate to the intended recipients

- meetings with directors, Elders and any nominated representatives, at a time and location nominated by them
- the exchange of written feedback and correspondence
- telephoning relevant persons to provide context, if requested and/or required
- invitations to and/or attendance at community monthly luncheons for Traditional Custodians.

Ongoing efforts were made to engage and develop relationships with these bodies via a variety of means such as email, phone calls, alternative contacts, texts, social media and, in some cases, physical visits.

Consultation meetings with attendees are decided by Traditional Custodian groups and supported by senior Woodside representatives, subject matter experts and First Nations Relations advisers with skills and experience in community engagement. Meetings are developed through a two-way consultation process to ensure effective information sharing via:

- mutually agreed agenda avoiding time pressure
- encouraging Traditional Custodian attendees to control the pace of the meeting and pause at any time to ask questions, seek clarification or provide feedback
- visual aids such as presentations, simplified technical videos and real-world pictures and footage
- 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
- hard-copy Consultation Information Sheets (Record of Consultation, reference 6.1.1) and Summary Consultation Information Sheets (Record of Consultation, reference 6.1.3) are available at face-to-face consultation
- meeting costs such as sitting fees, travel, legal support and executive support and other support required
- advertising in Indigenous publications such as the National Indigenous Times (30 July 2024) and The Koori Mail (17 July 2024).
- advertising on Ngaarda radio, the only licensed Aboriginal broadcaster in the Pilbara (26 August 2024 – 30 November 2024).

Media	Coverage	Publication dates
Koori Mail	National	17 July 2024
National Indigenous Times	National	30 July 2024
Ngaarda Radio	Pilbara	26 August – 30 November 2024

Woodside also ran a geotargeted sponsored social media campaign (Record of Consultation, reference 6.4) which reached various communities that are coastally adjacent to the EMBA for the proposed activities. Social media is a highly effective means to engage Indigenous

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audiences as covered in the book [Indigenous Digital Life: The Practice and Politics of Being Indigenous on Social Media](#) (Bronwyn Carlson and Ryan Frazer, 2021).

The campaign brought the proposed activity to the attention of persons who may be interested and advised persons or organisations how to learn more about Woodside's proposed activities. The advertisements linked to Woodside's website, which details the intent of consultation with relevant persons under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)*.

Woodside uses a diverse range of techniques to reach relevant persons and build awareness of the proposed activity and how it may affect their functions, interests or activities and to understand how to provide feedback. The combination of PBC engagement meetings, traditional print media, social media and face-to face community interaction provides a wide-ranging opportunity to consult.

4. 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 item raised by a stakeholder. The green numbering (N) in this section denotes Woodside's response to that item.

4.1 COMMONWEALTH AND WA STATE GOVERNMENT DEPARTMENTS OR AGENCIES – MARINE

4.1.1 Australian Border Force (ABF)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed ABF advising of the proposed activity (Record of Consultation, reference 6.1.7), 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 July 2024, Woodside sent an email reminder to ABF, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with ABF 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:</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 or 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 July 2024. Woodside gave this information to ABF on 16 July 2024, 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. 		

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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 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 ABF a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to ABF 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 and Woodside allowed ABF 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed ABF a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed ABF a reasonable period for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, 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 required 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.

4.1.2 Australian Communications and Media Authority (ACMA)

Summary of information provided and record of consultation for this EP:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 46 of 370

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- On 16 July 2024, Woodside emailed ACMA advising of the proposed activity (Record of Consultation, reference 6.1.8), provided a Consultation Information Sheet, submarine communication cable map, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 July 2024, ACMA emailed to thank Woodside for the opportunity to comment (SI Report, reference 1.1) and:
 - Provided background on ACMA's responsibilities as covered in Schedule 3A to the *Telecommunications Act 1997*.
 - Confirmed the Operational Area is clear of existing ACMA protection zones.
 - Noted to be aware of cables in the area operated by Telstra and Vocus and suggested contacting them. (3) No response needed. Woodside has consulted Telstra for this EP as its cables intersected the Operational Area (Record of Consultation, reference 6.1.22), but not Vocus as its cables do not intersect the Operational Area.
 - Recommended contacting AHO for further details on cable locations. (4) No response needed. Woodside has consulted AHO for this EP.
 - Advised no additional consultation for activity was needed.
- On 23 July 2024, Woodside emailed ACMA to thank them for their response (SI Report, reference 1.2) and:
 - Noted ACMA's roles and responsibilities.
 - Confirmed the advice on the ACMA protection zones.
 - Recognised that ACMA did not require further consultation on EP.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Background on ACMA responsibilities.	(1) Woodside assessment: Woodside is aware of ACMA's responsibilities as covered in Schedule 3A to the <i>Telecommunications Act 1997</i> . Woodside response: Woodside contacted ACMA as a relevant person for the EP due to cables being in the vicinity of the Operational Area.	(1) Not required.
(2) EP Operational Area not in ACMA protection zones.	(2) Woodside assessment: Woodside notes the Operational Area is not in vicinity of ACMA's protection zones. Woodside response: Woodside acknowledged the advice regarding ACMA protection zones.	(2) Not required.
(3) Awareness of existing cable infrastructure and suggested to contact Telstra and Vocus.	(3) Woodside assessment: Woodside has reviewed existing cable infrastructure in the Operational Area. Telstra operates cables in the Operational Area and	(3) The Chevron fibre optic cable intersects the Operational Area per Section 4.9.10. No other

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	<p>has been consulted as a relevant person. Vocus do not operate cables in the Operational Area and is not relevant for this EP.</p> <p>Woodside response: No response provided as Woodside has consulted Telstra as a relevant person for this EP. Vocus was not consulted as its not relevant for the EP.</p>	<p>submarine cables were identified in close proximity to the Operational Area.</p> <p>Telstra was consulted as per Appendix F reference 4.13.1</p>
<p>(4)</p> <p>Recommended contacting AHO for further details on the location of cables.</p>	<p>(4)</p> <p>Woodside assessment: Woodside has consulted AHO as a relevant person for this EP.</p> <p>Woodside response: No response provided as Woodside has consulted AHO as a relevant person for this EP.</p>	<p>(4)</p> <p>AHO was consulted as per Appendix F reference 4.1.4.</p>
<p>(5)</p> <p>Additional consultation not needed.</p>	<p>(5)</p> <p>Woodside assessment: Woodside accepts that ACMA does not require further consultation at this time.</p> <p>Woodside response: Woodside acknowledged that ACMA does not require further consultation.</p>	<p>(5)</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.</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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).</p>	<p>No additional controls or measures 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 considers consultation with ACMA 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:</p> <p>Sufficient Information</p>		

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 or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to ACMA on 16 July 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 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).
- On 23 July 2024, ACMA 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.
- Woodside provided additional information on 23 July 2023 to address ACMA's points on cables in the Operational Area.

Reasonable Period

Woodside allowed ACMA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed ACMA 30 days for consultation.
- In this context, Woodside allowed ACMA a reasonable period for consultation in preparation of the EP as evidenced by ACMA's response on 23 July 2024.

Reasonable Opportunity

Woodside allowed ACMA a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside considers a reasonable opportunity was provided to ACMA as evidenced by its response on 23 July 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:

- ACMA provided feedback but had 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.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 49 of 370

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- 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.

4.1.3 Australian Fisheries Management Authority (AFMA)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed AFMA advising of the proposed activity (Record of Consultation, reference 6.1.9), 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 July 2024, Woodside sent an email reminder to AFMA, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with AFMA 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to AFMA on 16 July 2024, 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 measurement 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 AFMA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed AFMA 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed AFMA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed AFMA a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding AFMA 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 required as AFMA 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 AFMA's functions, interests or activities.

4.1.4 Australian Hydrographic Office (AHO)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed AHO advising of the proposed activity (Record of Consultation, reference 6.1.10), provided a Consultation Information Sheet, vessel density map and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 51 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

<ul style="list-style-type: none"> On 31 July 2024, Woodside sent an email reminder to AHO following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with AHO 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to AHO on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed AHO 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed AHO 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed AHO a reasonable period for consultation in preparation of the EP. 		

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Reasonable Opportunity

Woodside allowed AHO a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding AHO 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 required as AHO 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 AHO's functions, interests or activities.

4.1.5 Australian Maritime Safety Authority (AMSA) – Marine Pollution

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed AMSA - Marine Pollution advising of the proposed activity (Record of Consultation, reference 6.1.12), provided a Consultation Information Sheet, GIS shape files, vessel density map and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to AMSA – Marine Pollution, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
- On 26 November 2024, Woodside emailed the Oil Pollution First Strike Plan to AMSA – Marine Pollution (SI Report, reference 31.1 and 31.2)
- (1) On 26 November 2024, AMSA – Marine Pollution responded and said it does not consult on OSCPs and provided a link to article which set out AMSA's requirements for EP consultation. (SI Report, reference 31.3)
- (1) On 26 November 2024, Woodside thanked AMSA – Marine Pollution for the guidance and noted it will amend its internal processes based on this information. (SI Report, reference 31.4)

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Consultation on the First Strike Plan is not needed.	(1) Woodside assessment: Woodside reviewed AMSA –	(1) Not required.

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	<p>Marine Pollution's update that it does not consult on the First Strike Plan.</p> <p>Woodside response: Woodside noted the guidance and will update internal processes.</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. 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 7.3.2).</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 AMSA – Marine Pollution 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 Pollution sufficient information to allow AMSA – Marine Pollution to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to AMSA – Marine Pollution on 16 July 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 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 AMSA – Marine Pollution a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed AMSA – Marine Pollution 30 days for consultation.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 54 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- It has been 6 months since consultation commenced.
- In this context, Woodside allowed AMSA – Marine Pollution a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed AMSA – Marine Pollution a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding AMSA – Marine Pollution of the opportunity to provide feedback. On 26 November 2024, the First Strike Plan was shared with AMSA – Marine Pollution and AMSA responded back on 26 November 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:

- No additional measures were required as AMSA – Marine Pollution did not provide feedback for this EP until receiving the First Strike Plan. At that time, AMSA - Marine Pollution said it does not consult on OSCP's and following that, WEL will amend its internal processes based on this update.
- 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.

4.1.6 Australian Maritime Safety Authority (AMSA) – Maritime Safety

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed AMSA - Maritime Safety advising of the proposed activity (Record of Consultation, reference 6.1.12), provided a Consultation Information Sheet, GIS shape files, vessel density map and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 29 July 2024, AMSA - Maritime Safety emailed and thanked Woodside for information on activities (SI Report, reference 2.1) and:
 - (1) Noted heavy vessel traffic in the activity area and thanked Woodside for GIS shapefiles to evaluate vessel traffic.
Thanked Woodside for noting considerations in consultation material and:
 - (2) Requested vessels notify ARC 24-48 hours before operations commence.
 - (2) Noted that Woodside had said it would contact AHO and that AHO should be contacted no less than four working weeks before operations commence.
 - (3) Reminded of obligations to comply with the Convention on the International Regulations for Preventing Collisions at Sea (COLREGs) and evaluate / implement anti-collision measures.

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<p>(4) Offered shipping data and customised data available through AMSA's spatial data gateway and portal.</p> <ul style="list-style-type: none"> On 5 August 2024, Woodside thanked AMSA for its feedback (SI Report, reference 2.2) and: <ul style="list-style-type: none"> (1) Recognised AMSA guidance to expect heavy vessel traffic and support craft in activities area. (2) Confirmed notifications request. (4) Noted the availability of AMSA's spatial data gateway and portal for shipping data. On 14 August 2024, Woodside emailed a follow-up to the AMSA Maritime Safety team to propose updated protocols and seek alignment given the ongoing nature of activities for a revision of the EP (SI Report, reference 2.3) and: <ul style="list-style-type: none"> (2) Suggested notifications tied to activity commencement of greater than three weeks vs operational commencement for notifications to AMSA JRCC and AHO. (3) Confirmed compliance with COLREGs but does not plan to take further anti-collision measures and will continue to evaluate. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Noted heavy vessel traffic in activities area and that its spatial data gateway and portal has shipping data. .	(1) Woodside assessment: Woodside has provided a vessel density map and GIS shapefiles so was aware of traffic and was aligned with AMSA's position. Woodside response: Woodside noted it would expect to encounter heavy vessel traffic and support craft.	(1) Not required.
(2) Confirmed operations commencement notifications.	(2) Woodside assessment: Woodside reviewed the request for notifications tied to operations commencement, but given operations are ongoing, provided a revision of notifications for review / consideration by AMSA tied to activities commencement of greater than three weeks. Woodside response: Woodside confirmed notifications for AMSA and AHO and recommended notifications tied to activity commencement of greater than three weeks versus operational commencement.	(2) Section 6.7.1 of the EP contains a number of controls that address AMSA's feedback on lighting and compliance with the international rule for preventing collisions at sea, specifically safety zones are established, vessels are required to comply with marine orders and the facility's collision prevention system will be implemented. Woodside will provide notifications to AMSA as set out in Section 7.12 of the EP
(3) Reminded about COLREGS obligations.	(3) Woodside assessment: Woodside complies with COLREGS but does not plan to take further anti-collision measures.	(3) Refer to Section 6.7.1 of the EP that notes vessels are to adhere to the navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders. The Navigation Act 2012 provides the

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 56 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	Woodside response: Woodside confirmed its compliance with COLREGs but noted it does not plan to take additional anti-collision measures and will continue to evaluate.	legislative power for Australia to implement a number of international treaties, including the COLREGS.
(4) Access to data sets and maps	(4) Woodside assessment: Woodside noted availability of data and maps through AMSA's spatial gateway and portal. Woodside response: Woodside confirmed understanding that data sets and maps were available from AMSA's spatial gateway and portal.	(4) Woodside assessment: Woodside noted availability of data and maps through AMSA's spatial gateway and portal. Woodside response: Woodside confirmed understanding that data sets and maps were available from AMSA's spatial gateway and portal.
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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	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 considers consultation with AMSA – Maritime 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 – Maritime Safety sufficient information to allow AMSA – Maritime Safety to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024 Woodside gave this information to AMSA – Maritime Safety on 16 July 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 measurement 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.

- On 29 July 2024, AMSA – Maritime Safety shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable AMSA – Maritime Safety to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- Woodside provided additional information on 5 August 2024 to respond to AMSA – Maritime Safety's points.

Reasonable Period

Woodside allowed AMSA – Maritime Safety a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to AMSA – Maritime 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed AMSA – Maritime Safety 30 days for consultation.
- In this context, Woodside allowed AMSA – Maritime Safety a reasonable period for consultation in preparation of the EP as evidenced by AMSA – Maritime Safety's response on 29 July 2024.

Reasonable Opportunity

Woodside allowed AMSA – Maritime Safety a reasonable period for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside considers a reasonable opportunity was provided to AMSA – Maritime Safety as evidenced by its response on 29 July 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:

- AMSA – Maritime Safety 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 regulations 24 and 34(g), Woodside has:
 - Responded to feedback from AMSA – Maritime Safety.
 - Made no changes or inclusions to the EP as a result of consultation with AMSA – Maritime Safety 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.

4.1.7 Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries

Summary of information provided and record of consultation for this EP:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 58 of 370

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<ul style="list-style-type: none"> On 16 July 2024, Woodside emailed DAFF - Fisheries advising of the proposed activity (Record of Consultation, reference 6.1.19), 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 July 2024, Woodside sent an email reminder to DAFF - Fisheries following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with DAFF – Fisheries 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:</p> <p>Sufficient Information</p> <p>Woodside has given DAFF sufficient information to allow DAFF to make an informed assessment of the possible consequences of the activity on its functions, interests or 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 July 2024. Woodside gave this information to DAFF – Fisheries on 16 July 2024, 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 measurement 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 DAFF - Fisheries 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed DAFF – Fisheries 30 days for consultation. It has been 6 months since consultation commenced. 		
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- In this context, Woodside allowed DAFF – Fisheries a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed DAFF – Fisheries a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, 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 required 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.

4.1.8 Department of Defence (DoD)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed DoD advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, Defence Zones Map and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to DoD, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.

Summary Report - Consultation Complete

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 60 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DoD 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 DoD sufficient information to allow DoD to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to DoD on 16 July 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 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 DoD a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DoD 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed DoD a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed DoD a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding DoD 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:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 61 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- No additional measures were required as DoD 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 DoD's functions, interests or activities.

4.1.9 Department of Planning, Lands and Heritage (DPLH)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> • On 16 July 2024, Woodside emailed DPLH advising of the proposed activity (Record of Consultation, reference 6.1.17), provided a Consultation Information Sheet, WA Shipwreck information and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. • On 31 July 2024, Woodside sent an email reminder to DPLH, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with DPLH 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to DPLH on 16 July 2024, 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 measurement 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 DPLH a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DPLH 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed DPLH a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed DPLH a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding DPLH 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 required as DPLH 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 DPLH's functions, interests or activities.

4.1.10 Department of Primary Industries and Regional Development (DPIRD)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed DPIRD advising of the proposed activity (Record of Consultation, reference 6.1.15), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to DPIRD, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 63 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 7.3.2).	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 considers 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to DPIRD on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed DPIRD 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed DPIRD 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed DPIRD a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed DPIRD a reasonable opportunity for consultation in the preparation of this EP because:</p>		

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- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding DPIRD 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 required as DPIRD 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 DPIRD's functions, interests or activities.

4.1.11 Department of Transport (DoT)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed DoT advising of the proposed activity (Record of Consultation, reference 6.1.16), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 July 2024, DoT emailed and thanked Woodside for the update and said it would await further consultation. (SI Report, reference 5.1)
- On 23 July 2024, Woodside thanked DoT for its response. (SI Report, reference 5.2)
- On 26 November 2024, Woodside emailed the DoT and shared the Oil Pollution First Strike Plan. (SI Report, reference 5.3)
- On 9 December 2024, DoT emailed to confirm it had reviewed the FSP and there was no comment. (SI Report, reference 5.4)
- On 9 December 2024, Woodside thanked DoT for the FSP review. (SI Report, reference 5.5)

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
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, it will be assessed and, where appropriate, Woodside will apply	No additional controls or measures are required. appropriate.

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	its Management of Change and Revision process (see Section 7.3.2).	
Summary Report - Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DoT 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024 Woodside gave this information to DoT on 16 July 2024, 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 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. On 23 July 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 its functions, interests or activities. Woodside provided the Oil Pollution First Strike Plan on 26 November 2024 to provide additional information to DoT. <p>Reasonable Period</p> <p>Woodside allowed DoT 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed DoT 30 days for consultation. In this context, Woodside allowed DoT a reasonable period for consultation in preparation of the EP as evidenced by DoT's response on 23 July 2024. <p>Reasonable Opportunity</p> <p>Woodside allowed a reasonable opportunity for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. 		

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- Woodside considers a reasonable opportunity was provided to DoT as evidenced by its response on 23 July 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:

- DoT provided feedback regarding the proposed activities in this EP. In line with the intended outcome of consultation as set out in Section 5.2, Woodside has:
 - Responded to feedback from DoT and assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - Assessed the merits of DoT's feedback, objections or claims when considering adopting appropriate measures (if any) because of consultation with DoT.
 - Made no changes or inclusions to the EP as a result of consultation with DoT 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.

4.1.12 Pilbara Ports Authority (PPA)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed PPA advising of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to PPA following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 PPA 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

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 67 of 370

Uncontrolled when printed. Refer to electronic version for most up to date 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 or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to PPA on 16 July 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 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 PPA a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed PPA 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed PPA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed PPA a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, 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 required 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.
- The measures and controls described in this EP address the potential impact from the proposed activity on PPA's functions, interests or activities.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 68 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

4.1.13 Western Australian Museum (WAM)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed WAM advising of the proposed activity (Record of Consultation, reference 6.1.18), provided a Consultation Information Sheet, WA Shipwreck information and a link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans: Information for the community</i>. On 31 July 2024, Woodside sent an email reminder to WAM following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with WAM 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to WAM on 16 July 2024, 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 measurement 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 WAM a reasonable period for consultation in the preparation of this EP because:</p>		
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- A consultation period was stated 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed WAM 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed WAM a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed WAM a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding WAM 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 required as WAM 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 WAM's functions, interests or activities.

4.2 COMMONWEALTH AND WA STATE GOVERNMENT DEPARTMENTS OR AGENCIES – ENVIRONMENT

4.2.1 Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed DAFF-Biosecurity advising of the proposed activity (Record of Consultation, reference 6.1.19), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to DAFF-Biosecurity, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 considers consultation with DAFF- Biosecurity 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to DAFF- Biosecurity on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed DAFF- Biosecurity 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed DAFF- Biosecurity 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed DAFF- Biosecurity a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed DAFF- Biosecurity a reasonable period for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. 		

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- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding DAFF- Biosecurity 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 required as DAFF- Biosecurity 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- Biosecurity's functions, interests or activities.

4.2.2 Department of Biodiversity, Conservation and Attractions (DBCA)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed the DBCA advising of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to DBCA, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
- On 14 August 2024, DBCA thanked Woodside for providing information on activities (SI Report, reference 28.1) and:
 - (1) Noted ecologically important areas within EMBA and potential to be affected in event of substantial hydrocarbon release.
 - (2) Considered it important for Woodside to have baseline values and state of potentially affected environment to be documented.
 - (2) Wanted to have confidence that Woodside has baseline survey data on benthic habitat and marine fauna species to ensure impacts on ecological values and recovery of those can be identified, monitored and remediated.
 - (2) Stated DBCA monitors and publishes reports, but these may not be suitable for baseline information required for oil spill assessment and management planning.
 - (3) Encouraged Woodside to implement Before-After, Control-Impact (BACI) framework.
 - (4) Referred Woodside to best practices for light pollution via DCCEE's guidelines.
 - (5) In the event of a hydrocarbon release, it was requested that Woodside notify DBCA's Pilbara regional office as soon as practicable on (08) 9182 2000.
 - (6) It would not implement an oiled wildlife management response on behalf of a petroleum operator.
 - (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) Not required. Woodside noted and referred to DoT's web content.
- On 1 September 2024, Woodside emailed DBCA to thank them for the feedback (SI Report, reference 28.2) and:
 - (1) Affirmed areas of ecological importance in Operational Area would not be impacted by planned activities.

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- (2) Confirmed it tracks current environment knowledge that is regularly updated and provides for qualitative assessment in an unplanned hydrocarbon release.
- (3) Noted its oil spill scientific monitoring program (SMP) now executed under the Joint Industry OSM Framework would provide for a qualitative assessment.
- (4) Confirmed it referred to DCCEE's guidelines for its assessment and that associated lighting is required as priority for safe operation.
- (5) Incorporated the DBCA Pilbara regional office contact number in the Oil Pollution First Strike Plan.
- (6) Acknowledged that DBCA will not implement an oiled wildlife response plan and confirmed Woodside has a response plan included in its Oil Spill Preparedness and Response Mitigation Assessment.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Activities may affect ecologically important areas and marine fauna.	(1) Woodside assessment: Woodside determined that areas of ecological importance, including marine parks and island conservation reserves, would not be impacted by planned activities. Woodside response: Woodside reaffirmed that areas of ecological importance in the proximity of the EP Operational Areas would be not impacted by planned activities.	(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 6.7.4 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 Section 6 of the EP.
(2) Establish baseline survey data on activities areas.	(2) Woodside assessment: Woodside maintains knowledge of areas of ecological importance adjacent to Operational Areas and its oil spill scientific monitoring program provides for a quantitative assessment of overall impacts in the event of an unplanned hydrocarbon release. Woodside response: Woodside responded that it utilises an information system to track current existing environment knowledge that is regularly updated. Woodside advised its oil spill scientific monitoring program provides for a quantitative assessment of overall impacts in the event of an unplanned hydrocarbon release.	(2) Under the Operational and Scientific Monitoring (OSM) Program, executed under the Joint Industry OSM Framework (AEP, 2021), an annual review of environmental baseline data will be undertaken for all locations where spill modelling has predicted contact at relevant hydrocarbon thresholds as covered in Appendix H of EP.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 73 of 370

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<p>(3) Acquire needed information to implement a Before-After Control Impact (BACI) framework.</p>	<p>Woodside assessment: Woodside understands the request to implement a BACI framework and noted its oil spill scientific monitoring program (SMP), executed under Joint Industry OSM Framework (AEP, 2021) would provide for a quantitative assessment of the overall environmental impacts in the event of an unplanned hydrocarbon release.</p> <p>Woodside response: Woodside advised its oil spill scientific monitoring program (SMP) executed under Joint Industry OSM Framework 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.</p>	<p>(3) During a spill event, the first-strike monitoring capability will be prioritised to those receptors with insufficient baseline data to collect baseline data post-spill pre-impact i.e. Before-After-Impact-Control (BACI). Where BACI is not feasible due to short contact times, understanding which receptors have insufficient baseline data will help guide the finalisation of each SMP design as well as the need to include alternative designs such as gradient approach. Locations with hydrocarbon contact predicted within 7 days for priority first-strike baseline monitoring are listed in Appendix H (Annex C).</p>
<p>(4) Refer to DCCEEW's light pollution guidelines</p>	<p>Woodside assessment: Woodside noted DCCEEW's National Light Pollution Guidelines for Wildlife and that its impact assessment for light emissions is based on these recommendations.</p> <p>Woodside response: Woodside confirmed its assessment if based on DCCEEW's National Light Pollution Guidelines for Wildlife and that lighting associated with this EP is required as a priority for safe operation.</p>	<p>(4) Woodside's impact assessment for light emissions is based on recommendations of the National Light Pollution Guidelines for Wildlife 2024.</p>
<p>(5) Notify DBCA Pilbara office in event of hydrocarbon release.</p>	<p>(5) Woodside assessment: Woodside noted DBCA's 'Incidents and Emergency Response' process and need to include DBCA's Pilbara's contact information in Oil Pollution First Strike Plan.</p> <p>Woodside response: Woodside confirmed the DBCA Pilbara phone number had been incorporated as part of the Oil Pollution First Strike Plan.</p>	<p>(5) DBCA's Pilbara phone number has been incorporated into the Oil Pollution First Strike Plan for this EP (see Appendix G).</p>
<p>(6) No oiled wildlife response.</p>	<p>Woodside assessment: Woodside accepts that DBCA would not implement an oiled wildlife management response and notes its own Oiled Wildlife Response is</p>	<p>(6)</p>

	<p>included in the Oil Spill Preparedness and Response Mitigation Assessment for this EP.</p> <p>Woodside response:</p> <p>Woodside confirmed that DBCA would not implement an oiled wildlife management response on behalf of a petroleum operator and confirmed the EP will have its own response included in the Oil Spill Preparedness and Response Mitigation Assessment.</p>	<p>Woodside's Oiled Wildlife Response is included in the Oil Spill Preparedness and Response Mitigation Assessment for this EP (see <i>Appendix D</i>).</p>
<p>(7)</p> <p>Refer to DoT's guidance on Marine Oil Pollution.</p>	<p>Woodside assessment: Woodside appreciated the recommendation to refer to the DoT's web content regarding marine pollution and the Offshore Petroleum Industry Guidance Note of 2020 titled Marine Oil Pollution: Response and Consultation Arrangements which Woodside references for its First-Strike Plan (FSP).</p> <p>Woodside response:</p> <p>Woodside noted the DoT's web content regarding marine pollution and the Offshore Petroleum Industry Guidance Note of 2020 titled Marine Oil Pollution: Response and Consultation Arrangements which contributed to the development of Woodside's FSP.</p>	<p>(7)</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.</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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).</p>	<p>No additional controls or measures 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 considers consultation with DBCA 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:</p>		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 75 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to DBCA on 16 July 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 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).
- Woodside sent a follow-up email on 31 July 2024, and on 14 August 2024, 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 its functions, interests or activities.
- Woodside provided additional information on 1 September 2024, to respond to DBCA's feedback, claims or objections.

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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DBCA 30 days for consultation.
- In this context, Woodside allowed DBCA a reasonable period for consultation in preparation of the EP as evidenced by DBCA's response on 14 August 2024.

Reasonable Opportunity

Woodside allowed DBCA a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- Woodside considers a reasonable opportunity was provided to DBCA as evidenced by its response on 14 August 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:

- DBCA provided feedback regarding the proposed activities in this EP. In line with the intended outcome of consultation as set out in Section 5.2, Woodside has:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 76 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- Responded to feedback from DBCA and assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
- Assessed the merits of DBCA's feedback, objections or claims when considering adopting appropriate measures (if any) because of consultation with 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.

4.2.3 Department of Climate Change, Energy, the Environment and Water (DCCEEW)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed DCCEEW advising of the proposed activity (Record of Consultation, reference 6.1.20), provided a Consultation Information Sheet, Shipwreck information and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to DCCEEW, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 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 or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to DCCEEW on 16 July 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 measurement 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.

Reasonable Period

Woodside allowed DCCEEW a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DCCEEW 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed DCCEEW a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed DCCEEW a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, 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 required 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.
- The measures and controls described in this EP address the potential impact from the proposed activity on DCCEEW's functions, interests or activities.

4.2.4 Director of National Parks (DNP)

Summary of information provided and record of consultation for this EP:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 78 of 370

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- On 16 July 2024, Woodside emailed the DNP advising of the proposed activity (Record of Consultation, reference 6.1.21), provided a Consultation Information Sheet, information about marine park overlap with the Operational Area and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to the DNP following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
- On 27 October 2024, DNP emailed Woodside (SI Report, reference 29.1) and:
 - (1) Provided what it considers operational areas and that offshore petroleum activities should be identified in EP to ensure risks to AMPs are accessed and mitigations applied. Noted that authorisation is needed from NOPSEMA or DNP for any operational area taking place in an AMP or that activity would breach EPBC Act.
 - (2) Flagged the needed actions for emergency response in the event of oil/gas pollution incidences within a marine park, including notification to the 24 hour Marine Compliance Duty Officer. Daily or weekly situation reports may be requested.
- On 30 October 2024, Woodside thanked DNP for feedback (SI Report, reference 29.2) and:
 - (1) Confirmed the location of the Operational Area and that wells are outside of the Montebello MP and confirmed Woodside takes into consideration the 'Petroleum Activities and Australian Marine Parks' guidance note developed and published jointly by DNP and NOPSEMA while preparing the Julimar Operations EP to identify and manage risks on AMP values. EP will demonstrate that the activities will not be inconsistent with the North-west Marine Parks Network Management Plan 2018.
 - (2) Noted the emergency response contact and confirmed notification as needed for emergency scenario or if activities change and result in an impact to a marine park.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Ensure the EP identifies and manages all impacts and risks on AMP values, and clearly demonstrates that activities will not be inconsistent with the management plan.	(1) Woodside assessment: Woodside has considered the 'Petroleum Activities and Australian Marine Parks' guidance note to assess and manage impacts and risks to AMPs. Woodside response: Woodside confirmed it had taken into consideration the 'Petroleum Activities and Marine Parks' guidance note to ensure the EP identified and managed all risks on AMP values and clearly demonstrated that activities would not be inconsistent with the management plan.	(1) The 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 plan (see Sections 6.7, 6.8 and 6.9 of the EP).
(2) Notification guidance for emergency response in event of an oil/gas pollution incidences.	(2) Woodside assessment: Woodside will notify DNP in the event of relevant changes to the activity, or for emergency responses.	(2) Woodside will provide notification of significant change, as appropriate, to relevant persons as referenced in Table 7-7 of the EP. Woodside will ensure DNP is

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	Woodside response: Woodside confirmed it would notify DNP for emergency responses or if activities changed and resulted in an overlap with or new impact to a marine park.	made aware of any incidences within a marine park for the activity, as per the commitment in the Oil Pollution First Strike Plan (Appendix G).
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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	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 considers consultation with DNP 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 DNP sufficient information to allow DNP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to DNP on 16 July 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 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).
- Woodside sent a follow-up email on 31 July 2024, and on 27 October 2024, 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 its functions, interests or activities.
- Woodside provided additional information on 30 October 2024, to respond to DNP's feedback, claims or objections.

Reasonable Period

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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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DNP more than 30 days for consultation.
- In this context, Woodside allowed DNP a reasonable period for consultation in preparation of the EP as evidenced by DBCA's response on 27 October 2024.

Reasonable Opportunity

Woodside allowed DNP a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information
- Woodside considers a reasonable opportunity was provided to DNP as evidenced by its response on 27 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:

- DNP provided feedback regarding the proposed activities in this EP. In line with the intended outcome of consultation as set out in Section 5.2, Woodside has:
 - Responded to feedback from DNP and assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - Assessed the merits of DNP's feedback, objections or claims when considering adopting appropriate measures (if any) because of consultation with DNP
 - Made no changes or inclusions to the EP as a result of consultation with DNP 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.

4.2.5 Ningaloo Coast World Heritage Advisory Committee (NCWHAC)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed NCWHAC advising of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to NCWHAC, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 considers consultation with NCWHAC 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to NCWHAC on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed NCWHAC 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed NCWHAC 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed NCWHAC a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed NCWHAC a reasonable opportunity for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. 		

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- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding NCWHAC of the opportunity to provide feedback.

Outcomes of Consultation

- NCWHAC No additional measures were required 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.

4.3 COMMONWEALTH AND STATE GOVERNMENT DEPARTMENTS OR AGENCIES – INDUSTRY

4.3.1 Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed DEMIRS advising of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to DEMIRS following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 DEMIRS 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 DEMIRS sufficient information to allow DEMIRS to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 83 of 370

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to DEMIRS on 16 July 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 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 DEMIRS a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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 and Woodside allowed DEMIRS 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed DEMIRS a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed DEMIRS a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, 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 required 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.

4.3.2 Department of Industry, Science and Resources (DISR)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed DISR advising of the proposed activity (Record of Consultation, reference 6.1.7), 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 July 2024, Woodside sent an email reminder to DISR following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to DISR on 16 July 2024, 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 measurement 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 DISR a reasonable period for consultation in the preparation of this EP because:</p>		

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- 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed DISR 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed DISR a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed DISR a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, 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 required 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.

4.4 COMMONWEALTH COMMERCIAL FISHERIES AND REPRESENTATIVE BODIES

4.4.1 Commonwealth Fisheries Association (CFA)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed CFA advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to CFA, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 considers consultation with CFA 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to CFA on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed CFA 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed CFA 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed CFA a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed CFA a reasonable opportunity for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. 		

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- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, 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 required 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.

4.4.2 North West Slope Trawl Fishery

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed North West Slope Trawl Fishery advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to North West Trawl Fishery, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 North West Slope Trawl Fishery 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 North West Slope Trawl Fishery sufficient information to allow North West Slope Trawl Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 88 of 370

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to North West Slope Trawl Fishery on 16 July 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 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 North West Slope Trawl Fishery a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to North West Slope 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed North West Slope Trawl Fishery 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed North West Slope Trawl Fishery a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed North West Slope Trawl Fishery a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding North West Slope 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 required as North West Slope 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 Trawl Fishery's functions, interests or activities.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 89 of 370

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4.4.3 Western Deepwater Trawl Fishery

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed the Western Deepwater Trawl Fishery advising of the proposed activity (Record of Consultation, reference 6.1.9), 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 July 2024, Woodside sent an email reminder to Western Deepwater Trawl Fishery following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with Western Deepwater Trawl Fishery 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to Western Deepwater Trawl Fishery on 16 July 2024, 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 measurement 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 Western Deepwater Trawl Fishery a reasonable period for consultation in the preparation of this EP because:</p>		
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- 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Western Deepwater Trawl Fishery 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Western Deepwater Trawl Fishery a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Western Deepwater Trawl Fishery a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding Western Deepwater 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 required 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.

4.5 STATE COMMERCIAL FISHERIES AND REPRESENTATIVE BODIES

4.5.1 Western Australian Fishing Industry Council (WAFIC)

Summary of information provided and record of consultation for this EP:

- On 15 July 2024, Woodside emailed WAFIC advising of the proposed activity (SI Report reference 11.1), provided a Consultation Information Sheet, list of fisheries to contact and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 15 July 2024, WAFIC emailed to thank Woodside for extending the date for feedback and:
 - (1) Confirmed it would send consultation information to fisheries today (SI Report, reference 11.2).
- (1) On 15 July 2024, Woodside thanked WAFIC for sending information to the fisheries. (SI Report, reference 11.3).

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 91 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- (1) On 15 July 2024, WAFIC confirmed sending consultation materials to relevant licence holders for the EP and confirmed Marine Aquarium Managed Fishery was not deemed relevant by WAFIC (SI Report, 11.4), WAFIC confirmed it would hold on providing feedback until 16 August 2024.
- (1) On 15 July 2024, Woodside thanked WAFIC for distributing consultation information for Julimar Operations and another EP. (SI Report, reference 11.5)
- (1) On 15 July 2024, WAFIC sent the Julimar Operations EP consultation material to relevant state fisheries. (SI Report, reference 11.6)
- On 16 August 2024, WAFIC emailed to confirm it had (SI Report, reference 11.7):
 - (2) Received no feedback from state fishing industry members.
 - Understands that should an unplanned event occur; Woodside has the following actions in place:
 - (3) Include WAFIC as a contact within the oil spill response planning documents and WAFIC will assist Woodside with fishing industry communication if needed.
 - (4) Woodside retains current list of WA commercial fisheries that could be impacted by spill scenarios.
 - (5) Woodside has Operational and Scientific Monitoring Program (OSMP) to determine impacts and monitor marine environments
 - (6) Requested notices on activity commencement and distances around temporary exclusion zones.
 - (6) Asked to be included in any vessel operations updates given project vessels and size of operating area.
- (2) On 30 August 2024, Woodside replied to WAFIC and thanked them for the update that there was no fishing industry feedback (SI Report, reference 11.8) and:
 - Noted it has an Oil Pollution First Strike Plan in place and confirmed mitigations in place to manage unplanned event including:
 - (3) As part of Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA), there would be engagement with relevant organisations, including WAFIC, and noted WAFIC's availability to assist with fishing industry communications.
 - (4) Woodside maintains a list of WA commercial fisheries.
 - (5) Woodside has established Operational and Scientific Monitoring Program (OSMP) and is founding member of the newly launched Industry OSMP which is a collaboration between Australian titleholders.
 - (6) Confirmed WAFIC would receive notifications when vessels will be in Operational Area for >3 weeks.
- (7) On 3 September 2024, WAFIC emailed to thank Woodside for responding to its feedback and confirmed it had no further comments. (SI Report, reference 11.9)
- (7) On 11 September 2024, Woodside thanked WAFIC for its feedback (SI Report, reference 11.10).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Confirmed consultation information was sent to fisheries/licence holders.	(1) Woodside assessment: Woodside noted that consultation information had been distributed to relevant fishery licence holders via WAFIC. Woodside response: Woodside thanked WAFIC for distributing consultation information to relevant fishery licence holders.	(1) Not required.

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<p>(2) No feedback from fishing industry members.</p>	<p>(2) Woodside assessment: Woodside notes that WAFIC did not get any feedback from its fishing industry members. Woodside response: Woodside acknowledged that WAFIC did not receive any feedback resulting from consultation with fishing industry members.</p>	<p>(2) Not required.</p>
<p>(3) Wants to be included as contact in planning documents and can support as needed.</p>	<p>(3) Woodside assessment: Woodside understands WAFIC wants to have its contact information included in oil spill response planning documents and can assist with outreach to fishing industry. Woodside response: Woodside confirmed WAFIC is included as contact as part of OSPRMA and it is available to assist with fishing industry communications.</p>	<p>(3) Refer to Appendix D of the EP.</p>
<p>(4) Wants to confirm Woodside maintains list of WA commercial fisheries.</p>	<p>(4) Woodside assessment: Woodside understands importance of maintaining current list of WA commercial fisheries. Woodside response: Woodside confirmed it maintains a list of WA commercial fisheries.</p>	<p>(4) Not required.</p>
<p>(5) Have a suitable OSMP in place.</p>	<p>(5) Woodside assessment: Woodside recognises WAFIC's concerns related to an unplanned event and notes that its Oil Pollution First Strike Plan and involvement with the industry Operational and Scientific Monitoring Program (OSMP) addresses the concerns. Woodside response: Woodside confirmed its Oil Pollution First Strike Plan and also noted it is a founding member of new industry Operational and Scientific Monitoring Program (OSMP) to ensure a strong and consistent approach to OSMP.</p>	<p>(5) Refer to Appendix D.</p>
<p>(6)</p>	<p>(6)</p>	<p>(6)</p>

Requested notifications on activities.	<p>Woodside assessment: Woodside agrees that WAFIC should receive notifications given activities take place in areas where state fisheries are active.</p> <p>Woodside response: Woodside will send WAFIC notifications when there will be vessel activity in the Operational Area for >3 weeks.</p>	Woodside will provide notifications to WAFIC as set out in Section 7.12. of the EP.
(7) No further feedback.	<p>(7)</p> <p>Woodside assessment: Woodside addressed WAFIC feedback in prior correspondence and understands that WAFIC has no further comments on the activities.</p> <p>Woodside response: Woodside noted that WAFIC had no further comments on the planned activities.</p>	(7) Not required.
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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).</p>	<p>Woodside has assessed the potential for interaction with State-managed fisheries in Section 4.9.4 of this EP.</p> <p>No additional controls or measures 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 WAFIC 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 WAFIC sufficient information to allow WAFIC to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024 Woodside gave this information to WAFIC on 15 July 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 measurement measures.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 94 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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 15 July 2024, WAFIC confirmed it would share consultation information with relevant state fisheries, so they could provide feedback.
- On 16 August 2024, WAFIC confirmed there was no feedback from state fisheries and shared its 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 its functions, interests or activities.
- Woodside provided additional information to WAFIC to address feedback, claims or objections on 30 August 2024.
- On 3 September 2024, WAFIC thanked Woodside for responding to its feedback and noted it had no further comments.

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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed WAFIC 30 days for consultation.
- In this context, Woodside allowed WAFIC a reasonable period for consultation in preparation of the EP as evidenced by WAFIC's responses on 15 July and 16 August 2024.

Reasonable Opportunity

Woodside allowed WAFIC a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside considers a reasonable opportunity was provided to WAFIC as evidenced by its responses on 15 July and 16 August 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:

- WAFIC provided feedback but had 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 assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - WAFIC was added to the EP's Table 7-7, following request for activity notifications.
- 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.

4.5.2 Mackerel Managed Fishery (Area 2)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 15 July 2024, WAFIC, on behalf of Woodside, emailed Mackerel Managed Fishery (Area 2) individual licence holders advising of the proposed activity (SI Report, reference 11.6), and provided a Consultation Information Sheet. On 16 August 2024, WAFIC emailed Woodside reporting that no feedback had been received for this activity from licence holders (SI Report, reference 11.7). 		
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 7.3.2).	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 considers consultation with Mackerel Managed Fishery (Area 2) individual licence holders via WAFIC 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:</p> <p>Sufficient Information</p> <p>Woodside has given Mackerel Managed Fishery (Area 2) sufficient information to allow Mackerel Managed Fishery (Area 2) to make an informed assessment of the possible consequences of the activity on its functions, interests or 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 July 2024. WAFIC on behalf of Woodside provided this information to Mackerel Managed Fishery (Area 2) individual licence on 15 July 2024, 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 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). <p>Reasonable Period</p> <p>Woodside allowed Mackerel Managed Fishery (Area 2) a reasonable period for consultation in the preparation of this EP because:</p>		
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- A consultation period was stated in the initial correspondence to Mackerel Managed Fishery (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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Mackerel Managed Fishery (Area 2) individual licence holders 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Mackerel Managed Fishery (Area 2) individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Mackerel Managed Fishery (Area 2) a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.

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 Mackerel Managed Fishery (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 (Area 2) individual licence holders' functions, interests or activities.

4.5.3 Onslow Prawn Managed Fishery

Summary of information provided and record of consultation for this EP:

- On 15 July 2024, WAFIC, on behalf of Woodside, emailed Onslow Prawn Managed Fishery individual licence holders advising of the proposed activity (SI Report, reference 11.6), and provided a Consultation Information Sheet.
- On 16 August 2024, WAFIC emailed Woodside reporting that no feedback had been received for this activity from licence holders (SI Report, reference 11.7).

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	No additional measures or controls are required.

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	EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	
Summary Report - Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Onslow Prawn Managed Fishery individual licence holders via WAFIC 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. WAFIC on behalf of Woodside provided this information to Onslow Prawn Managed Fishery individual licence holders on 15 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed Onslow Prawn Managed Fishery 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed Onslow Prawn Managed Fishery individual licence holders 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed Onslow Prawn Managed Fishery individual licence holders a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed Onslow Prawn Managed Fishery a reasonable opportunity for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. 		
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- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.

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 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.

4.5.4 Pilbara Line Fishery

Summary of information provided and record of consultation for this EP:

- On 15 July 2024, WAFIC, on behalf of Woodside, emailed Pilbara Line Fishery individual licence holders advising of the proposed activity (SI Report, reference 11.6), and provided a Consultation Information Sheet.
- On 16 August 2024, WAFIC emailed Woodside reporting that no feedback had been received for this activity from licence holders (SI Report, reference 11.7).

<i>Summary of Feedback, Objection or Claim</i>	<i>Assessment of Merits of Feedback, Objection or Claim and Woodside's Response</i>	<i>Inclusion in Environment Plan</i>
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 7.3.2).	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 Pilbara Line 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 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 or activities because:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 99 of 370

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. WAFIC on behalf of Woodside provided this information to Pilbara Line Fishery individual licence holders on 15 July 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 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 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Pilbara Line Fishery individual licence holders 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Pilbara Line Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Pilbara Line Fishery a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.

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 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.

4.5.5 Pilbara Trap Fishery

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 15 July 2024, WAFIC, on behalf of Woodside, emailed Pilbara Trap Fishery individual licence holders advising of the proposed activity (SI Report, reference 11.6), and provided a Consultation Information Sheet. On 16 August 2024, WAFIC emailed Woodside reporting that no feedback had been received for this activity from licence holders (SI Report, reference 11.7). 		
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 7.3.2).	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 considers consultation with Pilbara Trap 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. WAFIC on behalf of Woodside provided this information to Pilbara Trap Fishery individual licence holders on 15 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed Pilbara Trap Fishery a reasonable period for consultation in the preparation of this EP because:</p>		

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- 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Pilbara Trap Fishery individual licence holders 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Pilbara Trap Fishery individual licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Pilbara Trap Fishery a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.

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 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.

4.6 RECREATIONAL MARINE USERS AND REPRESENTATIVE BODIES

4.6.1 Gascoyne Recreational Marine Users

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed individual Gascoyne Recreational Marine Users (Record of Consultation, reference 6.1.23) and on 15 July 2024, sent a letter (Record of Consultation, reference 6.1.24) advising of the proposed activity, provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 16 July 2024, Gascoyne Recreational Marine User, Top Gun Charters, emailed to provide information on its vessel services (SI Report, reference 9.1).
- On 18 July 2024, Woodside emailed Top Gun Charters to thank them for the information provided and noted it had been shared with relevant Woodside teams (SI Report, reference 9.2).
- On 18 July 2024, Top Gun Charters emailed to thank Woodside for sharing the information (SI Report, reference 9.3).

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 102 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

<ul style="list-style-type: none"> On 31 July 2024, Woodside sent an email reminder to individual Gascoyne Recreational Marine Users (Record of Consultation, reference 6.2.1) and letter reminder as needed (Record of Consultation, reference 6.2.2), following up on the proposed activity and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with individual Gascoyne Recreational Marine Users 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:</p> <p>Sufficient Information</p> <p>Woodside has given individual Gascoyne Recreational Marine Users sufficient information to allow individual Gascoyne Recreational Marine Users to make an informed assessment of the possible consequences of the activity on its functions, interests or 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 July 2024. Woodside emails this information to individual Gascoyne Recreational Marine Users on 16 July 2024 and also sent letters on 15 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed individual Gascoyne Recreational Marine Users 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 individual Gascoyne 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed individual Gascoyne Recreational Marine Users 30 days for consultation. It has been 6 months since consultation commenced. 		

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- In this context, Woodside allowed individual Gascoyne Recreational Marine Users a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed individual Gascoyne Recreational Marine Users a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding individual Gascoyne Recreational Marine Users 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 required as individual Gascoyne Recreational Marine Users did not provide feedback for this EP, although one provided information on his company's for hire vessels.

- 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 individual Gascoyne Recreational Marine Users' functions, interests or activities.

4.6.2 Marine Tourism WA

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Marine Tourism WA advising of the proposed activity (Record of Consultation, reference 6.1.25), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Marine Tourism WA, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.

Summary Report - Consultation Complete

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 104 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Marine Tourism WA 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 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 or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Marine Tourism WA on 16 July 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 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 Marine Tourism WA a reasonable period for consultation in the preparation of this EP because:

- 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Marine Tourism WA 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Marine Tourism WA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Marine Tourism WA a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding Marine Tourism WA of the opportunity to provide feedback.

Outcomes of Consultation

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 105 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

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 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.

4.6.3 Pilbara/Kimberley Recreational Marine Users

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed individual Pilbara/Kimberley Recreational Marine Users (Record of Consultation, reference 6.1.23) and on 15 July 2024, sent letters when needed (Record of Consultation, reference 6.1.24), advising of the proposed activity 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 July 2024, Woodside sent an email and letter following up on the proposed activity (Record of Consultation, references 6.2.1, 6.2.2) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 individual Pilbara/Kimberley Recreational Marine Users 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 individual Pilbara/Kimberley Recreational Marine Users sufficient information to allow individual Pilbara/Kimberley Recreational Marine Users to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside emailed this information to individual Pilbara/Kimberley Recreational Marine Users on 16 July 2024 and also mailed out letters on 15 July 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.

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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 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 individual 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 individual 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed individual Pilbara/Kimberley Recreational Marine Users 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed individual Pilbara/Kimberley Recreational Marine Users a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed individual Pilbara/Kimberley Recreational Marine Users a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding individual Pilbara/Kimberley Recreational Marine Users 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 required as individual 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 individual Pilbara/Kimberley Recreational Marine Users' functions, interests or activities.

4.6.4 Recfishwest

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 107 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Recfishwest advising of the proposed activity (Record of Consultation, reference 6.1.25), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 July 2024, Recfishwest emailed and thanked Woodside for the information (SI Report, reference 8.1) and:
 - (1) Requested to be kept informed on progress of activities as area is used by recreational fishers in larger vessels and the charter industry and advised it will communicate relevant details to fishing community as required, such as exclusion zones.
- On 23 July 2024, Woodside thanked Recfishwest for its feedback (SI Report, reference 8.2) and:
 - (1) Confirmed Woodside would update Recfishwest so they can share relevant information with the recreational fishing community and acknowledged recreational fishers and the charter industry utilise the activity area.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Noted recreational fishers and the charter industry utilise the activity area and requested to be updated on the progress of operations.	(1) Woodside assessment: Woodside recognises the activity area is used by recreational fishers and charter industry and agrees that Recfishwest should be notified ahead of activity commencement so they can provide updates to recreational fishing community. Woodside response: Woodside will update Recfishwest ahead of commencement of activities so they, in turn, can provide relevant details to recreational fishing community.	(1) Woodside will provide notifications to Recfishwest as set out in Section 7.12 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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	No additional controls or measures are required.
Summary Report - Consultation Complete		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 108 of 370

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Recfishwest 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 Recfishwest sufficient information to allow Recfishwest to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:
- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024 Woodside gave this information to Recfishwest on 16 July 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 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.
- On 23 July 2024, Recfishwest shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable Recfishwest to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- Woodside responded to Recfishwest on 23 July 2024 to confirm notifications request.

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.
 - Woodside's methodology allows a 30-day consultation period and Woodside allowed Recfishwest 30 days for consultation.
 - In this context, Woodside allowed Recfishwest a reasonable period for consultation in preparation of the EP as evidenced by Recfishwest's response on 23 July 2024.

Reasonable Opportunity

- Woodside allowed Recfishwest a reasonable opportunity for consultation in the preparation of this EP because:
 - Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
 - Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
 - Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.

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- Woodside considers a reasonable opportunity was provided to Recfishwest as evidenced by its response on 23 July 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:

- Recfishwest provided feedback but had 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 and assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - Recfishwest was added to the EP's Table 7-7, following request for activity notifications.
- 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.

4.6.5 WA Game Fishing Association

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed WA Game Fishing Association advising of the proposed activity (Record of Consultation, reference 6.1.25), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to WA Game Fishing Association, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 WA Game Fishing Association 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

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 110 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside has given WA Game Fishing Association for sufficient information to allow WA Game Fishing Association for to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to WA Game Fishing Association on 16 July 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 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 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed WA Game Fishing Association 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed WA Game Fishing Association a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed WA Game Fishing Association a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding WA Game Fishing Association 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 required 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.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 111 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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.

4.7 TITLEHOLDERS AND OPERATORS

4.7.1 BP Developments Australia

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed BP Developments Australia advising of the proposed activity (Record of Consultation, reference 6.1.26), 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 24 July 2024, BP Developments Australia emailed to thank Woodside for the information (SI Report, reference 3.1) and: <ul style="list-style-type: none"> (1) Noted the intersection of the proposed activities with BP petroleum titles within the EMBA and while proposed activities may affect its functions, interests and activities, the impacts and risks will be appropriately managed. (2) It has no objections or other feedback at this time. On 26 July 2024, Woodside thanked BP Developments Australia for its response (SI Report, reference 3.2) and: <ul style="list-style-type: none"> (1) Recognised the EMBA intersects with BP petroleum titles and that while BP noted its functions, interests and activities may be affected, it considers Woodside will manage impacts and risks appropriately. (2) Noted BP has no objections or feedback. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Potential for interaction within the EMBA.	(1) Woodside assessment: Woodside acknowledges that the EMBA overlaps BP petroleum titles, therefore, BP's functions, interests or activities may be affected by the proposed activities. Woodside has appropriate management measures in place for the activities covered under this EP. Woodside response: Woodside recognised the overlap of BP petroleum titles by the EMBA and noted BP considers that the risks and impacts Woodside identified will be appropriately managed and that BP had no other feedback.	(1) Not required.

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<p>(2) No objections or feedback.</p>	<p>(2) Woodside assessment: Woodside understands BP had no objections or feedback. Woodside response: Woodside confirmed with BP that it had no feedback.</p>	<p>(2) 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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).</p>	<p>No additional controls or measures 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 considers consultation with BP Developments Australia 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:</p> <p>Sufficient Information</p> <p>Woodside has given BP Developments Australia sufficient information to allow BP Developments Australia to make an informed assessment of the possible consequences of the activity on its functions, interests or 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 July 2024 Woodside gave this information to BP Developments Australia on 16 July 2024, 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 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. On 24 July 2024, BP Developments Australia 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 its functions, interests or activities. Woodside responded to BP Developments Australia on 26 July 2024. 		
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Reasonable Period

Woodside allowed BP Developments Australia a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to BP Developments 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed BP Developments Australia 30 days for consultation.
- In this context, Woodside allowed BP Developments Australia a reasonable period for consultation in preparation of the EP as evidenced by BP Developments Australia's response on 24 July 2024.

Reasonable Opportunity

Woodside allowed BP Developments Australia a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information
- Woodside considers a reasonable opportunity was provided to BP Developments Australia as evidenced by its response on 24 July 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:

- BP Developments Australia 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 BP Developments Australia and assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - Assessed the merits of BP Developments Australia feedback, objections or claims when considering adopting appropriate measures (if any) because of consultation with BP Developments Australia.
 - Made no changes or inclusions to the EP as a result of consultation with BP Developments Australia 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.

4.7.2 Carnarvon Energy

Summary of information provided and record of consultation for this EP:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 114 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- On 16 July 2024, Woodside emailed Carnarvon Energy advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Carnarvon Energy, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
- **(1)** On 2 August 2024, Carnarvon Energy emailed to thank Woodside for sharing information and confirmed it had no questions or feedback for the proposed Julimar Operations EP (SI Report, reference 4.1).
- **(1)** On 2 August 2024, Woodside thanked Carnarvon Energy for its feedback (SI Report, reference 4.2).
- On 17 October 2024, Woodside emailed Carnarvon Energy and asked for permission to include correspondence summary in Appendix F and SI Report given the confidentiality disclaimer following the Carnarvon Energy email signature (SI Report, reference 4.3).
- **(2)** On 17 October, Carnarvon Energy responded to Woodside and confirmed permission (SI Report, reference 4.4).
- **(2)** On 21 October 2021, Woodside emailed Carnarvon Energy to thank it for the confirming the permission to use its correspondence in EPs (SI Report, reference 6).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) No feedback on the proposed activities.	(1) Woodside assessment: Woodside accepts that Carnarvon Energy had no questions or feedback for Julimar Operations EP. Woodside response: Woodside noted that Carnarvon Energy had no input for the Julimar Operations EP.	(1) Not required.
(2) Provided permission to include correspondence in EP.	(2) Woodside assessment: Woodside understands that although there is a confidentiality disclaimer as part of Carnarvon Energy's email signature, Carnarvon has granted permission to include correspondence in EPs. Woodside response: Woodside noted that Carnarvon provided permission to include its correspondence in EPs.	(2) 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, it will be	No additional controls or measures are required.

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	assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	
Summary Report - Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Carnarvon Energy 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024 Woodside gave this information to Carnarvon Energy on 16 July 2024, 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 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. On 2 August 2024, after receiving a follow-up email from Woodside, Carnarvon Energy shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable Carnarvon Energy to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Woodside responded to Carnarvon Energy on 2 August 2024. <p>Reasonable Period</p> <p>Woodside allowed Carnarvon Energy 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed Carnarvon Energy 30 days for consultation. <p>In this context, Woodside allowed Carnarvon Energy a reasonable period for consultation in preparation of the EP as evidenced by Carnarvon Energy's response on 2 August 2024.</p> <p>Reasonable Opportunity</p> <p>Woodside allowed Carnarvon Energy a reasonable opportunity for consultation in the preparation of this EP because:</p>		

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- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information
- Woodside sent a follow-up email on 31 July 2024 to remind Carnarvon Energy about consultation.

Woodside considers a reasonable opportunity was provided to Carnarvon Energy as evidenced by its response on 2 August 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:

- Carnarvon Energy 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 regulations 24 and 34(g), Woodside has:
 - Responded to feedback from Carnarvon Energy and assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - Woodside confirmed with Carnarvon Energy on 17 October that it had permission to use the titleholder's correspondence in EPs.
 - Made no changes or inclusions to the EP as a result of consultation with Carnarvon Energy 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.

4.7.3 Chevron Australia

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Chevron Australia advising of the proposed activity (Record of Consultation, reference 6.1.43), provided a Consultation Information Sheet, GIS shape files and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*. Woodside asked that the consultation information be forwarded to Chevron Australia's Joint Venture participants Osaka Gas Gorgon, Tokyo Gas Gorgon and Jera Gorgon for feedback.
- On 31 July 2024, Woodside sent an email reminder to Chevron Australia, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
- On 20 August 2024, Chevron emailed to thank Woodside for their consideration (SI Report, reference 27.1) and:
 - (1) Confirmed no issues were identified.
 - (2) Asked for additional information if activities would be conducted during cyclone season, including cyclone anchor configuration, mooring design, site specific geophysical and geotechnical data, anchor analysis, risk mitigations.
- On 23 August 2024, Woodside thanked Chevron for its response (SI Report, reference 27.2) and:
 - (1) Noted that Chevron had not identified any issues with planned activities.

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- (2) Confirmed that the planned operational activities would not involve anchoring or mooring.
- On 20 January 2025, Woodside JV Advisor emailed Chevron to seek confirmation from Wheatstone Operator that GHG emissions associated with the new Julimar wells will be described, risk assessed, managed to ALARP and of an acceptable level by the in-force Wheatstone Project Start-up and Operations EP (SI Report, reference 27.3)
- On 3 February 2025, Chevron replied to Woodside and confirmed JDP3 associated emissions are included in the Chevron Integrated Production Management (IPM) emissions forecast which has been assessed under the accepted Wheatstone Start-up and Operations Environment Plan. (SI Report, reference 27.4)
- On 18 February 2025, Woodside responded to Chevron and noted it appreciated the confirmation Chevron communicated that JDP3 associated emissions are incorporated within Chevron’s Integrated Production Management (IPM) emissions forecast (SI Report, reference 27.5) and
 - Sought further clarification to confirm that the Chevron IPM emissions forecast, as under the accepted Wheatstone Start-Up and Operations EP, the management of change process as outlined in Section 8.3.2.2 of the in-force Wheatstone Project Start-up and Operations EP, has:
 - Impact assessed additional GHG emissions associated with the new Julimar wells, in the Wheatstone Start up and Operations EP scope
 - Determined whether any additional controls are required to be implemented to reduce the impacts to ALARP; and
 - Determined that the impacts, if the adopted controls are implemented, are broadly acceptable.
- On 19 February 2025, Chevron responded to Woodside and provided answers to confirm that the Wheatstone Project Start-up and Operations EP covers the three points raised by Woodside (SI Report, reference 27.6) which included:
 - The response for “Impact assessed additional GHG emissions associated with the new Julimar wells, in the Wheatstone Start up and Operations EP scope”:
 - Refer to Section 6.2.3 of the Wheatstone Startup and Operations EP for more detailed breakdown and assessment of direct and indirect emissions assessed under the Wheatstone Start up and Operations EP.
 - The response for “Determined whether any additional controls are required to be implemented to reduce the impacts to ALARP”:
 - No additional controls were required to be implemented to reduce the impacts to ALARP. Section 6.2.3.5 provides the GHG emission controls applicable to the Wheatstone Start-up and Operations EP.
 - The response for “Determined that the impacts, if the adopted controls are implemented, are broadly acceptable”:
 - Yes.

<i>Summary of Feedback, Objection or Claim</i>	<i>Assessment of Merits of Feedback, Objection or Claim and Woodside’s Response</i>	<i>Inclusion in Environment Plan</i>
(1) No issues identified.	(1) Woodside assessment: Woodside accepts that Chevron identified no issues with proposed EP activities. Woodside response: Woodside confirmed with Chevron that it had no issues with EP activities.	(1) Not required.
(2) Requested information tied to cyclone season.	(2)	(2) Not required.

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	<p>Woodside assessment: Woodside understands that Chevron would want to be informed of risks to its assets if activities progressed during cyclone season but can confirm no planned operational activities will require anchoring or mooring.</p> <p>Woodside response: Woodside confirmed that current operational activities associated with the EP will not require anchoring or mooring.</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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).</p>	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 considers consultation with Chevron Australia 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 Chevron Australia sufficient information to allow Chevron Australia to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024 Woodside gave this information to Chevron Australia on 16 July 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 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.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 119 of 370

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- On 20 August 2024, Chevron Australia shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable Chevron Australia to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- Woodside provided additional information to Chevron Australia on 23 August 2024.

Reasonable Period

Woodside allowed Chevron Australia a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Chevron 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Chevron Australia more than 30 days for consultation.
- In this context, Woodside allowed Chevron Australia a reasonable period for consultation in preparation of the EP as evidenced by Chevron Australia's response on 20 August 2024.

Reasonable Opportunity

Woodside allowed Chevron Australia a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside sent a follow-up email to Chevron Australia on 31 July 2024.
- Woodside considers a reasonable opportunity was provided to Chevron Australia as evidenced by its response on 20 August 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:

- Chevron Australia provided feedback, but there were 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 Chevron Australia and 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 Chevron Australia 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.

4.7.4 Coastal Oil and Gas

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Coastal Oil and Gas via Fox Resources advising of the proposed activity (Record of Consultation, reference 6.1.26), 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 31 July 2024, Woodside sent an email reminder to Coastal Oil and Gas following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with Coastal Oil and Gas 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:</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 or 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 July 2024. Woodside gave this information to Coastal Oil and Gas on 16 July 2024, 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 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. <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. Woodside's methodology allows a 30-day consultation period and Woodside allowed Coastal Oil and Gas 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed Coastal Oil and Gas a reasonable period for consultation in preparation of the EP. 		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 121 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Reasonable Opportunity

Woodside allowed Coastal Oil and Gas a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding Coastal Oil and Gas 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 required 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' functions, interests or activities.

4.7.5 Eni Australia

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Eni Australia advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Eni Australia, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.

Summary Report - Consultation Complete

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 122 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Eni Australia 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 Eni Australia sufficient information to allow Eni Australia to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Eni Australia on 16 July 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 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 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Eni Australia 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Eni Australia a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Eni Australia a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding Eni Australia 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 required as Eni Australia did not provide feedback for this EP.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 123 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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.

4.7.6 Exxon Mobil Australia Resources Company

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> • On 16 July 2024, Woodside emailed Exxon Mobil Australia advising of the proposed activity (Record of Consultation, reference 6.1.26), 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 July 2024, Woodside sent an email reminder to Exxon Mobil Australia, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with Exxon Mobil Australia 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to Exxon Mobil Australia on 16 July 2024, 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 measurement measures. – A timeframe for consultation and the provision of feedback. – A link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans</i>. 		
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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 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Exxon Mobil Australia 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Exxon Mobil Australia a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Exxon Mobil Australia a reasonable period for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding Exxon Mobil Australia 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 required 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.

4.7.7 FINDER Energy

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed FINDER Energy advising of the proposed activity (Record of Consultation, reference 6.1.26), 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 July 2024, FINDER Energy emailed to thank Woodside for the information and confirmed it had no objection or comment on planned activities (SI Report, reference 6.1).

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 125 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

<ul style="list-style-type: none"> (1) On 17 July 2024, Woodside emailed Finder Energy, thanked them for their email and confirmed they had not objection or comment. (SI Report, reference 6.2) 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) No objection or comment.	(1) Woodside assessment: Woodside accepts that Finder Energy had no objection or comment for the Julimar Operations activities. Woodside response: Woodside noted that Finder Energy had no objection or comments for the planned Julimar Operations activities.	(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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	No additional controls or measures are required.
Summary Report - Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Finder Energy 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:</p> <p>Sufficient Information</p> <p>Woodside has given Finder Energy sufficient information to allow Finder Energy to make an informed assessment of the possible consequences of the activity on its functions, interests or 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 July 2024 Woodside gave this information to Finder Energy on 16 July 2024, 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 measurement measures. A timeframe for consultation and the provision of feedback. 		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 126 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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 16 July 2024, Finder Energy shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable Finder Energy to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- Woodside responded to Finder Energy on 17 July 2024.

Reasonable Period

Woodside allowed Finder Energy a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Finder 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Finder Energy 30 days for consultation.
- In this context, Woodside allowed Finder Energy a reasonable period for consultation in preparation of the EP as evidenced by Finder Energy's response on 16 July 2024.

Reasonable Opportunity

Woodside allowed Finder Energy a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information
- Woodside considers a reasonable opportunity was provided to Finder Energy as evidenced by its response on 16 July 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:

- Finder Energy provided feedback but had 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 Finder Energy and 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 Finder Energy 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.

4.7.8 INPEX Alpha

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 127 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed INPEX Alpha advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to INPEX Alpha following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 INPE Alpha 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 INPEX Alpha sufficient information to allow INPEX Alpha to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to INPEX Alpha on 16 July 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 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 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.

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- Woodside's methodology allows a 30-day consultation period and Woodside allowed INPEX Alpha 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed INPEX Alpha a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed INPEX Alpha a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding INPEX Alpha 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 required 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.

4.7.9 J Nippon O&G Exploration (Australia)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed J Nippon O&G Exploration advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to J Nippon O&G Exploration following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 129 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Summary Report - Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with J Nippon O&G Exploration 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 J Nippon O&G Exploration sufficient information to allow J Nippon O&G Exploration to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to J Nippon O&G Exploration on 16 July 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 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 J Nippon O&G Exploration a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to J Nippon O&G Exploration 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 and Woodside allowed J Nippon O&G Exploration 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed J Nippon O&G Exploration a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed J Nippon O&G Exploration a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding J Nippon O&G Exploration 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 required as J Nippon O&G Exploration 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 J Nippon O&G Exploration's functions, interests or activities.

4.7.10 KATO Energy / KATO Corowa/ KATO NWS / KATO Amulet

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed KATO Energy advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to KATO Energy, following up on the proposed activity (Record of Consultation, reference 6.1.26) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 KATO Energy 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 KATO Energy sufficient information to allow KATO Energy to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to KATO Energy on 16 July 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.

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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 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 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed KATO Energy 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed KATO Energy a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed KATO Energy a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding KATO Energy 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 required 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.

4.7.11 KUFPEC

Summary of information provided and record of consultation for this EP:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 132 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

<ul style="list-style-type: none"> On 16 July 2024, Woodside emailed KUFPEC advising of the proposed activity (Record of Consultation, reference 6.1.26), 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 July 2024, Woodside sent an email reminder to KUFPEC, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with KUFPEC 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to KUFPEC on 16 July 2024, 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 measurement 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 KUFPEC 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed KUFPEC 30 days for consultation. It has been 6 months since consultation commenced. 		
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- In this context, Woodside allowed KUFPEC a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed KUFPEC a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding KUFPEC 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 required 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.

4.7.12 Kyushu Electric Wheatstone

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Kyushu Electric Wheatstone advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Kyushu Electric Wheatstone, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.

Summary Report - Consultation Complete

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 134 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Kyushu Electric Wheatstone 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 Kyushu Electric Wheatstone sufficient information to allow Kyushu Electric Wheatstone to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Kyushu Electric Wheatstone on 16 July 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 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 Kyushu Electric Wheatstone a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Kyushu Electric 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Kyushu Electric Wheatstone 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Kyushu Electric Wheatstone a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Kyushu Electric Wheatstone a reasonable opportunity period for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding Kyushu Electric Wheatstone 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:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 135 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- No additional measures were required as Kyushu Electric 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 Electric Wheatstone's functions, interests or activities.

4.7.13 Longreach Capital Investment/Beagle No 1 Pty Ltd

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Longreach Capital Investment advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Longreach Capital Investment, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
- On 31 July 2024, Longreach Capital Investment emailed and thanked Woodside for consultation inclusion (SI Report, reference 7.1) and:
 - (1) Asked to receive start of activity notifications.
 - (2) Noted no additional information was required at this time.
 - (3) Shared if it needed to coordinate SIMOPS for future seismic activities, it will advise Woodside.
- On 2 August 2024, Woodside thanked Longreach Capital Investment for their response (SI Report, reference 7.2) and:
 - (1) Confirmed it will send start of activity notifications.
 - (2) Noted there were no further comments.
 - (3) Acknowledged Longreach Capital Investment will advise on future SIMOPs coordination.
- (1) On 23 August 2024, Woodside provided an update on start of activity notifications and confirmed notifications would be sent when vessels would be in the Operational Area greater than 3 weeks.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Requested activity notifications.	(1) Woodside assessment: Woodside accepts that Longreach Capital Investment would like to receive start of activity notifications. Woodside response: Woodside confirms that Longreach Capital Investment would receive notification before operations commence when vessels will be in the area >3 weeks.	(1) Woodside will provide start of activity notifications to Longreach Capital Investment as set out in Table 7-7 of the EP.

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<p>(2) No additional information needed.</p>	<p>(2) Woodside assessment: Woodside accepts that Longreach Capital Investment does not require further information. Woodside response: Woodside noted that Longreach Capital Investment had no further comments for EP.</p>	<p>(2) Not required.</p>
<p>(3) Future coordination of SIMOPS.</p>	<p>(3) Woodside assessment: Woodside notes that Longreach Capital Investment will advise Woodside if it needs to coordinate SIMOPS for future activities. Woodside response: Woodside confirmed that Longreach Capital Investment will advise on and coordinate SIMOPS for future activities if needed.</p>	<p>(3) 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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).</p>	<p>No additional controls or measures 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 DPLH 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 Longreach Capital Investment sufficient information to allow Longreach Capital Investment to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024 Woodside gave this information to Longreach Capital Investment on 16 July 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 measurement 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.
- On 31 July 2024, after receiving a follow-up consultation email, Longreach Capital Investment shared its feedback, claims or objections regarding this activity, indicating the information provided was sufficient to enable Longreach Capital Investment to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- Woodside provided additional information on 2 August 2024.

Reasonable Period

Woodside allowed Longreach Capital Investment a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Longreach Capital Investment 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 and Woodside allowed Longreach Capital Investment 30 days for consultation.
- In this context, Woodside allowed Longreach Capital Investment a reasonable period for consultation in preparation of the EP as evidenced by Longreach Capital Investment's response on 31 July 2024.

Reasonable Opportunity

Woodside allowed Longreach Capital Investment a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside considers a reasonable opportunity was provided to Longreach Capital Investment as evidenced by its response on 31 July 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:

- Longreach Capital Investment 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 Longreach Capital Investment and assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
 - Longreach Capital Investment was added to Table 7-7 in the EP as it requested activity notifications.
- 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.

4.7.14 OMV Australia

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed OMV Australia advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to OMV Australia, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 OMV 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 OMV sufficient information to allow OMV to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to OMV Australia on 16 July 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 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 OMV 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 OMV 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed OMV Australia 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed OMV Australia a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed OMV a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding OMV Australia 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 required as OMV 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 OMV Australia's functions, interests or activities.

4.7.15 PE Wheatstone

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed the PE Wheatstone advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to PE Wheatstone, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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	No additional measures or controls are required.

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	EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	
Summary Report - Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with PE Wheatstone 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to PE Wheatstone on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed PE Wheatstone 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed PE Wheatstone 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed PE Wheatstone a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed PE Wheatstone a reasonable opportunity for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding PE Wheatstone 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 required 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.

4.7.16 Santos

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Santos advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Santos following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
- On 1 August 2024, Santos emailed and thanked Woodside for requesting feedback on this EP (SI Report, reference 10.1) and:
 - (1) Noted it had no feedback.
- (1) On 2 August 2024, Woodside thanked Santos for its reply and for confirming there was no feedback on the Julimar Operations EP. (SI Report, reference 10.2).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) No feedback.	(1) Woodside assessment: Woodside accepts that Santos had no feedback on the Julimar Operations EP. Woodside response: Woodside confirmed that Santos did not have feedback regarding the activity.	(1) Not required.
While feedback has been received, there were no objections or claims.	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, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	No additional controls or measures are required.

Summary Report - Consultation Complete

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 142 of 370

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Santos 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 Santos sufficient information to allow Santos to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Santos on 16 July 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 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).
- On 1 August 2024, after receiving a reminder email about consultation on 31 July 2024, 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 its functions, interests or activities.
- Woodside responded to Santos on 2 August 2024.

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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Santos 30 days for consultation.
- In this context, Woodside allowed Santos a reasonable period for consultation in preparation of the EP as evidenced by Santos' response on 1 August 2024.

Reasonable Opportunity

Woodside allowed Santos a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- Woodside considers a reasonable opportunity was provided to Santos as evidenced by its response on 1 August 2024.

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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:

- Santos provided feedback but had 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 and 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 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.

4.7.17 Shell Australia

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Shell Australia advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Shell Australia, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 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 7.3.2).	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 Shell Australia 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

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 144 of 370

Uncontrolled when printed. Refer to electronic version for most up to date 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 or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Shell Australia on 16 July 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 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 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Shell Australia 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Shell Australia a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Shell Australia a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding Shell Australia 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 required 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.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 145 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

4.7.18 Skye Napoleon

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed Skye Napoleon advising of the proposed activity (Record of Consultation, reference 6.1.26), 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 July 2024, Woodside sent an email reminder to Skye Napoleon, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	. 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 considers consultation with Skye Napoleon 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:</p> <p>Sufficient Information</p> <p>Woodside has given Skye Napoleon sufficient information to allow Skye Napoleon to make an informed assessment of the possible consequences of the activity on its functions, interests or 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 July 2024. Woodside gave this information to Skye Napoleon on 16 July 2024, 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 measurement 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 Skye Napoleon a reasonable period for consultation in the preparation of this EP because:</p>		
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- A consultation period was stated in the initial correspondence to Skye Napoleon 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 and Woodside allowed Skye Napoleon 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Skye Napoleon a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Skye Napoleon a reasonable period for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding Skye Napoleon 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 required as Skye Napoleon 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 Skye Napoleon's functions, interests or activities.

4.7.19 Western Gas

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Western Gas advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Western Gas following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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	No additional measures or controls are required.

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	appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	
Summary Report - Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Western Gas 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to Western Gas on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed Western 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 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. Woodside's methodology allows a 30-day consultation period and Woodside allowed Western Gas 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed Western Gas a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed Western Gas a reasonable opportunity for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information. In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding Western Gas 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 required as Western 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 Western Gas' functions, interests or activities.

4.8 PEAK INDUSTRY REPRESENTATIVE BODIES

4.8.1 Australian Energy Producers (AEP)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed AEP advising of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to AEP following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 AEP 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 AEP sufficient information to allow AEP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 149 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to AEP on 16 July 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 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 AEP a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to AEP 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 and Woodside allowed AEP 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed AEP a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed AEP a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, 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 required 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.

4.9 TRADITIONAL CUSTODIANS AND NOMINATED REPRESENTATIVE CORPORATIONS

4.9.1 Buurabalayji Thalanyji Aboriginal Corporation (BTAC)

Buurabalayji Thalanyji Aboriginal Corporation (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.

Historical engagement

- On 20 February 2023, BTAC emailed Woodside a letter in relation to another project but relevant to all Woodside EPs. BTAC stated that:
 - (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.
- 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*.
- 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:
 - (1, 2) Identify Sea Country values generally sufficient to inform all Woodside EPs and 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 16 July 2024, Woodside emailed BTAC advising of the proposed activity (Record of Consultation, reference 6.1.30), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact BTAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations BTAC suggests Woodside should speak to.
 - Woodside's commitment to reflect BTAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to meet face-to-face, including speaking with Elders, office holders and other invested parties about this activity and interest to build the relationship with BTAC.
 - A request for BTAC to advise their preferred method of consultation with Woodside, including if BTAC required any specific support or information.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.

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- Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what BTAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
 - On 23 July 2024, BTAC emailed Woodside in relation to BTAC's request for support to identify Sea Country values (SI Report, reference 12.1).
 - On 29 July 2024, BTAC's legal representative emailed Woodside a response to its initial consultation email on 16 July 2024 (SI Report, reference 12.2). BTAC requested a face-to-face meeting to discuss the EP.
 - On 30 July 2024, Woodside replied to BTAC's legal representative's email on 29 July 2024 and proposed a number of dates to meet with BTAC (SI Report, reference 12.3).
 - On 31 July 2024, Woodside emailed BTAC a response to its proposal for Sea Country mapping. Woodside noting the proposal was broader than expected and what can be supported, and reiterated that its expectation was that the work would be an ethnographic assessment, focused on clarifying or defining the offshore areas that are relevant to the Thalanyji people, and recording Sea Country values in order to inform EPs. Woodside requested a meeting to discuss the matter further (SI Report, reference 12.4).
 - On 31 July 2024, BTAC's legal representative replied to Woodside noting the BTAC's Board availability to meet to discuss items not relating to this EP (SI Report, reference 12.5).
 - On 13 August 2024, Woodside replied to BTAC's legal representative agreeing to meet and discuss unrelated items to this EP. Woodside also noted BTAC's preference to discuss unrelated items ahead of EP consultation, however, Woodside noted that both matters could be actioned in parallel. Woodside then requested BTAC's advice for a date to meet for EP consultation (SI Report, reference 12.6).
- Ongoing Engagement**
- On 9 September 2024, Woodside invited BTAC to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners to be held in Roebourne on 25 September 2024 (SI Report, reference 32.1).
 - On 3 October 2024, Woodside invited BTAC to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners to be held in Roebourne on 23 October 2024 (SI Report, reference 32.3).
 - On 18 November 2024, Woodside and BTAC met. Outcomes of this meeting were summarised in an email from Woodside to BTAC on 18 November 2024 (SI Report, reference 12.7). Matters relevant to this EP included:
 - **(3)** BTAC will send a ranger program proposal to Woodside. **(3)** Woodside will review this proposal.
 - **(2)** Woodside and BTAC will finalise the scope for Sea Country mapping during a workshop in 2025.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) BTAC stated that its interests include archaeological sites identified on nearshore islands including the Montebello Islands, Barrow Island and the Mackerel Islands.	(1) Woodside Assessment: Given the EMBA overlaps and/or is adjacent to Barrow Island and Montebello Islands, cultural values may be impacted the event of an unplanned hydrocarbon release. Woodside will engage with Traditional Custodians whose interests	(1) Existing controls considered sufficient as described in Section 6.

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	<p>may be affected in the event of a hydrocarbon release, as outlined in Appendix I.</p> <p>Woodside Response: Woodside has sought to engage BTAC in further assessments of Sea Country values and mapping.</p>	
<p>(2)</p> <p>BTAC has a cultural obligation to care for the environmental values of Sea Country but needed support to articulate these in a format suitable for consultation.</p>	<p>(2)</p> <p>Woodside Assessment: Woodside assessed BTAC's cultural obligation to care for the environmental values of Sea Country to represent potential cultural values.</p> <p>Woodside Response: Woodside updated relevant sections in the EP to record BTAC's interests and potential cultural values, assessed the potential impact on these and included controls. Woodside agreed to support the articulation and recording of Sea Country values and offered financial support. Woodside is still working with BTAC to finalise the scope.</p>	<p>(2)</p> <p>Woodside updated Section 4.9.2 to record BTAC's interests and potential cultural values and assessed potential impact on these, including controls, in Section 6.</p> <p>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 7.3.2).</p>
<p>(3)</p> <p>BTAC will send Woodside a ranger program proposal.</p>	<p>(3)</p> <p>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.</p> <p>Woodside Response: Woodside will review BTAC's proposal.</p>	<p>(3)</p> <p>The Program for Ongoing Engagement with Traditional Custodians (Appendix I) 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.</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.</p> <p>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 7.3.2 of this EP).</p>	<p>Based on the engagement to date, no additional measures or controls are required.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with BTAC 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. 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.
- In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to BTAC on 16 July 2024 when consultation commenced. Woodside provided:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
 - Clarification of the purpose of consultation, Woodside's consultation objectives and the potential impact of the activity on BTAC's interests.
 - A request for the consultation and information sheets to be distributed to members and individuals as required.
 - An offer to provide more specific information, maps and images 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 BTAC on 16 July 2024 and requested BTAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- Woodside has addressed and responded to BTAC over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on BTAC's preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 16 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided contact details for NOPSEMA.

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- 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 offered to meet with BTAC on a number of occasions.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and BTAC 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 asked BTAC 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:

- 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 4.9.2 and assessed potential impact on these, including controls, in Section 6.
- 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 7.3.2 of this EP).

4.9.2 Kariyarra Aboriginal Corporation (KAC)

Kariyarra Aboriginal Corporation (KAC) is established under the Native Title Act 1993 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.

Historical engagement

- On 18 July 2023, Woodside emailed KAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information.
- On 26 July 2023, Woodside emailed KAC Woodside's Program of Ongoing Engagement with Traditional Custodians.
- On 5 December 2023, Woodside and KAC met in Port Hedland. During the meeting:
 - (1) 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.
- On 20 December 2023, KAC via its legal representative emailed Woodside about a different EP, KAC noted:
 - (2) Impacts on coastal landforms and coastal native vegetation. (2) Woodside noted this.
 - (3) Tangible and intangible heritage associated with the coast and the ocean. (3) Woodside noted this.

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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 15 July 2024, Woodside emailed KAC advising of the proposed activity (Record of Consultation, reference 6.1.31), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact KAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations KAC suggests Woodside should speak to.
 - Woodside's commitment to reflect KAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with KAC to make it easier for KAC to contribute to other EPs.
 - A request for information from KAC about how it would like to consult with Woodside including if KAC required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what KAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 28 August 2024, Woodside emailed KAC via its legal representative to follow up on consultation noting feedback was due by 16 August 2024, offering an additional opportunity to provide feedback for the preparation of the EP, and noting that feedback would be accepted for the life of the EP (SI Report, reference 13.1).

Ongoing Engagement

- On 28 August 2024, KAC emailed Woodside introducing its new in-house counsel and advising its previous legal counsel was no longer engaged. KAC expressed an interest in consulting prior to the EP's submission and sought a phone call or virtual meeting to discuss this further (SI Report, reference 13.2).
- On 28 August 2024, Woodside emailed KAC with details of availability to discuss or meet to discuss this EP (SI Report, reference 13.3).
- On 4 September 2024, Woodside travelled from Karratha to South Hedland to meet KAC in-person (SI Report, reference 13.4). Matters relevant to this EP that were discussed included:
 - (4) KAC stated that oil spill responses should consider natural impacts, e.g. cyclones. (4) Woodside confirmed this consideration was part of the process.
 - (1) 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.
 - (1) Woodside responded that mitigation and avoidance measures are included within EPs.
 - (5) KAC expressed a desire to finalise a consultation agreement.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 156 of 370

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<ul style="list-style-type: none"> – (5) 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. – (6) KAC confirmed that Wanparta was another relevant group that Woodside should consult with. (6) Woodside replied that it was consulting with Wanparta on relevant EPs. – (7) KAC said it would like to discuss opportunities with Woodside to support its Ranger Program. (7) Woodside acknowledges KAC's interest in 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 invited KAC to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners to be held in Roebourne on 25 September 2024 (SI Report, reference 32.1). • On 3 October 2024, Woodside invited KAC to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners to be held in Roebourne on 23 October 2024 (SI Report, reference 32.3). 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) 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.	(1) 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 4.9.2. 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.	(1) Woodside acknowledges KAC's asserted connection to Sea Country (Section 4.9.2). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6 of the EP.
(2) KAC's legal representative requested Woodside include measures to avoid impacts to coastal landforms and coastal native vegetation.	(2) Woodside assessment: Assessment of the impacts and risks associated with the petroleum activities program (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	(2) Woodside acknowledges KAC's asserted connection to Sea Country (Section 4.9.2). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6 of the EP.

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	environment to as low as reasonably possible (ALARP) and to an acceptable level.	
<p>(3) 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>(3) 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 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.</p>	<p>(3) Woodside acknowledges KAC's asserted connection to Sea Country (Section 4.9.2). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6 of the EP.</p>
<p>(4) KAC sought a direct agreement with Woodside in the case of an oil spill.</p>	<p>(4) 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 that it engages relevant cultural authorities in the event of oil spills.</p>	<p>(4) Woodside's Oil Spill Preparedness and Response Mitigation Assessment is in Appendix D of the EP. Woodside's Oil Pollution First Strike Plan is in Appendix G of the EP.</p>
<p>(5) 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>(5) 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</p>	<p>(5) 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</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 158 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	agreed, it will be used as a framework for consultation for EPs. Woodside notes that consultation for this EP has occurred in parallel to discussions about this agreement.	of Ongoing Engagement with Traditional Custodians, (Appendix I). Woodside will continue to consult following acceptance of the EP, as set out in Section 7.12 of the EP.
(6) KAC has stated that Wanparta Aboriginal Corporation is a relevant group that Woodside should consult with.	(6) Woodside assessment: Woodside welcomes feedback from Traditional Owners about additional people for Woodside to approach for consultation. Woodside response: Woodside notes KAC's advice to consult with Wanparta Aboriginal Corporation relevant EPs.	(6) No action required.
(7) KAC would like to discuss opportunities for Woodside to support its ranger program	(7) 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 Woodside has finalised its approach.	(7) The Program for Ongoing Engagement with Traditional Custodians (Appendix I) includes commitments to social investment to support Indigenous Ranger programs, and support for Indigenous oil spill response capabilities.
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 7.3.2 of this EP).	Based on the engagement to date, no additional measures or controls are required.
Summary Report: Consultation Complete		
Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with KAC 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. Specifically: Sufficient Information		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 159 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Sufficient information has been provided because:

- Woodside has provided KAC 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.
- In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to KAC on 15 July 2024 when consultation commenced. Woodside provided:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
 - Clarification of the purpose of consultation, Woodside's consultation objectives and the potential impact of the activity on KAC's interests.
 - A request for the consultation and information sheets to be distributed to members and individuals as required.
 - An offer to provide more specific information, maps and images 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 KAC on 15 July 2024 and requested KAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- Woodside has addressed and responded to KAC over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on KAC's preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 15 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations 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 offered to meet with KAC on a number of occasions.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and KAC 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.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 160 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- KAC has outlined its Sea Country rights and duties, including looking after and protecting Sea Country, mentioning fishing, trapping, crabbing, catching turtle, hunting dugong, and using stingray barbs for spears and collecting shellfish. KAC has also asked Woodside to add a reference to its EPs to avoid impacts to coastal landforms, coastal native vegetation, tangible Aboriginal cultural heritage sites and places and intangible Aboriginal heritage associated with the coast and ocean. Woodside recognises KAC's connection to Sea Country (Section 4.9.2). Potential impacts on Cultural Features and Heritage Values are assessed in Section 6 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

4.9.3 Murujuga Aboriginal Corporation (MAC)

Murujuga Aboriginal Corporation (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.

Historical Engagement:

- On 18 July 2023, Woodside emailed MAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information.
- On 26 July 2023, Woodside emailed MAC 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 16 July 2024 Woodside emailed MAC advising of the proposed activity (Record of Consultation, reference 6.1.32), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact MAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations MAC suggests Woodside should speak to.
 - Woodside's commitment to reflect MAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with MAC to make it easier for MAC to contribute to other EPs.

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- A request for information from MAC about how it would like to consult with Woodside including if MAC required any specific support or information and offering to meet face-to-face.
- Contact details for feedback to be provided and the closing date for consultation of 16 August 2024.
- Information on how Woodside would continue to accept feedback for the life of the EP.
- Further information about NOPSEMA and what MAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 2 August 2024, MAC emailed Woodside in response to this EP and attached a letter (SI Report, reference 14.1) the letter:
 - (1) noted that the activity could impact the natural movement, migration and/or other behaviour of marine species, and may have an impact on the cultural interpretation of the seasonal landscape, seascape and associated cultural behaviours.
 - (2) requested separate assessments for the protection of environmental and cultural values.
 - (3) requested that Woodside consult MAC about any activities located close to Murujuga and in the event of an environmental incident affecting Murujuga.
- (3) On 2 August 2024, Woodside responded to MAC's email confirming it would inform MAC of all projects located near Murujuga in the very unlikely case of an environmental incident (SI Report, reference 14.2).
- On 9 September 2024, Woodside invited MAC to share stories and receive updates from Woodside at its Monthly Community Luncheon for Traditional Owners to be held in Roebourne on 25 September 2024 (SI Report, reference 32.1).
- (1, 2) On 17 September 2024, Woodside emailed MAC following up on MAC's correspondence from 2 August 2024 (SI Report, reference 14.3). Woodside noted that the potential cultural impacts on marine species, including impacts and associated controls for marine mammal migration paths and behaviours has been considered and assessed collaboratively with the environmental impacts and controls of the EP.

Ongoing Engagement

- On 25 September 2024, Traditional Owner members from MAC 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 32.2).
- On 3 October 2024, Woodside invited MAC 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 32.3).
- On 23 October 2024, Traditional Owner members from MAC 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 32.4).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) MAC stated that any development could potentially affect the natural movement, migration and/or other behaviour of marine species, and may have an impact on the cultural interpretation of the seasonal landscape, seascape and associated cultural behaviours.	(1) Woodside assessment: Woodside considers the potential cultural impacts on marine species including impacts and associated controls for marine mammal paths and behaviours.	(1) Woodside has assessed impacts and risks to marine species in Section 6 of the EP. Items relating to MAC appear in Table 4-19 in section 4.9.2.

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	Woodside response: Woodside has undertaken numerous environmental studies that form part of the EPs and has an ongoing commitment to environmental studies and research some of which are set out on Woodside's website. Woodside also committed to ongoing consultation with MAC in relation to environmental impacts including to marine life.	
(2) MAC stated that the nature and threshold of protecting environmental and cultural values, must be assessed separately.	(2) Woodside assessment: Woodside undertakes assessments for both environmental and cultural values. These are considered individually and collaboratively. Woodside response: Woodside has advised MAC that assessments for both environmental and cultural values have been assessed both individually and collaboratively.	(2) Woodside has addressed the environmental and cultural impacts and controls outlined in Section 4 and Section 6 of this EP.
(3) 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.	(3) 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 procedures in place for notifying stakeholders in the event of an unplanned incident.	(3) Woodside's procedures for notifying stakeholders in the event of an unplanned incident are outlined in Appendix .2 – Oil Pollution First Strike Plan.
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 7.3.2 of this EP).	Based on the engagement to date, no additional measures or controls are required.
Summary Report: Consultation Complete		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 163 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with MAC 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. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has provided MAC 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.
- In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to MAC on 16 July 2024 when consultation commenced. Woodside provided:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
 - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of MAC's interests and how the activity could impact those interests.
 - A request for the consultation and information sheets to be distributed to members and individuals as required.
 - An offer to provide more specific information, maps and images 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 on 16 July 2024 and requested MAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- Woodside has addressed and responded to MAC over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on MAC's preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 16 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided contact details for NOPSEMA.
 - Offered to speak with MAC members as well as the MAC Board.

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- Asked MAC to advise how it would like Woodside to engage and whether MAC required further information.

- Woodside offered to meet with MAC on a number of occasions.
- Woodside invites MAC to Monthly Community Luncheons.
- Woodside asked MAC 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:

- 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 4.9.2.
- 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 7.3.2 of this EP).

4.9.4 Ngarluma Aboriginal Corporation (NAC)

Ngarluma Aboriginal Corporation (NAC) is established under the *Native Title Act 1993* 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.

Historical engagement:

- On 18 July 2023, Woodside emailed NAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information.
- On 26 July 2023, Woodside emailed NAC 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 12 July 2024, Woodside emailed NAC advising of the proposed activity (Record of Consultation, reference 6.1.33), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact NAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations NAC suggests Woodside should speak to.
 - Woodside's commitment to reflect NAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with NAC to make it easier for NAC to contribute to other EPs.

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- A request for information from NAC about how it would like to consult with Woodside including if NAC required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for consultation of 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what NAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 1 August 2024, Woodside emailed NAC a reminder about the proposed activity, offered to provide further information and the opportunity to meet. Woodside also reiterated the date to submit feedback for consideration in the preparation of this EP, 16 August 2024 (SI Report, reference 15.1).

Ongoing Engagement

- On 5 September 2024, Woodside emailed NAC information about Woodside's Quarterly Heritage Meetings (SI Report, reference 15.2).
- On 9 September 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 25 September 2024 (SI Report, reference 32.1).
- On 22 September 2024, Woodside emailed NAC an invitation to Woodside's Quarter 3 Heritage Meeting to be held in Roebourne on 10 October 2024 (SI report, reference 15.3).
- On 25 September 2024, Traditional Owner members from NAC attended Woodside's Monthly Community Luncheon for Traditional Owners held in Roebourne. During the luncheon Woodside requested feedback from all attendees about EPs and provided information about the consultation process (SI Report, reference 32.2).
- 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 32.3).
- On 10 October 2024, NAC attended Woodside's Quarter 3 Heritage Meeting in Roebourne (SI Report, reference 15.4). Matters relevant to this EP included:
 - An explanation of State and Commonwealth regulatory requirements
 - An explanation of EMBA's and the process Woodside undertakes to identify Traditional Owners groups
 - 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 14 October 2024, Woodside was notified that Sorry Business was taking place in the Roebourne and Karratha area (SI Report, reference 15.5).
- 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 32.4).
- On 15 November 2024, Woodside emailed NAC an invitation to a Quarterly Heritage meeting in December (SI Report, reference 15.6).
- On 5 December 2024, NAC attended Woodside's Quarterly Heritage Meeting (SI Report, reference 15.6). Relevant matters discussed included:
 - An overview of upcoming EPs
 - An explanation of ongoing consultation.
 - Reminder about monthly community luncheons.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 166 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

<ul style="list-style-type: none"> On 11 December 2024, Woodside became aware through social media about the passing of two significant Elders. This news was relevant to NAC (SI Report, reference 15.8). On 22 January 2025, Woodside emailed NAC information about Quarterly Heritage meetings scheduled for 2025 (SI Report, reference 15.9) 		
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 7.3.2).	No additional measures or controls are required.
Summary Report: Consultation Complete		
<p>Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with NAC 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. Specifically:</p> <p>Sufficient Information</p> <p>Sufficient information has been provided because:</p> <ul style="list-style-type: none"> Woodside has provided NAC with relevant consultation documents, including NOPSEMA's <i>Consultation Guidelines</i>, <i>Consultation Brochure</i>, and <i>Draft Policy for Managing Gender-Restricted Information</i>, informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters. In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website. On 12 July 2024, Woodside provided information to NAC when consultation commenced. Woodside provided: <ul style="list-style-type: none"> A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback. Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of NAC's interests and how the activity could impact those interests. A request for the consultation and information sheets to be distributed to members and individuals as required. An offer to provide more specific information, maps and images if required. Woodside provided contact information for Woodside and NOPSEMA. <p>Reasonable Period</p> <p>A reasonable period for consultation in the preparation of this EP has been provided because:</p> <ul style="list-style-type: none"> Woodside commenced consultation on this EP with NAC on 12 July 2024 and requested NAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation. 		

- Woodside has addressed and responded to NAC over 7 months, demonstrating a “reasonable period” of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside’s approach to consultation is appropriate and adapted because:

- Woodside sought direction on NAC’s preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside’s initial email about this EP on 12 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside’s First Nations team. Woodside also provided 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.
 - Woodside offered to meet with NAC on a number of occasions.
 - Throughout the consultation period, Woodside and NAC have exchanged multiple emails, had phone calls, have met and have otherwise had direct contact lines to each other during the period.
 - Woodside invites NAC to quarterly heritage meetings, monthly relationship meetings and luncheons.
 - Woodside asked NAC 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 7 months, NAC 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

4.9.5 Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)

Nganhurra Thanardi Garrbu Aboriginal Corporation (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.

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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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 168 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Historical Engagement:

- On 19 July 2023, Woodside emailed NTGAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information.
- 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 attended a meeting with the NTGAC Board and YMAC representatives. Matters discussed relevant to this EP include:
 - (1) NTGAC expressed interest in whales and whale sharks. (1) Woodside noted NTGAC's interest in whales and whale sharks.

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 16 July 2024 Woodside emailed NTGAC (via YMAC) advising of the proposed activity (Record of Consultation, reference 6.1.34), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact NTGAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations NTGAC suggests Woodside should speak to.
 - Woodside's commitment to reflect NTGAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with NTGAC to make it easier for NTGAC to contribute to other EPs.
 - A request for information from NTGAC about how it would like to consult with Woodside including if NTGAC required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for consultation of 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what NTGAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 23 July 2024, Woodside emailed NTGAC via YMAC a reminder about the proposed activity and offered to provide further information and opportunity to consult. Woodside also reiterated the date to submit feedback about the activity (SI Report, reference 16.1).

Ongoing Engagement

- Between 30 July 2024 and 20 August 2024 Woodside, and NTGAC via YMAC exchanged emails relating to meeting in September 2024 (SI Report, references 16.2 – 16.6).
- On 6 September 2024, Woodside spoke to NTGAC on the phone (SI Report, reference 16.7). Matters relevant to this EP included:
 - The agenda for the 12 September 2024 meeting including EPs intended to be presented.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 169 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- On 9 September 2024, Woodside invited NTGAC to share stories and receive updates from Woodside at its Monthly Community Luncheon for Traditional Owners to be held in Roebourne on 25 September 2024 (SI Report, reference 32.1).
- On 10 September 2024, NTGAC via YMAC emailed Woodside a proposed agenda for its meeting on 12 September 2024 (SI report 16.8). 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 16.9 – 16.13).
- On 12 September 2024, Woodside and NTGAC had a meeting (SI Report reference 16.14). Matters discussed relating to this EP include:
 - Woodside confirmed attendees were familiar with EPs and NOPSEMA. Attendees acknowledged they were.
 - Woodside provided an overview of the activity and EMBA of this EP.
 - The group had no further questions.
- On 3 October 2024, Woodside invited NTGAC to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners to be held in Roebourne on 23 October 2024 (SI Report, reference 32.3).

<i>Summary of Feedback, Objection or Claim</i>	<i>Assessment of Merits of Feedback, Objection or Claim and Woodside's Response</i>	<i>Inclusion in Environment Plan</i>
(1) NTGAC have expressed a general interest in whales and whale sharks.	(1) Woodside assessment: When developing EPs, Woodside considers potential cultural impacts on marine species including impacts and associated controls with whales and whale sharks. 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.	(1) Woodside has assessed impacts and risks to marine species in Section 6 of the EP. Items relating to NTGAC appear in Section 4.9.2.

<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.</p> <p>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 7.3.2).</p>	<p>Based on the engagement to date, 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 Environmental Regulations and consultation with NTGAC 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. Specifically:</p> <p>Sufficient Information</p> <p>Sufficient information has been provided because:</p> <ul style="list-style-type: none"> • Woodside has provided NTGAC with relevant consultation documents, including NOPSEMA's <i>Consultation Guidelines</i>, <i>Consultation Brochure</i>, and <i>Draft Policy for Managing Gender-Restricted Information</i>, informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters. • In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website. • Woodside provided information to NTGAC on 16 July 2024 when consultation commenced. Woodside provided: <ul style="list-style-type: none"> – A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback. – Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of NTGAC's interests and how the activity could impact those interests. – A request for the consultation and information sheets to be distributed to members and individuals as required. – An offer to provide more specific information, maps and images if required. • Woodside provided contact information for Woodside and NOPSEMA. <p>Reasonable Period</p> <p>A reasonable period for consultation in the preparation of this EP has been provided because:</p> <ul style="list-style-type: none"> • Woodside commenced consultation on this EP with NTGAC on 16 July 2024 and requested NTGAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation. • Woodside has addressed and responded to NTGAC over 7 months, demonstrating a "reasonable period" of consultation. 		
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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on NTGAC's preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 16 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations 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 offered to meet with NTGAC on a number of occasions.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and NTGAC have exchanged multiple emails, had phone calls, have met and have otherwise had direct contact lines to each other during the period.
- Woodside met with NTGAC on 12 September 2024 to discuss this and other EPs. The meeting was attended by Woodside's First Nations 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:

- NTGAC has previously noted a general interest in whales and whale sharks. Woodside has assessed potential impacts to marine fauna in Section 6 of the EP. Controls already in place in the EP are appropriate to manage the risks and impacts associated with whales.
- During the past 7 months, NTGAC 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

4.9.6 Robe River Kuruma Aboriginal Corporation (RRKAC)

Robe River Kuruma Aboriginal Corporation (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 cultural values.

Historical engagement:

- On 18 July 2023, Woodside emailed RRKAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information.
- 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 this correspondence.

Summary of information provided and record of consultation for this EP:

- On 15 July 2024 Woodside emailed RRKAC advising of the proposed activity (Record of Consultation, reference 6.1.35), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact RRKAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations RRKAC suggests Woodside should speak to.
 - Woodside's commitment to reflect RRKAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with RRKAC to make it easier for RRKAC to contribute to other EPs.
 - A request for information from RRKAC about how it would like to consult with Woodside including if RRKAC required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what RRKAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 29 July 2024, Woodside emailed RRKAC regarding bathymetric surveys and suggested that RRKAC and Woodside meet to discuss opportunities to use publicly available data to assist in generating information that might be useful to RRKAC (SI Report, reference 17.1).
- On 28 August 2024, Woodside emailed RRKAC a reminder about the proposed activity and offered to provide further information and availability to meet (SI Report, reference 17.2).

Ongoing Engagement

- On 9 September 2024, Woodside emailed RRKAC an invitation to share stories and receive updates from Woodside at its Monthly Community Luncheon for Traditional Owners to be held in Roebourne on 25 September 2024 (SI Report, reference 32.1).

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 173 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- On 3 October 2024, Woodside invited RRKAC 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 32.3).
- 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 17.3).
- On 19 December 2024, RRKAC invited Woodside to the next RRKAC Heritage Advisory Committee (HAC) meeting on 18 February 2025 (SI Report, reference 17.4).
- On 14 January 2024, Woodside accepted RRKAC's invitation to the HAC meeting on 18 February 2025 (SI Report, reference 17.5).
- On 15 January 2024, RRKAC emailed Woodside a response to its email on 14 January 2025 and provided details relating to the planned HAC meeting (SI Report, reference 17.6).
- On 29 January 2025, Woodside emailed RRKAC, and it was agreed to defer Woodside attending the HAC meeting until May 2025 (SI Report, reference 17.7).

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 7.3.2).	No additional measures or controls are required.

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with RRKAC 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. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has provided RRKAC 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.
- In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to RRKAC on 15 July 2024 when consultation commenced. Woodside provided:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
 - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of RRKAC's interests and how the activity could impact those interests.
 - A request for the consultation and information sheets to be distributed to members and individuals as required.

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- An offer to provide more specific information, maps and images 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 RRKAC on 15 July 2024 and requested RRKAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- Woodside has addressed and responded to RRKAC over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on RRKAC's preferred method of 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 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 15 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided contact details for 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 followed-up with RRKAC on 28 August and offered to meet.
- Woodside invites RRKAC to monthly luncheons.
- Woodside asked RRKAC 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 7 months, RRKAC 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

4.9.7 Wirrawandi Aboriginal Corporation (WAC)

Wirrawandi Aboriginal Corporation (WAC) is established under the *Native Title Act 1993* 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.

Historical engagement

- On 18 July 2023, Woodside emailed WAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*.
- 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 15 July 2024, Woodside emailed WAC advising of the proposed activity (Record of Consultation, reference 6.1.36), which included the activity's Summary Information Sheet and Consultation Information Sheet including the closing date for consultation of 16 August 2024. The email content also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact WAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations WAC suggests Woodside should speak to.
 - Woodside's commitment to reflect WAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with WAC to make it easier for WAC to contribute to other EPs.
 - A request for information from WAC about how it would like to consult with Woodside including if WAC required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what WAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 15 July 2024, Woodside met with WAC (SI Report, reference 18.1) to discuss this EP and others. At this meeting:
 - (1) WAC advised it had no concerns about this EP as it was a revision, this view was shared by Elders. (1) Woodside acknowledged the feedback.
 - (2) WAC advised it was eager to participate in a Sea Country mapping project. (2) Woodside acknowledged this feedback.
- On 15 July 2024, WAC emailed Woodside and confirmed it had no concerns about the EP (SI report, reference 18.2).

Ongoing engagement

- On 5 September 2024, Woodside emailed WAC details about its Quarterly Heritage Meetings (SI Report, reference 18.3).

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 176 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- On 9 September 2024, Woodside invited WAC to share stories and receive updates from Woodside at its Monthly Community Luncheon for Traditional Owners to be held in Roebourne on 25 September 2024 (SI Report, reference 32.1).
- On 25 September 2024, Traditional Owner members from WAC 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 32.2)
- On 30 September 2024, Woodside met with WAC (SI Report, reference 18.4). During the meeting:
 - WAC confirmed it had one employee who is attending to consultation.
 - WAC noted it had recently appointed a new Trustee and was negotiating its annual budget.
 - WAC advised it is eager to discuss sponsorship opportunities and currently working on an improved organisational structure to support successful strategic outcomes.
- On 3 October 2024, Woodside invited WAC 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 32.3).
- On 10 October 2024, WAC attended Woodside's Quarter 3 Heritage Meeting in Roebourne (SI Report, reference 18.5). Matters discussed relevant to this EP included:
 - 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.
- On 14 October 2024, Woodside was notified that Sorry Business was taking place in the Roebourne and Karratha area (SI Report, reference 18.6).
- On 5 December 2024, WAC attended Woodside's Quarter 4 Heritage Meeting in Karratha (SI Report, reference 18.7).
- 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 18.8).
- On 22 January 2025, Woodside emailed WAC details about Quarterly Heritage meetings in 2025 (SI Report, reference 18.9).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) WAC advised it had no issues or concerns for this EP.	(1) Woodside assessment: Woodside accepts that WAC has no issues or concerns for this EP. Woodside response: 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 7.3.2 of this EP).	(1) No action required.
(2) WAC is keen to participate in Sea Country mapping.	(2)	(2) No additional measures or controls are required.

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	<p>Woodside assessment: Woodside recognises WAC's interest to participate in Sea Country mapping.</p> <p>Woodside response: Woodside notes WAC's interest to participate in Sea Country and will await instruction from WAC on how to proceed.</p>	
<p>(3)</p> <p>During ongoing engagement, WAC asked Woodside about oil spill reporting.</p>	<p>(3)</p> <p>Woodside assessment: Woodside aligns with industry guidance about oil spill reporting.</p> <p>Woodside response: 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 of the EP, and Appendix G.</p>	<p>(3)</p> <p>Woodside's Oil Spill Preparedness and Response Mitigation Assessment is in Appendix D and its Julimar Offshore Operations First Strike Plan is in 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.</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 7.3.2).</p>	<p>Based on the engagement to date, no additional measures or controls are required.</p>

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with WAC for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside has provided WAC 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.
- In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to WAC on 15 July 2024 when consultation commenced. Woodside provided:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 178 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of WAC's interests and how the activity could impact those interests.
- A request for the consultation and information sheets to be distributed to members and individuals as required.
- An offer to provide more specific information, maps and images 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 WAC on 15 July 2024 and requested WAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- Woodside has addressed and responded to WAC over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on WAC's preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 15 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided 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.
- Woodside offered to meet with WAC on a number of occasions.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and WAC 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 WAC to Quarterly Heritage Meetings, monthly relationship meetings and luncheons.
- Woodside asked WAC 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 7 months, WAC has not raised objections or claims about the adverse impact of each activity to which this EP relates.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 179 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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 7.3.2 of this EP).

4.9.8 Yindjibarndi Aboriginal Corporation

Yindjibarndi Aboriginal Corporation (Yindjibarndi) 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.

Yindjibarndi has directed requested Woodside to refer all correspondence about EPs to the Ngarluma Yindjibarndi Foundation Ltd (NYFL).

Historical engagement:

- On 18 July 2023, Woodside emailed Yindjibarndi NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information.
- On 26 July 2023, Woodside emailed Yindjibarndi Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- **(1)** On 1 August 2023, Yindjibarndi emailed Woodside and asked that Oil and Gas matters relating to Yindjibarndi be directed to NYFL. **(1)** 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 15 July 2024, Woodside emailed Yindjibarndi via NYFL advising of the proposed activity (Record of Consultation, reference 6.1.37), which included the activity's Summary Information Sheet and Consultation Information Sheet including the closing date for consultation of 16 August 2024. The email content also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact Yindjibarndi's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations Yindjibarndi suggests Woodside should speak to.
 - Woodside's commitment to reflect Yindjibarndi's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with Yindjibarndi to make it easier for Yindjibarndi to contribute to other EPs.
 - A request for information from Yindjibarndi about how it would like to consult with Woodside including if Yindjibarndi required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 180 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- Further information about NOPSEMA and what Yindjibarndi could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
 - On 28 August 2024, Woodside emailed Yindjibarndi via NYFL a reminder about the proposed activity and offered to provide further information and offered availability to meet (SI Report, reference 19.1).
- Between 8 November 2024 and 16 December 2024, emails were exchanged between NYFL (as the delegated representative for Yindjibarndi) and Woodside regarding the 4 November 2024 email and requests to meet regarding the draft consultation agreement. Please refer to NYFL Appendix F, reference 4.11.1 and SI Report, reference 23.0 for further information.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) Yindjibarndi has instructed Woodside that it will be represented by NYFL in ongoing discussion about EPs.	(1) Woodside assessment: Woodside accepts Yindjibarndi's right to be represented by NYFL. Woodside response: Woodside will engage with NYFL on behalf of Yindjibarndi for ongoing consultation related to this activity.	(1) 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 7.3.2 of this EP).	Based on the engagement to date, no additional measures or controls are required.

Summary Report: Consultation Complete

- Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with Yindjibarndi for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.5 of the EP. Specifically:
- Sufficient Information**
- Sufficient information has been provided because:
- Woodside has provided Yindjibarndi via 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.
 - In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website.

- Woodside provided information to Yindjibarndi on 15 July 2024 when consultation commenced. Woodside provided:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
 - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of Yindjibarndi's interests and how the activity could impact those interests.
 - A request for the consultation and information sheets to be distributed to members and individuals as required.
 - An offer to provide more specific information, maps and images 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 Yindjibarndi on 15 July 2024 and requested Yindjibarndi provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- A consultation period was communicated to Yindjibarndi via NYFL during Woodside's initial email on 16 July 2024. Yindjibarndi was asked to provide feedback by 16 August 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 has addressed and responded to Yindjibarndi via NYFL over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on Yindjibarndi's preferred method of consultation. Yindjibarndi has requested that NYFL consult on its behalf. Woodside has accommodated this request.
- Woodside has made information on this EP publicly available for over 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 15 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided 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 offered to meet with Yindjibarndi via NYFL on a number of occasions.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and Yindjibarndi via 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 Yindjibarndi to relationship meetings and luncheons.

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- 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 7 months, Yindjibarndi 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

4.9.9 Yinggarda Aboriginal Corporation (YAC)

Yinggarda Aboriginal Corporation (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.

YAC engages Gumala Aboriginal Corporation (GAC) to provide executive office services on their behalf.

Historical engagement:

- On 5 July 2023, Woodside met YAC and gave a presentation about several EPs. 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.
- On 19 July 2023, Woodside emailed YAC via GAC NOPSEMA's *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*.
- 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 15 July 2024, Woodside emailed YAC advising of the proposed activity (Record of Consultation, reference 6.1.38), which included the activity's Summary Information Sheet and Consultation Information Sheet including the closing date for consultation of 16 August 2024. The email content also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.

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- A request for feedback including how these activities could impact YAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations YAC suggests Woodside should speak to.
 - Woodside's commitment to reflect YAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with YAC to make it easier for YAC to contribute to other EPs.
 - A request for information from YAC about how it would like to consult with Woodside including if YAC required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what YAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 15 July 2024, Woodside received a call from GAC inviting Woodside to a YAC Board meeting on 18 July 2024 and Woodside accepted via email on 16 July 2024 (SI Report, reference 20.1).
 - 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 20.2 – 20.3).
 - On 18 July 2024, Woodside and YAC met to discuss and consult on this EP and an unrelated EP (SI Report, reference 20.4). Matters discussed that are considered relevant to this EP include:
 - (1) YAC's advice on the importance of animals, particularly concerns about potential impacts to turtles and whales.
 - (3) Support for education and training including ranger programs.
 - (4) Possibility of setting up workshops to discuss the formalisation of an agreement between Woodside and YAC
 - (5) Mercury capture.
 - 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 20.5). Matters relevant to this EP included:
 - (1) Woodside advised that it had undertaken numerous environmental studies and had an ongoing commitment to research. Woodside also explained that environmental monitoring was an ongoing activity.
 - (3) Woodside would keep YAC informed about Woodside's consideration of ranger initiatives.
 - (4) Woodside looked forward to hearing when YAC would like to meet again and receiving YAC's feedback on the consultation framework.
 - (5) Further information about mercury capture including that mercury would be managed in accordance with existing hazardous waste procedures.Woodside invited YAC to share information with other organisations and individuals.

Ongoing Engagement

- (1) On 30 August 2024, Woodside emailed YAC the publication Discovering Scott Reef (SI Report, reference 20.6).

- On 2 November 2024, Woodside attended the Dampier Markets and engaged with relevant persons from YAC. Woodside discussed EPs generally (SI Report, reference 20.7).

<i>Summary of Feedback, Objection or Claim</i>	<i>Assessment of Merits of Feedback, Objection or Claim and Woodside's Response</i>	<i>Inclusion in Environment Plan</i>
<p>(1) YAC stated that marine species, turtles, whales and sharks are 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. 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. 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 4.9.2 to record YAC's interests and potential cultural values. Potential impact on these, including controls are detailed in Section 4.9.2. Woodside's commitment to ongoing engagement with YAC including informing YAC if new information becomes available about potential risks is detailed in Section 7.12. 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. 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 4.9.2 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 enquired about support for education and training including ranger programs.</p>	<p>(3) Woodside assessment: Woodside considers value in having rangers on the ground trained up in the highly unlikely event of an oil spill. It would be beneficial to an immediate response in an emergency situation. Woodside response: Woodside looks forward to hearing about YAC's plans for a ranger program and will keep YAC informed about Woodside's consideration of ranger initiatives.</p>	<p>(3) The Program for Ongoing Engagement with Traditional Custodians (Appendix I) includes consideration of programs to support Indigenous Rangers, and support for Indigenous oil spill response capabilities.</p>
<p>(4) YAC is seeking the formalisation of a Consultation Framework Agreement.</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 will finalise an agreement with YAC, although Woodside does not consider YAC's request for a consultation agreement as 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.</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 I).</p>
<p>(5) YAC asked Woodside how mercury would be captured.</p>	<p>(5) Woodside assessment: Details of the subsea contaminant removal unit (SCRM) was set out in the Julimar Operations Consultation Information Sheet. Woodside response: Woodside is installing a subsea contaminant removal unit (SCRM) between a well and manifold to remove trace amounts of mercury from gas production before it reaches the platform. Mercury will be intercepted and secured in the module at 150 m water depth until the end of well life when the closed vessel containing mercury will be recovered. Mercury will be managed onshore in sealed cannisters in</p>	<p>(5) SCRM activity is not covered in the EP.</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 186 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	<p>accordance with existing hazardous waste procedures. The SCRM is planned to be installed around mid-2026.</p> <p>Update: While information about the SCRM was shared and discussed during consultation, it was later determined SCRM would not be included in the Julimar Operations EP.</p>	
While feedback has been received, there were no objections or claims.	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 7.3.2 of this EP).	Based on the engagement to date, no additional measures or controls are required.
Summary Report: Consultation Complete		
<p>Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with YAC 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. Specifically:</p> <p>Sufficient Information</p> <p>Sufficient information has been provided because:</p> <ul style="list-style-type: none"> Woodside has provided YAC with relevant consultation documents, including NOPSEMA's <i>Consultation Guidelines</i>, <i>Consultation Brochure</i>, and <i>Draft Policy for Managing Gender-Restricted Information</i>, informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters. In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website. Woodside provided information to YAC on 16 July 2024 when consultation commenced. Woodside provided: <ul style="list-style-type: none"> A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback. Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of YAC's interests and how the activity could impact those interests. A request for the consultation and information sheets to be distributed to members and individuals as required. An offer to provide more specific information, maps and images if required. Woodside provided contact information for Woodside and NOPSEMA. <p>Reasonable Period</p> <p>A reasonable period for consultation in the preparation of this EP has been provided because:</p>		
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- Woodside commenced consultation on this EP with YAC on 16 July 2024 and requested YAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- Woodside has addressed and responded to YAC over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on YAC's preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 15 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided contact details for NOPSEMA.
 - 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 offered to meet with YAC.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and YAC 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 asked YAC 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:

- YAC has noted that marine species, turtles, whales and sharks are linked to culture and has expressed concern about potential impacts to patterns of whales and potential collisions. Woodside recognises YAC's link to culture and acknowledges YAC's concerns. Woodside has updated Section 4.9.2 to record YAC's interests and potential cultural values. Further, Woodside has noted information about whales and migration patterns in Sections 4.6.3 and 4.6.5. Potential impact on these, including controls are detailed in Section 6.
- 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 7.3.2 of this EP).
- Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on YAC's functions, interests or activities.

4.10 NATIVE TITLE REPRESENTATIVE BODIES

4.10.1 Kimberley Land Council (KLC)

Kimberley Land Council (KLC) is the Native Title Representative Body for the Kimberley region of Western Australia. As such, it is not a Prescribed Body Corporate or Registered Native Title Body Corporate but exists to assist Native Title claimants and holders.

Summary of information provided and record of consultation for this EP:

- On 22 July 2024, Woodside emailed KLC advising of the proposed activity (Record of Consultation, reference 6.1.39), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact KLC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations KLC suggests Woodside should speak to.
 - Woodside's commitment to reflect KLC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with KLC to make it easier for KLC to contribute to other EPs.
 - A request for information from KLC about how it would like to consult with Woodside including if KLC required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what KLC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 8 August 2024, Woodside emailed KLC a reminder about the proposed activity and offered to provide further information (SI Report, reference 21.1).

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 7.3.2 of this EP).	No additional measures or controls are required.
Summary Report: Consultation Complete		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 189 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with KLC 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. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Woodside sought direction on KLC's preferred method of consultation.
- On 22 July 2024, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to KLC on 22 July 2024 when consultation commenced. Woodside provided:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
 - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of KLC's interests and how the activity could impact those interests.
 - A request for the consultation and information sheets to be distributed to members and individuals as required.
 - An offer to provide more specific information, maps and images 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 KLC on 22 July 2024 and has addressed and responded to KLC over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on KLC's preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 22 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided contact details for NOPSEMA.
 - Offered for Woodside to speak with KLC members as well as the KLC Board.
 - Asked KLC to advise how it would like Woodside to engage and whether KLC required further information.
- Woodside offered to meet with KLC on a number of occasions.

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- Woodside asked KLC 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 7 months, KLC 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

4.10.2 Yamatji Marlpa Aboriginal Corporation (YMAC)

Yamatji Marlpa Aboriginal Corporation (YMAC) is the Native Title Representative Body (NTRB) for the Yamatji and Pilbara regions. NTRBs exist to provide assistance to native title claimants and holders in regard to their Native Title rights.

Historical engagement:

- **(1)** 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 NTRB 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. **(1)** Woodside acknowledged YMAC's feedback.
- 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.
- On 25 July 2023, Woodside emailed YMAC Woodside's Program for 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 15 July 2024, Woodside emailed YMAC advising of the proposed activity (Record of Consultation, reference 6.1.40), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact YMAC's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations YMAC suggests Woodside should speak to.
 - Woodside's commitment to reflect YMAC's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with YMAC to make it easier for YMAC to contribute to other EPs.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 191 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- A request for information from YMAC about how it would like to consult with Woodside including if YMAC required any specific support or information and offering to meet face-to-face.
- Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
- Information on how Woodside would continue to accept feedback for the life of the EP.
- Further information about NOPSEMA and what YMAC could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 16 July 2024, Woodside telephoned YMAC to confirm the contact details to send EP information (SI Report, reference 22.1).
- On 16 July 2024, Woodside emailed YMAC's legal representative (SI Report, reference 22.2):
 - Confirming that Woodside is seeking feedback and/or consultation on three EPs, including the proposed activity.
 - Attaching original consultation emails from Woodside.
 - Advising of the contact details and closing dates to submit feedback.
 - Offering to provide additional information or to consult with Traditional Owners who are considered relevant.
 - Noting that the current consultation activities are part of five-year revisions.
- On 23 July 2024, Woodside emailed YMAC a reminder about the proposed activity and offered to provide further information and opportunity to consult. Woodside also reiterated the date to submit feedback about the activity (SI Report, reference 22.3).

Ongoing engagement

- On 9 September 2024, Woodside invited YMAC to share stories and receive updates from Woodside at its Monthly Community Luncheon for Traditional Owners to be held in Roebourne on 25 September 2024 (SI Report, reference 32.1).
- On 3 October 2024, Woodside invited YMAC to share stories and receive updates from Woodside at its Monthly Luncheon for Traditional Owners to be held in Roebourne on 23 October 2024 (SI Report, reference 32.3).

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
(1) YMAC has provided feedback that in its view it is a 'relevant person' under regulation 25 of the Environment Regulations for the purposes of consultation on EPs only in relation to its facilitation and coordination function as a NTRB under applicable federal legislation and does not intend to provide substantive comment on the content of EPs.	(1) Woodside assessment: Woodside accepts YMAC's feedback that it is a relevant person only in relations to its facilitation and coordination function as a representative body. Woodside response: Woodside has consulted with YMAC in relation to its facilitation and coordination as a NTRB under applicable federal legislation and has accepted YMAC's advice that it does not intend to provide substantive comment on the content of EPs.	(1) Not required

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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. 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 7.3.2 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 Environmental Regulations and consultation with YMAC for the purpose of Regulation 25 is complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.5 of the EP. Specifically:</p> <p>Sufficient Information</p> <p>Sufficient information has been provided because:</p> <ul style="list-style-type: none"> • Woodside has provided YMAC with relevant consultation documents, including NOPSEMA's <i>Consultation Guidelines</i>, <i>Consultation Brochure</i>, and <i>Draft Policy for Managing Gender-Restricted Information</i>, informing stakeholders on how consultation is conducted and providing avenues for providing information on sensitive matters. • In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website. <ul style="list-style-type: none"> – Woodside provided information to YMAC on 15 July 2024 when consultation commenced. Woodside provided: <ul style="list-style-type: none"> – A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback. – Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of YMAC's interests and how the activity could impact those interests. – A request for the consultation and information sheets to be distributed to members and individuals as required. – An offer to provide more specific information, maps and images if required. • Woodside provided contact information for Woodside and NOPSEMA. <p>Reasonable Period</p> <p>A reasonable period for consultation in the preparation of this EP has been provided because:</p> <ul style="list-style-type: none"> • Woodside commenced consultation on this EP with YMAC on 15 July 2024 and requested YMAC provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation. • Woodside has addressed and responded to YMAC over 7 months, demonstrating a "reasonable period" of consultation. <p>Reasonable Opportunity</p> <p>A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:</p> <ul style="list-style-type: none"> • Woodside sought direction on YMAC's preferred method of 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 this EP publicly available for over 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 15 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided contact details for NOPSEMA.
 - Offered for Woodside to speak with YMAC members as well as the YMAC Board.
 - Asked YMAC to advise how it would like Woodside to engage and whether YMAC required further information.
- Woodside offered to meet with YMAC on a number of occasions.
- Throughout the consultation period (and following submission of the EP for assessment), Woodside and YMAC have exchanged multiple emails, had phone calls and have otherwise had direct contact lines to each other during the period.
- Woodside asked YMAC 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 7 months, YMAC 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

4.11 SELF-IDENTIFIED FIRST NATION GROUPS

4.11.1 Ngarluma Yindjibarndi Foundation Ltd (NYFL)

Ngarluma Yindjibarndi Foundation Ltd (NYFL) was created to act as Trustee for the Trust under the Northwest Shelf Agreement 1998 struck between the Ngarluma and Yindjibarndi registered Native Title claimants, the NWS JVs and Woodside, prior to the resolution of the Ngarluma and Yindjibarndi Native Title claim. Its purpose is to carry on the business of enterprise development, investment and social welfare. NYFL consults with Woodside on behalf of Yindjibarndi Aboriginal Corporation.

Historical engagement:

- On 19 July 2023, Woodside emailed NFYL NOPSEMA's Consultation Guideline, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information.
- On 26 July 2023, Woodside emailed NYFL Woodside's planned Program of Ongoing Engagement with Traditional Custodians.

Please refer to North Rankin Complex Operations EP (Appendix F and SI document) for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 194 of 370

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- On 15 July 2024, Woodside emailed NYFL advising of the proposed activity (Record of Consultation, reference 6.1.41), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact NYFL's cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations NYFL suggests Woodside should speak to.
 - Woodside's commitment to reflect NYFL's feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - An offer to speak with Elders, office holders and other invested parties about this activity and keenness to build the relationship with NYFL to make it easier for NYFL to contribute to other EPs.
 - A request for information from NYFL about how it would like to consult with Woodside including if NYFL required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
 - Further information about NOPSEMA and what NYFL could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 28 August 2024, Woodside emailed NYFL a reminder about the proposed activity and offered to provide further information and opportunity to consult (SI Report, reference 23.1).

Ongoing Engagement

- On 9 September 2024, Woodside invited NYFL to share stories and receive updates from Woodside at its Monthly Community Luncheon for Traditional Owners to be held in Roebourne on 25 September 2024 (SI Report, reference 32.1).
- On 25 September 2024, Traditional Owner members from NYFL 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 32.2).
- On 3 October 2024, Woodside invited NYFL 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 32.3).
- On 21 October 2024, NYFL emailed Woodside (SI Report, reference 23.2). In the email NYFL stated:
 - (1) No formal consultation had taken place between NYFL and Woodside on this EP and others.
 - (1) Woodside's emails did not meet the standard of meaningful consultation.
 - (2) Woodside has provided NYFL with a draft consultation agreement but had declined to agree with NYFL's estimated costs to proceed with the agreement.
 - (2) NYFL would progress consultation on this EP and others once the consultation agreement had been formalised.
 - (1) A request for Woodside to note in any record provided to NOPSEMA that NYFL had not been consulted on this EP and others.
- On 23 October 2024, Traditional Owner members from NYFL 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 32.4).

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- On 4 November 2024, Woodside emailed NYFL in response to statements and claims made in NYFL's email on 21 October 2024 (SI Report, reference 23.3). The email included the following:
 - (2) Woodside's continued view that NYFL's cost estimates and rates are excessive, and the rates quoted by NYFL related to the North West Shelf agreements were not consistent with reasonable rates for enabling and supporting consultation on this EP. Woodside also noted that these rates quoted by NYFL were for an initial review of a 7-page agreement.
 - (1) Woodside offered to meet and discuss the issue further and would be available to meet in-person in Ieramugadu (Roebourne), the week of 18 November 2024.
 - (1) Woodside confirmed that its 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, and that Woodside is happy to discuss this EP, and the various other EPs NYFL has listed in its recent correspondence.
 - (1) Woodside reiterated that the ongoing negotiation of a consultation framework agreement can and does occur in parallel to consultation for EPs.
 - (1) Woodside included a table identifying the status of each of the EPs referenced by NYFL.
- On 8 November 2024, NYFL emailed Woodside requesting to meet on 20 November 2024 and suggested Woodside approve an interim solution for external (legal) and internal cost estimates, until such a time as a Board review is required, and cost estimates can be determined (SI Report, reference 23.4).
- On 15 November 2024, Woodside emailed NYFL confirming the invitation to meet on 20 November 2024 and requested NYFL confirm with its legal provider that the cost estimates remain current for the consultation agreement. Woodside stated it would separately email NYFL about remaining EPs outlined in the 21 October 2024 correspondence (SI Report, reference 23.5).
- On 15 November 2024, NYFL emailed Woodside confirming NYFL's legal provider had advised that the previous cost estimates remain current (SI Report, reference 23.6).
- On 20 November 2024, Woodside emailed NYFL thanking it for the meeting. (2) Woodside agreed to the amount for legal fees, as set out in its original estimate provided to Woodside by email on 19 March 2024, with the qualification that that amount is for the finalisation of the draft consultation agreement to be agreed between Woodside and NYFL executive staff for presentation to the NYFL Board for its consideration (SI Report, reference 23.7).
- 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 grieving protocols were underway, and the community was commencing a period of mourning (SI Report, reference 23.8). As a sign of respect, Woodside would be limiting communication with NYFL and Yindjibarndi Aboriginal Corporation until further notice.
- (1) On 5 December 2024, Woodside emailed NYFL in response to its correspondence of 21 October 2024 (SI report, reference 23.9). Matters relevant to this EP included:
 - Woodside had met with NYFL on 20 November 2024 to discuss progressing the Consultation Framework Agreement and had agreed a way forward.
 - Woodside did not agree with NYFL's assertion that consultation for this EP and others had not commenced.
 - Woodside confirmed that consultation for this EP was complete and was now closed.
 - Woodside had continued to consult and engage with NYFL via email as this appeared to be NYFL's preferred and primary method of consulting with Woodside on EPs
 - Woodside was open to meet as part of its ongoing consultation with NYFL.

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- Woodside reiterated that ongoing negotiation of a consultation framework agreement could and continued to occur in parallel to consultation for EPs, including this EP, and that a consultation framework agreement was not a prerequisite to consultation.
- Woodside attached a summary of the consultation that had occurred for the EP.
- Between 6 – 16 December 2024, Woodside and NYFL exchanged emails regarding matters relating to EP consultation, with NYFL stating it would progress consultation matters in due course (SI Report, reference 23.10 – 23.12).

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) 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.	(1) Woodside assessment: Woodside rejects NYFL's assertion that has not been consulted on this EP. Woodside began consulting NYFL on 15 July 2024 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 confirmed in correspondence dated 4 November 2024 and 5 December 2024. Woodside response: The information provided by Woodside meets the requirements of regulation 25 of the Environment Regulations for the reasons set out above.	(1) Not required.
(2) NYFL has acknowledged it supports an agreement to enable a process of consultation.	(2) 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	(2) 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 I). 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 7.12 of the EP.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 197 of 370

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	<p>Woodside activities. Feedback from NYFL on 27 October 2023 requested Woodside develop a draft consultation framework.</p> <p>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>	
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 7.3.2 of this EP).</p>	Based on the engagement to date, no additional measures or controls are required.

Summary Report: Consultation Complete

Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with NYFL 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. Specifically:

Sufficient Information

Sufficient information has been provided because:

- 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.
- In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to NYFL on 15 July 2024 when consultation commenced. Woodside provided:
 - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
 - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of NYFL's interests and how the activity could impact those interests.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 198 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- A request for the consultation and information sheets to be distributed to members and individuals as required.
- An offer to provide more specific information, maps and images 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 NYFL on 15 July 2024 and requested NYFL provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- Woodside has addressed and responded to NYFL over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

- A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:
 - Woodside sought direction on NYFL's preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
 - Woodside's initial email about this EP on 15 July 2024:
 - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations team. Woodside also provided contact details for NOPSEMA.
 - Offered for Woodside to speak with NYFL members as well as the NYFL Board.
 - Asked NYFL to advise how it would like Woodside to engage and whether NYFL required further information.
 - Woodside offered to meet with NYFL on a number of occasions.
 - Throughout the consultation period, Woodside and NYFL have exchanged emails and have otherwise had direct contact lines to each other during the period.
 - Woodside invites NYFL to monthly relationship meetings and luncheons.
 - Woodside asked NYFL 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 7 months, NYFL 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

4.12 LOCAL GOVERNMENT AND ELECTED PARLIAMENTARY REPRESENTATIVES, COMMUNITY GROUPS OR ORGANISATIONS

4.12.1 Onslow Chamber of Commerce and Industry (Onslow CCI)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed Onslow CCI advising of the proposed activity (Record of Consultation, reference 6.1.27), 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 July 2024, Woodside sent an email reminder to Onslow CCI, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with Onslow CCI 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to Onslow CCI on 16 July 2024, 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 measurement measures. A timeframe for consultation and the provision of feedback. A link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans</i>. 		
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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 Onslow CCI a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Onslow CCI 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 and Woodside allowed Onslow CCI 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Onslow CCI a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Onslow CCI a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside attended the Mack10 Fishing Competition event in Onslow which featured EP consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding Onslow CCI 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 required 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.

4.12.2 Exmouth Community Liaison Group (Exmouth CLG)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Exmouth CLG advising of the proposed activity (Record of Consultation, reference 6.1.27), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Exmouth CLG, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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- On 17 July 2024, Woodside presented to the Exmouth CLG on Woodside activities, including the Julimar Operations EP. Woodside presented a slide which listed Environment Plans on which the CLG members had recently been consulted and Environment Plans currently under consultation (SI report, reference 30.1).
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
- No questions were raised by CLG members in attendance at the meeting. 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 reference to Julimar Operations EP as part of previous consultation at the prior 17 July 2024 meeting. (SI Report, reference 30.2)

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 7.3.2).	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 Exmouth CLG 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 Exmouth CLG sufficient information to allow Exmouth CLG to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Exmouth CLG on 16 July 2024, marking the commencement of consultation on this EP. The Consultation Information Sheet included:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 202 of 370

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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 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 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.
- Woodside's methodology allows a 30-day consultation period and Woodside allowed Exmouth CLG 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Exmouth CLG a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Exmouth CLG a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted Exmouth CLG meetings in July and November 2024 which included EP consultation with mention of the Julimar Operations EP.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding Exmouth CLG 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 required as Exmouth CLG 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 CLG's functions, interests or activities.

4.12.3 Karratha Community Liaison Group (Karratha CLG)

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 203 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Karratha CLG advising of the proposed activity (Record of Consultation, reference 6.1.27), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Karratha CLG, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 Karratha CLG 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 Karratha CLG sufficient information to allow Karratha CLG to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Karratha CLG on 16 July 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 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 Karratha CLG a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated 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.

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- Woodside's methodology allows a 30-day consultation period and Woodside allowed Karratha CLG 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Karratha CLG a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Karratha CLG a reasonable period for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding Karratha CLG 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 required as Karratha CLG 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 CLG's functions, interests or activities.

4.12.4 City of Karratha

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed City of Karratha advising of the proposed activity (Record of Consultation, reference 6.1.27), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to City of Karratha following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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	No additional measures or controls are required.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 205 of 370

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	appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2).	
Summary Report - Consultation Complete		
<p>Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with City of Karratha 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:</p> <p>Sufficient Information</p> <p>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 or 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 July 2024. Woodside gave this information to City of Karratha on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed City of Karratha 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 City of Karratha 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 and Woodside allowed City of Karratha 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed City of Karratha a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed City of Karratha a reasonable opportunity for consultation in the preparation of this EP because:</p> <ul style="list-style-type: none"> Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation. Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information. In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding City of Karratha 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 required 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.

4.12.5 Karratha and Districts Chamber of Commerce and Industry (KDCCI)**Summary of information provided and record of consultation for this EP:**

- On 16 July 2024, Woodside emailed KDCCI advising of the proposed activity (Record of Consultation, reference 6.1.27), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to KDCCI, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 KDCCI 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 KDCCI sufficient information to allow KDCCI to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to KDCCI on 16 July 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.

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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 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 KDCCI a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to KDCCI 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 and Woodside allowed KDCCI 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed KDCCI a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed KDCCI a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside hosted regional community information sessions and attended community events in Karratha and Onslow which featured EP and consultation information.
- In the absence of feedback, Woodside sent a follow-up consultation email on 31 July 2024, reminding KDCCI 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 required as KDCCI 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 KDCCI's functions, interests or activities.

4.12.6 Shire of Ashburton

Summary of information provided and record of consultation for this EP:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 208 of 370

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<ul style="list-style-type: none"> On 16 July 2024, Woodside emailed Shire of Ashburton advising of the proposed activity (Record of Consultation, reference 6.1.28), 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 July 2024, Woodside sent an email reminder to Shire of Ashburton, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with Shire of Ashburton 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:</p> <p>Sufficient Information</p> <p>Woodside has given Shire of Ashburton sufficient information to allow Shire of Ashburton to make an informed assessment of the possible consequences of the activity on its functions, interests or 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 July 2024. Woodside gave this information to Shire of Ashburton on 16 July 2024, 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 measurement 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 Shire of Ashburton 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 Shire of Ashburton 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 and Woodside allowed Shire of Ashburton 30 days for consultation. It has been 6 months since consultation commenced. 		
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- In this context, Woodside allowed Shire of Ashburton a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Shire of Ashburton a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding Shire of Ashburton 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 required as Shire of Ashburton 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 Ashburton's functions, interests or activities.

4.12.7 Shire of Exmouth

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Shire of Exmouth advising of the proposed activity (Record of Consultation, reference 6.1.27), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Shire of Exmouth, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.

Summary Report - Consultation Complete

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 210 of 370

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Shire of Exmouth 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 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 or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Shire of Exmouth on 16 July 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 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 Shire of Exmouth a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Shire of Exmouth 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 and Woodside allowed Shire of Exmouth 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Shire of Exmouth a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Shire of Exmouth a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding Shire of Exmouth 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 required as Shire of Exmouth did not provide feedback for this EP.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 211 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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.

4.12.8 Exmouth Chamber of Commerce and Industry

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> • On 16 July 2024, Woodside emailed Exmouth CCI advising of the proposed activity (Record of Consultation, reference 6.1.27), 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 July 2024, Woodside sent an email reminder to Exmouth CCI, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers consultation with Exmouth CCI 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:</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 or 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 July 2024. Woodside gave this information to Exmouth CCI on 16 July 2024, 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 measurement measures. – A timeframe for consultation and the provision of feedback. – A link to NOPSEMA's brochure <i>Consultation on offshore petroleum environment plans</i>. 		
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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 Exmouth CCI a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Exmouth CCI 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 and Woodside allowed Exmouth CCI 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Exmouth CCI a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed Exmouth CCI a reasonable period for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding Exmouth CCI 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 required 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.

4.13 OTHER NON-GOVERNMENT GROUPS OR ORGANISATIONS

4.13.1 Telstra

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Telstra advising of the proposed activity (Record of Consultation, reference 6.1.22), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Telstra, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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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 7.3.2).	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 considers 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:</p> <p>Sufficient Information</p> <p>Woodside has given Telstra sufficient information to allow Telstra to make an informed assessment of the possible consequences of the activity on its functions, interests or 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 July 2024. Woodside gave this information to Telstra on 16 July 2024, 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 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. <p>Reasonable Period</p> <p>Woodside allowed Telstra 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 Telstra 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 and Woodside allowed Telstra 30 days for consultation. It has been 6 months since consultation commenced. In this context, Woodside allowed Telstra a reasonable period for consultation in preparation of the EP. <p>Reasonable Opportunity</p> <p>Woodside allowed Telstra a reasonable opportunity for consultation in the preparation of this EP because:</p>		

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- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, reminding Telstra 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 required as Telstra 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 Telstra's functions, interests or activities.

4.14 RESEARCH INSTITUTES AND LOCAL CONSERVATION GROUPS OR ORGANISATIONS

4.14.1 Cape Conservation Group (CCG)

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed CCG advising of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to CCG, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.

Summary Report - Consultation Complete

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 215 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with CCG 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 CCG sufficient information to allow CCG to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to CCG on 16 July 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 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 CCG a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to CCG 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 and Woodside allowed CCG 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed CCG a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

Woodside allowed CCG a reasonable opportunity for consultation in the preparation of this EP because:

- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, 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 required as CCG did not provide feedback for this EP.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 216 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- 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.

4.14.2 Protect Ningaloo

Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed Protect Ningaloo advising of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to Protect Ningaloo, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	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 Protect Ningaloo 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 Protect Ningaloo sufficient information to allow Protect Ningaloo to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since July 2024. Woodside gave this information to Protect Ningaloo on 16 July 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 measurement 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 Protect Ningaloo a reasonable period for consultation in the preparation of this EP because:

- A consultation period was stated in the initial correspondence to Protect Ningaloo 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 and Woodside allowed Protect Ningaloo 30 days for consultation.
- It has been 6 months since consultation commenced.
- In this context, Woodside allowed Protect Ningaloo a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

- Woodside allowed Protect Ningaloo a reasonable period for consultation in the preparation of this EP because:
- Woodside published advertisements in 7 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and of consultation.
- Woodside ran one targeted social media campaign (see Consultation Activities). This 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 31 July 2024, 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 required 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.

4.15 OTHER FIRST NATION GROUPS

4.15.1 Save our Songlines (SOS)

Historical engagement:

- On 25 July 2023, Woodside met with EDO, SoS, and/or [Individual 1] and/or [Individual 19] about an activity not relevant to this EP. During the meeting, SoS and/or [Individual 1] and/or [Individual 19] stated that they are broadly concerned about:
 - **(1)** impact on the whales and other animals.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 218 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- (2) the Songlines (unspecified) and the Energy Lines (unspecified).
- (3) On 25 July 2023, EDO on behalf of SoS, and/or [Individual 1] and/or [Individual 19] emailed Woodside in response to another activity not related to this EP requesting a response to questions relating to the depth of wells, freshwater, migratory patterns of whales, dugongs and turtles, and seagrass distribution.
- (1, 2, 3) On 27 July 2023, Woodside responded to EDO's email of 25 July 2023 in relation to another activity (SI Report, reference 26.3) providing information in response to the interest SoS, and/or [Individual 1], and/or [Individual 19] had in marine mammals, seagrass, and the meeting of saltwater and freshwater.

Please see Scarborough Offshore Facility and Trunkline (Operations) Environment Plan (Appendix F and SI Report) for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 15 July 2024, Woodside emailed SOS via [Individual 1] and via SOS's legal representative advising of the proposed activity (Record of Consultation, reference 6.1.42), which included the activity's Summary Information Sheet and Consultation Information Sheet. The email also included:
 - An overview of the proposed activity.
 - Links to the NOPSEMA consultation brochure and guidelines, and draft policy for managing gender-restricted information.
 - A request for feedback including how these activities could impact SOS and/or [Individual 1] cultural values, interests and activities, information about any concerns about the proposed activities, and information about any other individuals, groups, or organisations SOS suggests Woodside should speak to.
 - Woodside's commitment to reflect SOS and/or [Individual 1] feedback, opinions and comments in the EP to be considered by NOPSEMA.
 - Woodside welcoming the opportunity to speak with any interested parties.
 - A request for information from SOS and/or [Individual 1] about how it would like to consult with Woodside, including if SOS required any specific support or information and offering to meet face-to-face.
 - Contact details for feedback to be provided and the closing date for feedback for this EP being Friday 16 August 2024.
 - Information on how Woodside would continue to accept feedback for the life of the EP.
- Further information about NOPSEMA and what SOS and/or [Individual 1] could do if it preferred its information not be published, including details about how information could be submitted directly to NOPSEMA.
- On 1 August 2024, Woodside emailed SOS and [Individual 1] via its legal representative a reminder about the proposed activity and offered to provide further information and opportunity to consult. Woodside also confirmed the date to submit feedback about the activity (SI Report, reference 24.1).

Ongoing Engagement

- On 30 October 2024, SOS and/or [individual 1] via their legal representative emailed Woodside about another activity informing that SOS and/or [Individual 1] had requested consultation feedback be provided to Woodside (SI Report, reference 24.2). In the letter, SOS and/or [Individual 1], stated that the comments were based on the information Woodside had provided about another activity, of the cultural values woodside deems relevant to this activity:
 - (4) SOS and/or [individual 1] was a Mardathoonera Lore woman, Elder and Traditional Custodian of Murujuga, and their connection to Murujuga had been stated in previous comments and in evidence before Federal Court and that their cultural responsibilities had been provided previously, however some were culturally sensitive and could not be shared publicly.
 - (5) That potential impacts on cultural values were not identified or mentioned by Woodside, and specifically, questioned if the cultural values outlined had been properly considered and mitigated including potential impacts on:
 - (1) whales, as well as marine mammals, seagrass, and the meeting of freshwater and saltwater; and

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- **(2)** Songlines, Dreaming and Energy Lines.
- **(2)** That cultural and environmental values are one, and that the Dreaming stories and Songlines can be, and are being, disrupted.
- On 20 December 2024, Woodside emailed SOS and/or [Individual 1] responding to its 30 October 2024 correspondence (SI Report, reference 24.3). Woodside advised SOS and/or [Individual 1] that:
 - Woodside continues to receive, assess and respond to feedback and comments from relevant persons throughout the life of the EP. Should feedback be received following the acceptance of an EP, that Woodside will apply its Management of Change and Review process as appropriate.
 - **(4)** Woodside acknowledged that [Individual 1] had traditional connections to Murujuga and that Woodside maintained, as confirmed in previous correspondence with [Individual 1], that Woodside had observed consultation protocols relating to confidentiality of culturally sensitive information shared by [Individual 1], and that:
 - [Individual 1] was deciding not to share culturally sensitive information and was withholding it from consultation, and as previously advised the result may be that Woodside may not have complete information about how their functions, interests and activities may be affected.
 - That Woodside had previously raised this during consultation with [Individual 19] and confirmed it was an issue with implications addressed in a previous court case.
 - If [Individual 1] did not feel comfortable sharing information with Woodside, alternatives were available including the provision of information direct to NOPSEMA and providing a link to NOPSEMA's policy, 'Managing gender-restricted information'.
 - **(5)** Woodside acknowledged it had previously consulted extensively with [Individual 1] and used feedback to inform EPs, confirming [Individual 1] had raised:
 - **(1, 2)** Cultural features associated with whales, as well as marine mammals, seagrass, Songlines, dreaming and Energy Lines.
 - **(1)** The meeting of freshwater and saltwater was demonstrated.
 - **(2)** Woodside acknowledged and confirmed that culture and environment are one, and there was no separating the concepts, and confirmed that it had previously consulted with SOS and/or [Individual 1] on environmental matters relating to other EPs.
 - **(2)** Woodside confirmed it had assessed and considered the information raised by SOS and/or [Individual 1] regarding Songlines and disruption to Songlines, which had been assessed in EPs and included where relevant. Woodside confirmed that risks or impacts to Songlines from this activity were anticipated to be negligible.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
(1) SOS and/or [Individual 1] has provided feedback that it believes that cultural features associated with whales are relevant.	(1) Woodside assessment: Woodside understands that some species hold spiritual and cultural importance to SOS and/or [Individual 1]. Woodside response: During consultation on a previous EP, Woodside discussed controls put in place to manage impacts and risks relating to their spiritual and cultural connection to the environment. Woodside has implemented controls to reduce potential risks and	(1) Assessment of potential impacts to cultural values are described in Section 6 of this EP.

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	impacts to ecological and cultural values to ALARP and to an acceptable level.	
<p>(2)</p> <p>SOS and/or [Individual 1] noted there were cultural features associated with Songlines, dreaming and Energy Lines.</p>	<p>(2)</p> <p>Woodside assessment: Woodside understands that Songlines and Energy Lines to hold personal spiritual and cultural value individually (rather than communally) to SoS and/or [Individual 1]. Woodside has consistently sought to understand the nature of these values to ensure impacts to these values can be minimised. SOS and/or [Individual 1] has declined to provide further information on these values.</p> <p>Woodside response: In any event, Woodside has sought to include controls that seek to reduce risks and impacts to ALARP and acceptable levels.</p>	<p>(2)</p> <p>Woodside has considered SOS's and/or [Individual 1] feedback and updated Section 4.9.2 to record topics of interest and cultural values, including Songlines and Energy Lines. These are assessed in Sections 6.7.3, 6.7.7, 6.9.3, 6.9.4, 6.9.5 and 6.9.8 under cultural heritage 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.</p>
<p>(3)</p> <p>SOS and/or [Individual 1] has an interest in marine mammals, seagrass, and the meeting of freshwater and saltwater was demonstrated.</p>	<p>(3)</p> <p>Woodside assessment: SOS and/or [Individual 1] has not expressly confirmed their interests, rather, have raised topics of interest to them during consultation for another activity. Woodside has considered SOS's and/or [Individual 1] topics of interest and shared relevant information in relation to a previous EP, with SoS and/or [Individual 1] relating to these interests, including controls put in place to manage risks and impacts to them.</p> <p>Woodside response: Woodside has updated Section 4.9 to record the interests and assessed them in Section 6 implementing appropriate controls.</p>	<p>(3)</p> <p>Woodside has considered topics raised by SOS and/or [Individual 1] and updated Section 4.9 to record these. These are assessed in 6 with appropriate controls implemented.</p>
<p>(4)</p> <p>SOS and/or [Individual 1] stated that as a Mardathoonera Lore woman, Elder and Traditional Custodian of Murujuga, their connection and cultural responsibilities to Murujuga has previously been provided, however some were culturally sensitive and could not be shared publicly.</p>	<p>(4)</p> <p>Woodside assessment: Woodside notes SOS and/or [Individual 1]'s connection to Murujuga and concern about the sharing of culturally sensitive information.</p> <p>Woodside response: As has been confirmed in previous consultation correspondence and engagements, Woodside maintains that it has observed the consultation protocols between SOS and/or [Individual 1] and Woodside, relating to confidentiality</p>	<p>(4)</p> <p>Not required.</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 221 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	of culturally sensitive information shared by SOS and/or [Individual 1]. Woodside reiterates that if SOS and/or [Individual 1] are not comfortable with sharing information with Woodside, alternatives are available via NOPSEMA.	
<p>(5)</p> <p>SOS and/or [Individual 1] stated that the potential impacts on cultural values were not identified or mentioned in the Consultation Information Sheet, and specifically, questioned if the cultural values outlined by Woodside had been properly considered and mitigated in the draft EP including potential impacts on:</p> <ul style="list-style-type: none"> (1) whales, as well as marine mammals, seagrass, and the meeting of freshwater and saltwater; and (2) Songlines, Dreaming and Energy Lines. 	<p>(5)</p> <p>Woodside assessment: Woodside disputes SOS and/or [Individual 1] assertion that it has not assessed potential impacts on marine species including whales, and Songlines. Woodside notes SOS and/or [Individual 1] have previously been consulted extensively with [Individual 1] and used feedback to inform EPs, including this one.</p> <p>Woodside response: Woodside has used previous feedback on other EPs, as well as feedback on this EP, to inform Woodside on the cultural features and heritage values of the environment, and to consider and assess risks and mitigations to cultural features and heritage values.</p>	<p>(5)</p> <p>Woodside has assessed and recorded cultural and environmental values in this EP in Section 4.9.1: Cultural values and heritage and Section 6: Environmental impact and risk assessment, performance outcomes, standards and measurements criteria.</p>
Woodside has addressed objections and claims, as noted above.	<p>Woodside has assessed the merits of any 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. 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 7.3.2).</p>	Based on the engagement to date, no additional measures or controls are required.
Summary Report: Consultation Complete		
<p>Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations and consultation with SOS and/or [Individual 1] 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. Specifically:</p> <p>Sufficient Information</p> <p>Sufficient information has been provided because:</p> <ul style="list-style-type: none"> In July 2024, Woodside made the Consultation Information Sheet available on the Woodside website. Woodside provided information to SOS and/or [Individual 1] on 15 July 2024 when consultation commenced. Woodside provided: 		
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- A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
- Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of SOS' interests and how the activity could impact those interests.
- A request for the consultation and information sheets to be distributed to members and individuals as required.
- An offer to provide more specific information, maps and images 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 SOS and/or [Individual 1] on 15 July 2024 and requested SOS provide feedback by 16 August 2024 for the purposes of preparation of this EP in line with Woodside's methodology of a 30-day period for consultation.
- Woodside has addressed and responded to SOS and/or [Individual 1] over 7 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on SOS and/or [Individual 1] preferred method of 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 7 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (17 July 2024) and the National Indigenous Times (30 July 2024) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 15 July 2024:
 - Included a general email address and telephone number for Woodside. Woodside also provided contact details for NOPSEMA.
 - Offered for Woodside to speak with SOS' members.
 - Asked SOS to advise how it would like Woodside to engage and whether SOS required further information.
- Woodside offered to meet with SOS and/or [Individual 1].
- Throughout the consultation period Woodside and SOS have had direct contact lines to each other during the period.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- SOS and/or [Individual 1] has previously advised Woodside that there are/is:
 - Cultural features associated with whales and other marine species are of spiritual importance. Woodside has put in place controls to manage impacts and risks relating to marine species' spiritual and cultural connection to the environment and assessed the potential impacts to cultural values. Items relating to SOS appear in Section 6 of the EP.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 223 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

- Cultural features associated with Songlines, dreaming and Energy Lines. Woodside has updated Section 4.9.2 of the EP to record topics of interest and cultural values, including Songlines and Energy Lines, which are also assessed in Section 6 with appropriate controls implemented.
- Interests in marine mammals, seagrass, and the meeting of freshwater and saltwater was demonstrated. Woodside has considered topics raised by SOS and/or [Individual 1] and updated Section 4.9 to record these, which are also assessed in Section 6 with appropriate controls implemented.
- Culturally sensitive and could not be shared publicly.
- Potential impacts on cultural values that were not identified or mentioned in the Consultation Information Sheet, including potential impacts on whales, as well as marine mammals, seagrass, and the meeting of freshwater and saltwater; and Songlines, Dreaming and Energy Lines.
- During the past 7 months, SOS 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 relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.3.2 of this EP).

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 224 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

5. 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.

5.1 State Commercial Fishery

5.1.1 Pilbara Crab Managed Fishery

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 15 July 2024, WAFIC, on behalf of Woodside, emailed Pilbara Crab Managed Fishery individual licence holders advising of the proposed activity (SI Report, reference 11.6), and provided a Consultation Information Sheet. On 16 August 2024, WAFIC emailed Woodside reporting that no feedback had been received for this activity from licence holders (SI Report, reference 11.7). 		
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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While Pilbara Crab 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 opportunity outside of regulatory requirements for Pilbara Crab Managed Fishery to provide feedback via WAFIC during the consultation process.		

5.2 RESEARCH INSTITUTES AND LOCAL CONSERVATION GROUPS OR ORGANISATIONS

5.2.1 Australian Institute of Marine Science (AIMS)

Summary of information provided and record of consultation for this EP:		
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Revision: 0		
Page 225 of 370		
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<ul style="list-style-type: none"> On 16 July 2024, Woodside emailed AIMS advising of the proposed activity (Record of Consultation, reference 6.1.29), 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 July 2024, Woodside sent an email reminder to AIMS following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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.		

5.2.2 Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed CSIRO advising of the proposed activity (Record of Consultation, reference 6.1.29), 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 16 July 2024, Woodside forwarded the information to a second contact at CSIRO after receiving an out of office reply. (SI Report, reference 25.1) On 31 July 2024, Woodside sent an email reminder to CSIRO, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
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While CSIRO 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 CSIRO to provide feedback during the consultation process.

5.2.3 Western Australian Marine Science Institution (WAMSI)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed WAMSI advising of the proposed activity (Record of Consultation, reference 6.1.29), 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 July 2024, Woodside sent an email reminder to WAMSI following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
<p>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.</p>		

5.2.4 University of Western Australia (UWA)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed UWA advising of the proposed activity (Record of Consultation, reference 6.1.29), 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 July 2024, Woodside sent an email reminder to UWA following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
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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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While UWA 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 UWA to provide feedback during the consultation process.		

5.2.5 Curtin University

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed Curtin advising of the proposed activity (Record of Consultation, reference 6.1.29), 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 July 2024, Woodside sent an email reminder to Curtin following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While Curtin 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 Curtin to provide feedback during the consultation process.		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 228 of 370

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5.2.6 Murdoch University

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed Murdoch advising of the proposed activity (Record of Consultation, reference 6.1.29), 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 July 2024, Woodside sent an email reminder to Murdoch following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While Murdoch 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 to provide feedback during the consultation process.		

5.3 OTHER NON-GOVERNMENT GROUPS OR ORGANISATIONS

5.3.1 350 Australia (350A)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed 350A advising of the proposed activity (Record of Consultation, reference 6.1.7), 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 July 2024, Woodside sent an email reminder to 350A, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While 350A 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 350A to provide feedback during the consultation process.		

5.3.2 Australian Conservation Foundation (ACF)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed ACF advising of the proposed activity (Record of Consultation, reference 6.1.7), 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 July 2024, Woodside sent an email reminder to ACF following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While ACF 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 ACF to provide feedback during the consultation process.		

5.3.3 Australian Marine Conservation Society (AMCS)

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Summary of information provided and record of consultation for this EP:

- On 16 July 2024, Woodside emailed AMCS advising of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to AMCS following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While AMCS 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 AMCS to provide feedback during the consultation process.		

5.3.4 Conservation Council of Western Australia (CCWA)**Summary of information provided and record of consultation for this EP:**

- On 16 July 2024, Woodside emailed CCWA advising them of the proposed activity (Record of Consultation, reference 6.1.7), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 31 July 2024, Woodside sent an email reminder to CCWA, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.

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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
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While CCWA 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 CCWA to provide feedback during the consultation process.

5.3.5 Greenpeace Australia Pacific (GAP)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed GAP advising of the proposed activity (Record of Consultation, reference 6.1.7), 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 16 July, Woodside forwarded information to another GAP contact after receiving an out of office message from previous recipient. (SI Report, reference 26.1) On 31 July 2024, Woodside sent an email reminder to GAP, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim and Woodside's Response	Inclusion in Environment Plan
No Feedback 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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While GAP 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 GAP to provide feedback during the consultation process.		

5.3.6 Doctors for the Environment Australia (DEA)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed DEA advising of the proposed activity (Record of Consultation, reference 6.1.7), 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 July 2024, Woodside sent an email reminder to DEA, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website.
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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 7.3.2).	No additional measures or controls are required.
Summary Report - Consultation Complete		
While DEA 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 DEA to provide feedback during the consultation process.		

5.3.7 Market Forces

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed Market Forces advising of the proposed activity (Record of Consultation, reference 6.1.7), 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 July 2024, Woodside sent an email reminder to Market Forces, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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.		

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 233 of 370

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5.3.8 Australian Centre for Corporate Responsibility (ACCR)

Summary of information provided and record of consultation for this EP: <ul style="list-style-type: none"> On 16 July 2024, Woodside emailed ACCR advising of the proposed activity (Record of Consultation, reference 6.1.7), 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 July 2024, Woodside sent an email reminder to ACCR, following up on the proposed activity (Record of Consultation, reference 6.2.1) and included a link to the Consultation Information Sheet on Woodside's website. 		
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 7.3.2).	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 considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for ACCR to provide feedback during the consultation process.		

6. RECORD OF CONSULTATION

6.1 Initial Consultation

6.1.1 Consultation Information Sheet



CONSULTATION

INFORMATION SHEET

July 2024

JULIMAR OPERATIONS ENVIRONMENT PLAN

CARNARVON BASIN, NORTH-WEST AUSTRALIA

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 could 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 proposed 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 to an acceptable level. Woodside wants relevant persons whose functions, interests or activities that may be affected by the proposed activity to have the opportunity to provide feedback on our proposed activity, in accordance with the intended outcome of consultation.

Overview

Woodside is submitting a revision of the Julimar Operations EP, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)*.

The EP covers production from the Brunello and Julimar fields and associated subsea infrastructure. The subsea infrastructure is connected to the Wheatstone Platform. The operation of the Wheatstone platform is covered by a separate EP.

Location and operations

The infrastructure is located in Commonwealth waters around 160 km north-west of Dampier in waters 71 - 207 m deep, within existing permit areas WA-49-L, WA-26-PL and WA-29-PL, and, for the Julimar Phase 3 infrastructure, three new pipeline licences (currently under application). The Operational Area is shown in **Figure 1**.

Eight wells currently produce from the Brunello and Julimar fields. Under this revised EP, production from up to five additional wells is planned.

The approximate location of infrastructure is in **Table 2**.

Activity overview

Activities under this EP (summarised further in **Table 1**) cover ongoing operation of the subsea infrastructure including:

- routine operation and testing of the wells and subsea infrastructure and associated activities
- routine and non-routine inspection, monitoring, maintenance and repair (IMMR) activities of the production system and associated subsea infrastructure
- commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure
- installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).

Decommissioning is not planned during the next five years and will be the subject of a separate future EP.

Production

Production commenced in 2016 and infrastructure operates 24 hours a day, 365 days a year.

Inspection

IMMR activities are undertaken to uphold the integrity of the infrastructure. The IMMR activities for subsea infrastructure, including any redundant equipment, so that equipment is maintained in good condition and repair, for production and to enable future removal.

Typical site inspection activities may include visual surveys via a remotely operated vehicle (ROV), side scan sonar surveillance, cathodic protection measurements, ultrasonic pipe condition checks and sampling surveys.

Monitoring

Monitoring activities may include process composition testing, acoustic sand detectors, erosion probes, metocean and geological seismic monitoring and cathodic protection testing.

Maintenance

Maintenance activities include cycling of the valves, marine growth removal, flushing of chemical hydraulic fluid lines and leak and pressure testing.

Repair

The requirements and frequency of repairs will be dictated by the outcome of the inspection and maintenance activities. Typical subsea repair activities include subsea equipment and infrastructure replacement, scour prevention installation and corrosion protection.

Julimar Phase 3 start-up

The start-up activities associated with the Julimar Phase 3 wells and associated subsea infrastructure are planned to commence around mid to late-2025. This involves the start-up and routine operation of new subsea infrastructure, including up to five new wells, one manifold and associated flying leads, umbilicals and flowlines.

Subsea contaminant removal module (SCRM)

Installation, commissioning, start up and operation of a SCRM is a proposed activity under the EP. The subsea module will be installed between a well and manifold to remove trace amounts of mercury from gas production before it reaches the platform. Mercury will be intercepted via multiple coalescer elements and secured in the module at 150 m water depth until the end of well life when the closed vessel containing mercury will be recovered from the module during an IMMR campaign.

Mercury will be managed onshore in sealed canisters in accordance with existing hazardous waste procedures. Desanding equipment will be installed with the module to remove solids from the gas stream. The SCRM is planned to be installed around mid-2026.

Vessels

Support vessels will be used for field work, such as IMMR and start-up activities, as well as installation of the SCRM. The length of time that vessels are in field varies depending on the nature of the activity.

Helicopters may be used to transport specialist personnel and/or freight to and from the activity vessels. They may also be used as a means of evacuating personnel in the event of an emergency.

Communications with mariners

The location of infrastructure is marked on nautical charts. The Operational Area for this activity is shown in **Figure 1**, and includes:

- an area approximately 47 km long, running 1500 m each side of flowlines/pipeline, including wells and subsea infrastructure, to accommodate production, support vessels and IMMR activities, and the installation and operation of SCRM
- an area 4 km radius around Jul-A manifold to accommodate production from an approved well in the J-85 reservoir.

A 250 m petroleum safety zone (PSZ) is in place around each well and crossover manifold.

Marine notices will be issued prior to activity commencement to alert vessels which may be operating in waters nearby. Commercial fishers and other marine users are permitted to use the Operational Area but are prohibited from entering the PSZ to avoid interactions between vessels and the operations, unless authorised by Woodside.

Assessment

Woodside has undertaken an assessment of the potential impacts and risks to the environment as well as potential risks to relevant persons arising from the planned activities and unplanned events. This assessment considers the timing, duration and location of the 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.

In preparing the EP, Woodside's intent is to minimise environmental, social and cultural risks and impacts associated with the proposed activities, and Woodside seeks your feedback to inform our decision making.

Joint venture

Woodside Energy Ltd is operator for this activity, on behalf of the Joint Venture comprising Woodside Energy Julimar Pty Ltd and KUFPEC Australia (Julimar) Pty Ltd.

We welcome your feedback by 16 August 2024.

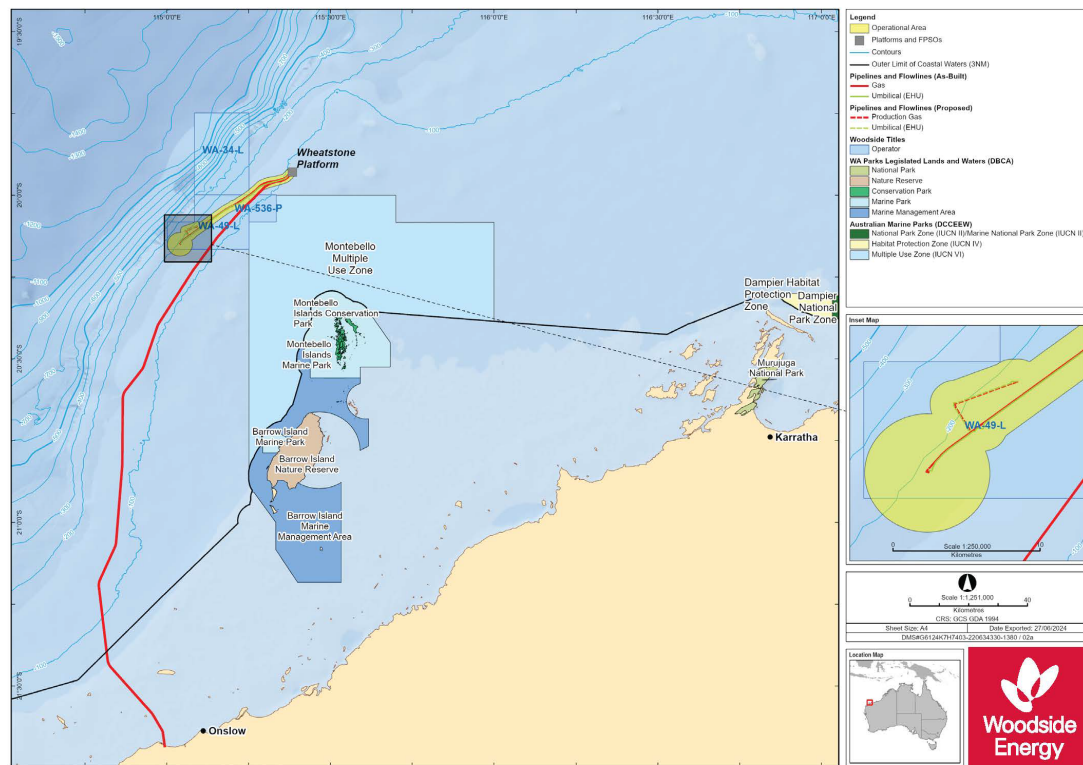


Figure 1: Julimar Operations EP Operational Area.

Table 1. Activity Summary

Julimar Operations Environment Plan	
Production licence area	WA-49-L
Pipeline licences	Existing WA-26-PL and WA-29-PL and three new Pipeline Licences (currently under application)
Approximate water depth	~71 - 207 m
Activity summary	<ul style="list-style-type: none"> • Routine operation and testing of the wells and subsea infrastructure, and associated activities. • Routine IMMR activities of the production system and associated subsea infrastructure. • Start-up activities associated with the Julimar Phase 3 wells and associated subsea infrastructure. • Installation, commissioning, start up and operation of SCRM.
Infrastructure	<ul style="list-style-type: none"> • Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<ul style="list-style-type: none"> • Support vessels will vary depending on the nature of petroleum activities. Vessels are utilised in a support capacity for field work such as subsea IMMR, start-up activities and installation of SCRM. • Helicopters may be utilised.
Key dates	<ul style="list-style-type: none"> • Production commenced: 2016. • Routine operations: ongoing. • Julimar Phase 3 start-up around mid to late-2025. • SCRM installation around mid-2026, commissioning, start up and operation.
Approximate duration	<ul style="list-style-type: none"> • Operation of the production system occurs 24 hours a day, 365 days a year. • IMMR activities are undertaken as required to support day-to-day operations, and the duration is dependent on the activity. These are typically in the order of days to weeks. • SCRM installation and commissioning anticipated to take approximately four weeks.
Operational area and exclusion zones	<p>Operational Area includes:</p> <ul style="list-style-type: none"> • Area running 1.5 km each side around Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. • An area 4 km radius around Jul-A manifold to accommodate production from an approved well in J-85 reservoir. • 250 m PSZ in place around each well and crossover manifold.
Distance to nearest town	~160 km north-west of Dampier.
Distance to nearest marine park/nature reserve	<ul style="list-style-type: none"> • The Operational Area overlaps a small area of the Montebello Marine Park multiple use zone (3 km²).

Table 2. Approximate locations of key infrastructure related to the Julimar Operations Environment Plan

Structure	Approximate Water depth (m)	Latitude	Longitude	Titles
Well and centre locations				
BruA-2	149	20°01'49.1571" S	115°12'05.6357" E	WA-49-L
BruA-3	149	20°01'47.8720" S	115°12'07.0511" E	WA-49-L
BruA-4	149	20°01'48.1207" S	115°12'07.5964" E	WA-49-L
BruA-5	149	20°01'49.6633" S	115°12'05.7596" E	WA-49-L
BruA-6	149	20°01'48.4958" S	115°12'07.8942" E	WA-49-L
JULA-01	174	20° 08' 52.996" S	115° 02' 28.377" E	WA-49-L
JULA-02	174	20° 08' 52.222" S	115° 02' 26.436" E	WA-49-L
JULA-04	174	20° 08' 53.554" S	115° 02' 28.078" E	WA-49-L
J85 Development Well*	158 – 207 m	20° 08' 52.917" S	115° 02' 27.23" E	WA-49-L
JUA1C (J54)*	173 m	20° 08' 59.969" S	115° 02' 23.622" E	WA-49-L
JUA1E (J25W)*	174 m	20° 08' 58.753" S	115° 02' 22.501" E	WA-49-L
JUB1A (J14)*	191 m	20° 06' 27.931" S	115° 03' 23.418" E	WA-49-L
JUB1B (Penfolds)*	169 m	20° 05' 39.071" S	115° 05' 44.871" E	WA-49-L
Pipeline/flowline route corridor location				
Brunello, Julimar, MEG pipeline/ production flowline corridor	148 (start)	20°01'51.7586" S (start)	115°12'11.3265" E (start)	WA-26-PL
	71 (end)	19°55'45.776" S (end)	115°23'02.215" E (end)	
JDP 2 Flowline / Umbilical Route	145 (start)	20° 01 '53.43" S (start)	115° 12 '09.28" E (start)	WA-29-PL
	174 (end)	20° 08 '52.917" S (end)	115° 02 '27.23" E (end)	
JDP 3 JUA1C to JUA1M-Man01*	174 m (start)	20° 08' 59.75" S (start)	115° 02' 24.59" E (start)	Under application
	174 m (end)	20° 08' 52.917" S (end)	115° 02' 27.23" E (end)	
JDP 3 JUA1E to JUA1M-Man01*	174 m (start)	20° 08' 59.25" S (start)	115° 02' 23.05" E (start)	Under application
	174 m (end)	20° 08' 52.917" S (end)	115° 02' 27.23" E (end)	
JDP 3 JUB1B-JULB MAN- ILT*	170 m (start)	20° 05' 39.01" S (start)	115° 05' 44.84" E (start)	Under application
	192 m (mid)	20° 06' 26.41" S (mid)	115° 03' 24.02" E (mid)	
	174 m (end)	20° 07 '36.11" S (end)	115°04 '12.23" E (end)	
Manifolds and other infrastructure				
BruA manifold	149	20°01'49.0788" S	115°12'06.8670" E	WA-49-L
BruA Crossover manifold (BruA XOM)	149	20°01'51.1115" S	115°12'09.0653" E	WA-49-L
JULA manifold	174	20° 08 '52.917" S	115°02 '27.23" E	WA-49-L
Inline T Assembly	167	20° 07 '36.11" S	115°04 '12.23" E	WA-49-L
JULA Manifold	174	20° 08 '52.917" S	115°02 '27.23" E	WA-49-L
JULB Manifold	192	20° 06' 26.41"S	115° 03' 24.02"E	WA-49-L
Subsea Contaminant Removal Module*	149	~ 20°01'48.3" S	~ 115°12'07.3" E	WA-49-L

* Indicates new well or infrastructure

Environment That May Be Affected (EMBA)

The EMBA is a mathematically modelled area of the largest possible spatial extent where the Julimar Operations EP activities could potentially have an environmental consequence. The broadest extent of the model takes into consideration planned and unplanned activities. For the EP, the EMBA has been developed combining numerous modelling outputs based on scenarios involving a release of hydrocarbons to the environment. These scenarios are highly unlikely to occur. The most credible modelling scenarios that inform the EMBA are based on hydrocarbon release as a result of well loss of containment, subsea loss of containment and vessel collision. The EMBA is depicted in **Figure 2**.

The EMBA does not represent the extent of the predicted impact of a release of hydrocarbons. Rather, the EMBA represents the merged area of many possible paths that a hydrocarbon release could travel, depending on factors including the weather and ocean conditions at the time of the release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. Only a minimal, specific part of the EMBA will be affected and that portion will only be known at the time of the release.

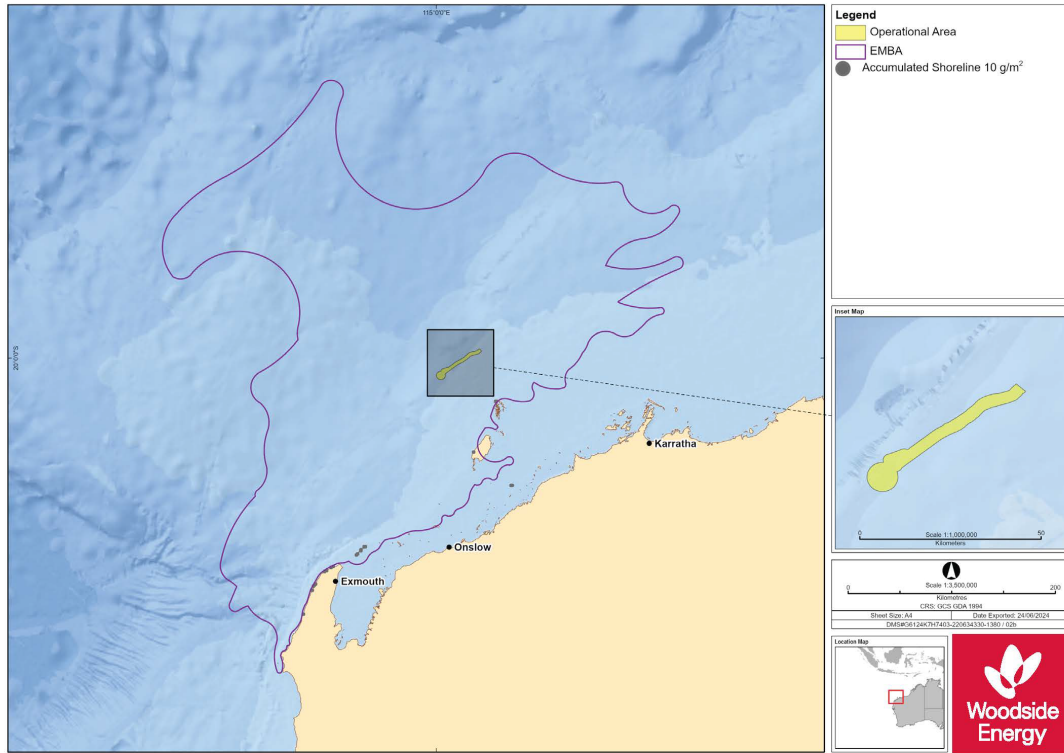


Figure 2: Environment that May Be Affected (EMBA) by the Julimar Operations activities.

Mitigation and management measures

Woodside has undertaken an assessment to identify potential impacts and risks to the environment arising from the Julimar Operations activity. A number of mitigation and management measures for the activity are outlined in **Table 3**. Further details will be provided in the EP.

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 Impact/Risk	Preliminary Draft Mitigation and/or Management Measure
Planned Activities (Routine and Non-routine)			
Physical presence: interaction with other marine users	<ul style="list-style-type: none"> Physical presence of support vessels and presence of infrastructure on seafloor. 	<ul style="list-style-type: none"> Potential isolated social impact resulting from interference with other sea users (e.g. commercial and recreational fishing and shipping). 	<ul style="list-style-type: none"> Maintain a permanent 250m PSZ around wellheads and crossover manifolds. Vessels adhere to regulatory requirements for navigational safety. Notifying the Australian Hydrographic Office (AHO) of location of permanent new infrastructure to enable update of maritime charts. Consult with relevant persons so that they are informed of the proposed activity.
Physical Presence: disturbance to seabed	<ul style="list-style-type: none"> Physical presence of subsea infrastructure, wet parked equipment and IMMR activities on seafloor. Physical presence and installation of the SCRM. 	<ul style="list-style-type: none"> Localised modification of seabed habitat (formation of artificial reef) within Operational Area. 	<ul style="list-style-type: none"> Installation of SCRM within previously footprint to limit seabed disturbance. Vessels used for IMMR activities will be dynamic positioning capable. Equipment wet parked (temporarily placed) on the seabed will be tracked and removed. Impacts to cultural heritage areas or prospective areas to be avoided and/or mitigated in accordance with Woodside's First Nations Communities Policy. Comply with regulatory requirements for Underwater Cultural Heritage.
Routine acoustic emissions: generation of noise during routine operations	<ul style="list-style-type: none"> Generation of noise from: <ul style="list-style-type: none"> operation of the subsea infrastructure (i.e., wells, pipelines, SCRM etc) vessels helicopters IMMR activities. 	<ul style="list-style-type: none"> Localised behavioural impacts to marine fauna around infrastructure and vessels. 	<ul style="list-style-type: none"> Comply with regulatory requirements for interactions with marine fauna to prevent adverse interactions including <i>EPBC Regulations 2000 – Part 8</i>. Cetacean and whale shark sightings reported to support greater environmental knowledge. Woodside internal guidance and procedures adhered to.
Routine and non-routine discharges	<ul style="list-style-type: none"> Occasional discharge of brine, cooling water, drain, deck, bilge water, grey water, sewage and putrescible waste from vessels to the marine environment. Release of chemicals (e.g., hydraulic control fluid, MEG, scale inhibitor) or hydrocarbons (i.e., during spool replacement) to the marine environment as a result of planned routine and non-routine activities. 	<ul style="list-style-type: none"> Localised and temporary effects to water quality and marine biota. 	<ul style="list-style-type: none"> Marine discharges managed in accordance with regulatory requirements. Chemicals selected with the lowest practicable environmental impacts subject to technical constraints and approved through the Woodside chemical assessment process. Subsea infrastructure flushed where practicable to reduce volume/concentration of hydrocarbons released to the environment.
Routine and non-routine atmospheric and Greenhouse Gas (GHG) emissions	<ul style="list-style-type: none"> Direct emissions (Scope 1 and 2) associated vessels and helicopters within the Operational Area. Indirect emissions (Scope 3) associated with onshore processing of gas, third party transportation, regassification and combustion by end users. 	<ul style="list-style-type: none"> Localised reduction in air quality from atmospheric emissions. 	<ul style="list-style-type: none"> Comply with legislative and regulatory requirements for marine air pollution and air emissions reporting. Monitor market developments related to the contribution of natural gas in the energy transition.
Routine light emissions	<ul style="list-style-type: none"> Light emissions from vessels and helicopters as well as subsea vehicles. 	<ul style="list-style-type: none"> Negligible, localised potential for temporary behavioural disturbance of species in close proximity including fish, marine reptiles and seabirds. 	<ul style="list-style-type: none"> Lighting to be limited to the minimum required for navigational and safety requirements except for emergency events. Implementation of seabird management plan.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impact/Risk	Preliminary Draft Mitigation and/or Management Measure
Unplanned Events (Accidents / Incidents)			
Unplanned hydrocarbon release: loss of well containment	<ul style="list-style-type: none"> Loss of well containment resulting in release of hydrocarbons. 	<p>Potential moderate impacts to the marine environment:</p> <ul style="list-style-type: none"> Long term impacts to sensitive nearshore areas of offshore islands and coastal shorelines. Disruption to marine fauna including protected species. Reduction in water quality. Potential medium-term interference with other marine users. Possible exceedance of defined hydrocarbon thresholds for marine sediment. Potential interference with activities of other regional petroleum operators. 	<p>Wells in compliance with accepted well operation management plan (WOMP) including implementation of barriers to prevent a loss of well control.</p> <ul style="list-style-type: none"> Checks completed during well operations to establish minimum acceptable standard of well integrity. <p>Spill response arrangements</p> <ul style="list-style-type: none"> In the event of a spill emergency response activities implemented in accordance with the Oil Pollution Emergency Plan (OPEP). First Strike Plan. Arrangements supporting the activities in the OPEP will be tested so that the OPEP can be implemented as planned.
Unplanned hydrocarbon release: loss of containment of subsea infrastructure	<ul style="list-style-type: none"> Release of hydrocarbon resulting from loss of containment of subsea flowlines and infrastructure. 	<p>Potential moderate impacts to the marine environment:</p> <ul style="list-style-type: none"> Disruption to marine fauna including protected species. Reduction in localised water quality. Potential medium-term interference with or displacement of other marine users. Possible exceedance of defined hydrocarbon thresholds for marine sediment. Potential interference with activities of other regional petroleum operators. 	<p>Preventing loss of subsea containment</p> <ul style="list-style-type: none"> The pipeline and flowline design includes a range of measures that specifically aid in minimising the risk of external damage. ROV inspections of subsea equipment. Pressure temperature and flow rates are continually monitored and recorded. Relevant maintenance and operating procedures implemented. For subsea IMMR activities the Woodside engineering Standard – Subsea isolation followed. <p>Spill response arrangements</p> <ul style="list-style-type: none"> In the event of a spill emergency response activities implemented in accordance with the Oil Pollution Emergency Plan (OPEP). First Strike Plan. Arrangements supporting the activities in the OPEP will be tested so that the OPEP can be implemented as planned.
Unplanned hydrocarbon release: vessel collision	<ul style="list-style-type: none"> Loss of hydrocarbons to marine environment due to vessel collision (e.g., support vessel or other marine user). 	<ul style="list-style-type: none"> May result in impacts on marine biota, a decline in water quality and oiling of marine mammals, reptiles or seabirds. Potential medium-term interference with or displacement of other marine users. 	<p>Preventing vessel collision</p> <ul style="list-style-type: none"> Comply with regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. Establish safety exclusion zones around vessels which are communicated to marine users to reduce likelihood of collision. Notify fisheries in accordance with stakeholder notification requirements of vessel activities and locations. Notify AMSA and AHO of vessel activities and locations. Marine diesel oil fuel to be used. Where required SIMOPS plan to manage vessel movements will be developed. <p>Spill response arrangements</p> <ul style="list-style-type: none"> In the event of a spill emergency response activities implemented in accordance with the Oil Pollution Emergency Plan (OPEP). First Strike Plan. Arrangements supporting the activities in the OPEP will be tested so that the OPEP can be implemented as planned.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impact/Risk	Preliminary Draft Mitigation and/or Management Measure
Unplanned discharge: SCRM	<ul style="list-style-type: none"> Accidental release of mercury from SCRM during operation or maintenance. 	<ul style="list-style-type: none"> Potential disruption to marine fauna including protected species. Potential reduction in localised water quality. Potential medium-term interference with or displacement of other marine users. Possible exceedance of defined hydrocarbon thresholds for marine sediment. 	<ul style="list-style-type: none"> Comply with regulatory requirements for the prevention of marine pollution and handling of hazardous wastes. The SCRM design includes a range of protective measures that specifically aid in minimising the risk of external damage. The SCRM design includes measures to minimise mercury lost to the marine environment. <p>Spill response arrangements</p> <ul style="list-style-type: none"> In the event of a spill emergency response activities implemented as appropriate for the nature and scale of the release.
Unplanned discharges: deck and subsea spills	<ul style="list-style-type: none"> Accidental release of hydrocarbons/hazardous chemicals from support vessel deck activities and equipment (subsea ROV hydraulic leaks). Unplanned release of chemicals or hydraulic fluid due to failure of subsea equipment. 	<ul style="list-style-type: none"> Reduction in water quality leading to localised and short/medium term impacts on marine biota. 	<ul style="list-style-type: none"> Comply with regulatory requirements for the prevention of marine pollution. Liquid chemicals and fuel storage areas are bunded or have secondary containment when they are not being used / handled temporarily. Spill response kits on board vessels. Chemicals selected with the lowest practicable environmental impacts subject to technical constraints and approved through the Woodside chemical assessment process. <p>Spill response arrangements</p> <ul style="list-style-type: none"> In the event of a spill emergency response activities implemented in accordance with the Ship Oil Pollution Emergency Plan (SOPEP).
Unplanned discharges: hazardous and non-hazardous waste management	<ul style="list-style-type: none"> Loss of solid wastes generated by activity vessels including packaging, domestic wastes and hazardous wastes such as oil rags, batteries and waste oil. 	<ul style="list-style-type: none"> Potential localised impacts to marine fauna, water quality and marine sediments. 	<ul style="list-style-type: none"> Comply with regulatory requirements for the prevention of marine pollution and handling of hazardous wastes. Implement waste management procedures which provide for safe handling and transportation, segregation, storage and classification of waste generated. If safe and practicable to do so, solid waste / equipment will be recovered. Where retrieval is not practicable or safe items lost to the marine environment will be added to the inventory for the title.
Physical presence: interactions with marine fauna	<ul style="list-style-type: none"> Accidental collision between support vessel and marine fauna 	<ul style="list-style-type: none"> Potential injury or death of marine fauna (single animal), including protected species. 	<ul style="list-style-type: none"> Comply with <i>EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with Cetaceans</i>.
Physical presence: introduction of invasive marine species (IMS)	<ul style="list-style-type: none"> Invasive species in vessel ballast or on vessels / submersible equipment. 	<ul style="list-style-type: none"> Potential introduction of IMS possibly resulting in an alteration of the localised environment and reduction in native species through predation, competition or interspecies breeding. 	<ul style="list-style-type: none"> Ballast water and biofouling will be managed according to the Australian Ballast Water Management Requirements and the Australian Biofouling Management Requirements as applicable. Woodside's IMS risk assessment process will be applied to vessels and immersible equipment entering the operational area.

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 **16 August 2024** 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/what-we-do/consultation-activities

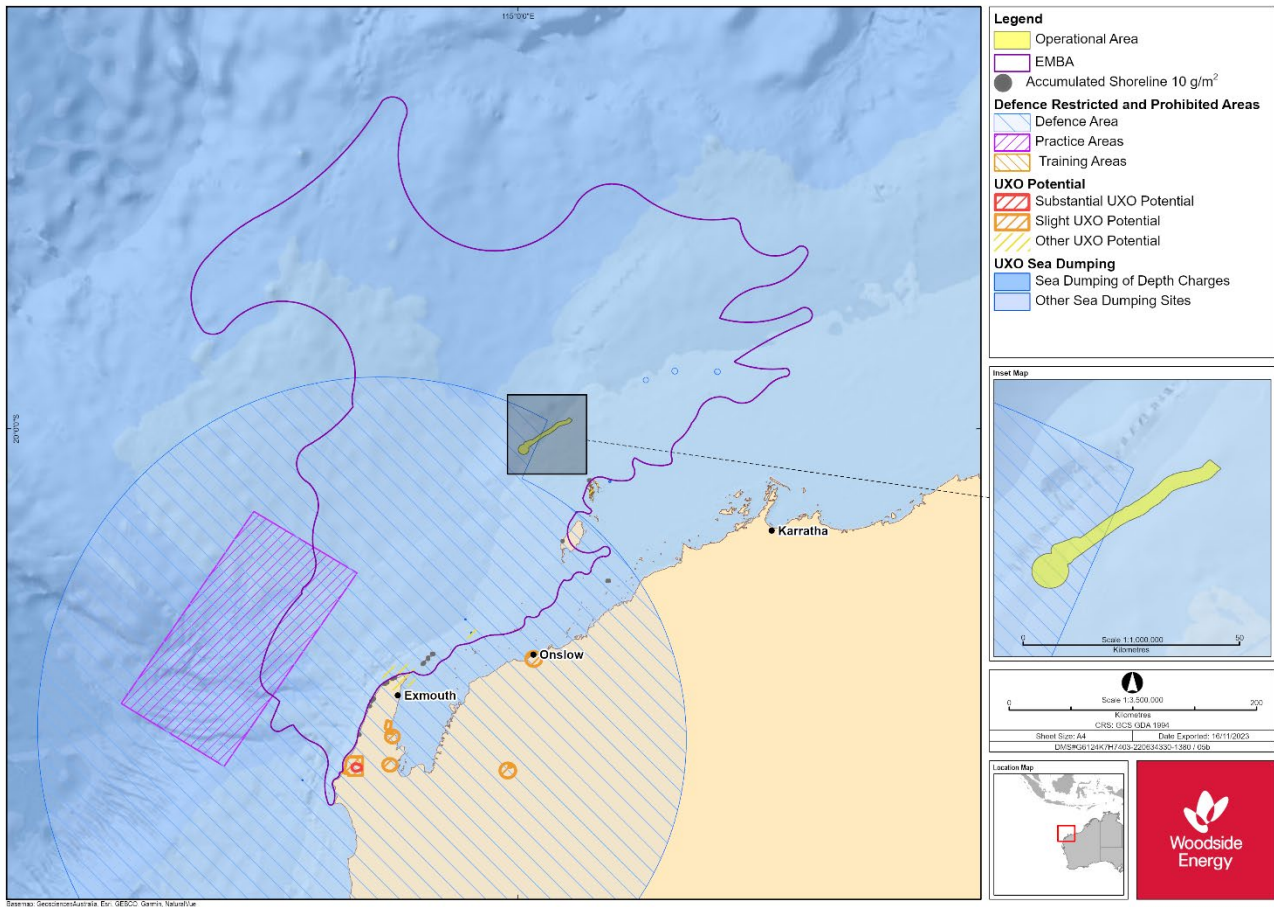
Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected relevant persons as relevant and appropriate.

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 2023 (Cth)* and 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.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit: www.woodside.com/what-we-do/consultation-activities.

6.1.2 Defence zones map



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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 245 of 370

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6.1.3 Summary Information Sheet



JULIMAR OPERATIONS ENVIRONMENT PLAN

CARNARVON BASIN, NORTH-WEST AUSTRALIA

Woodside consults relevant persons in the course of preparing an Environment Plan (EP) to notify them and obtain their input. This assists 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. These are the intended outcomes of consultation.

This summary information sheet provides information relating to the Julimar Operations EP to cover ongoing operations and planned activities in the Brunello and Julimar fields. 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 Julimar Operations EP Consultation Information Sheet (July 2024) which can be found at:

<http://www.woodside.com/what-we-do/consultation-activities>

Overview

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure. Eight wells currently produce from the Brunello and Julimar fields, and under this revised EP, production from up to five additional wells is planned.

Production started in the Brunello and Julimar fields in 2016. The subsea infrastructure is connected to the Wheatstone Platform, and its operation is covered by a separate EP.

The infrastructure is located in Commonwealth waters around 160 km north-west of Dampier, Western Australia, in waters 71-207 m deep.

A map showing the location of the activities is provided below.

(Figure 1)

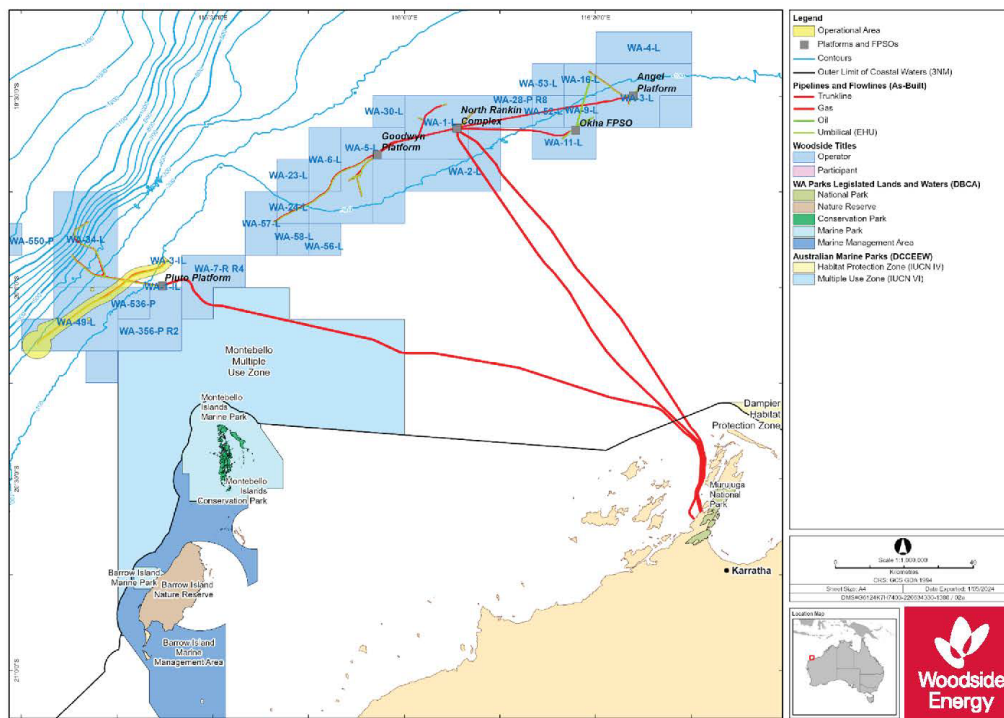


Figure 1: Julimar Operations EP Operational Area

Summary of activities includes:

- routine operation and testing of the wells and subsea infrastructure, and associated activities
- routine and non-routine inspection, monitoring, maintenance and repair (IMMR)
- commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure
- installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Support vessels will be used for field work such as subsea IMMR and start-up activities as well as installation of the SCRM. The length of time that vessels are in field varies depending on the nature of the activity.

Helicopters may be used to transport specialist personnel and/or freight to and from the vessels. They may also be used to evacuate personnel in the event of an emergency.

Production started in 2016 and operates 24 hours a day, 365 days a year. The Brunello and Julimar fields are predicted to remain active for the five-year life of the EP. The start-up activities associated with the Julimar Phase 3 wells and associated subsea infrastructure are planned to commence around mid to late-2025. The SCRM is planned to be installed around mid-2026. Decommissioning is not planned during the next five years and will be the subject of a separate future EP.

Joint venture

Woodside Energy Ltd is operator for this activity, on behalf of the Joint Venture comprising Woodside Energy Julimar Pty Ltd and KUPPEC Australia (Julimar) Pty Ltd.

Environment that may be affected (EMBA)

The EMBA is a mathematically modelled area of the largest possible spatial extent where the Julimar Operations EP activities could potentially have an environmental consequence. The broadest extent of the model takes into consideration planned and unplanned activities. For the EP, the EMBA has been developed combining numerous modelling outputs based on scenarios involving a release of hydrocarbons to the environment. These scenarios are highly unlikely to occur. The most credible modelling scenarios that inform the EMBA are based on hydrocarbon release as a result of well loss of containment, subsea loss of containment and vessel collision. The EMBA is depicted in **Figure 2**.

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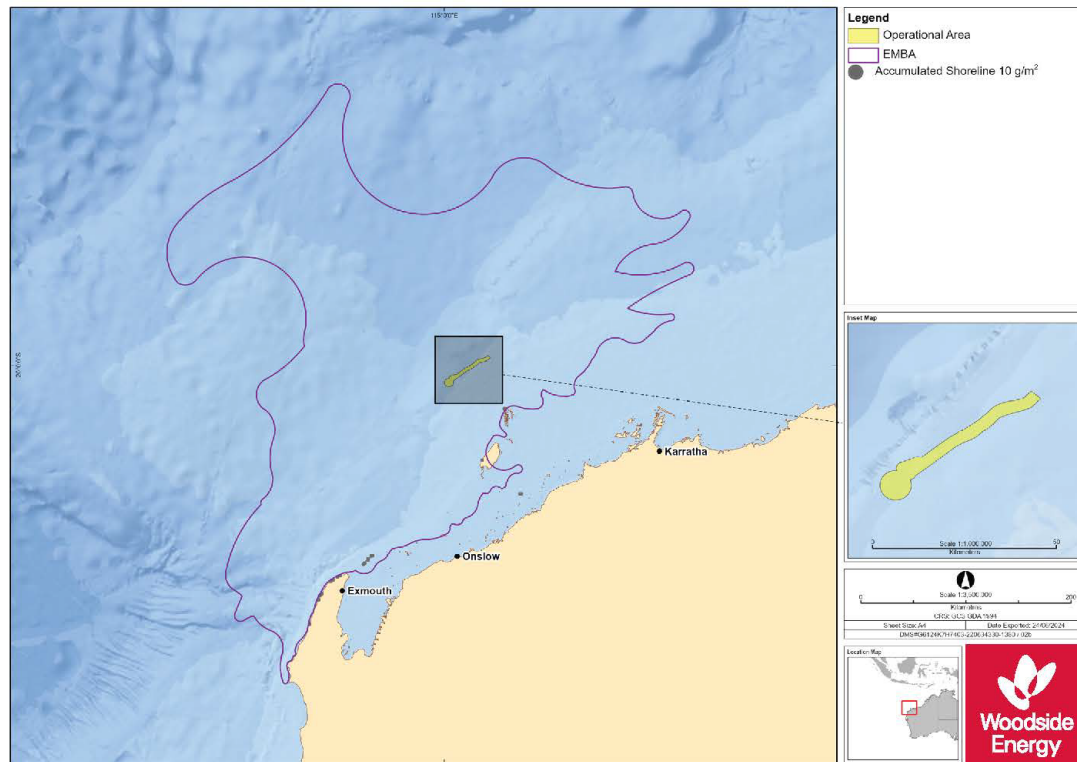


Figure 2: Environment that May Be Affected (EMBA) by the Julimar Operations EP activities.

Feedback

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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 relevant persons as relevant and appropriate.

Your feedback and our response will be included in our EP for the proposed activity, which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)* and may 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.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit: www.woodside.com/what-we-do/consultation-activities.

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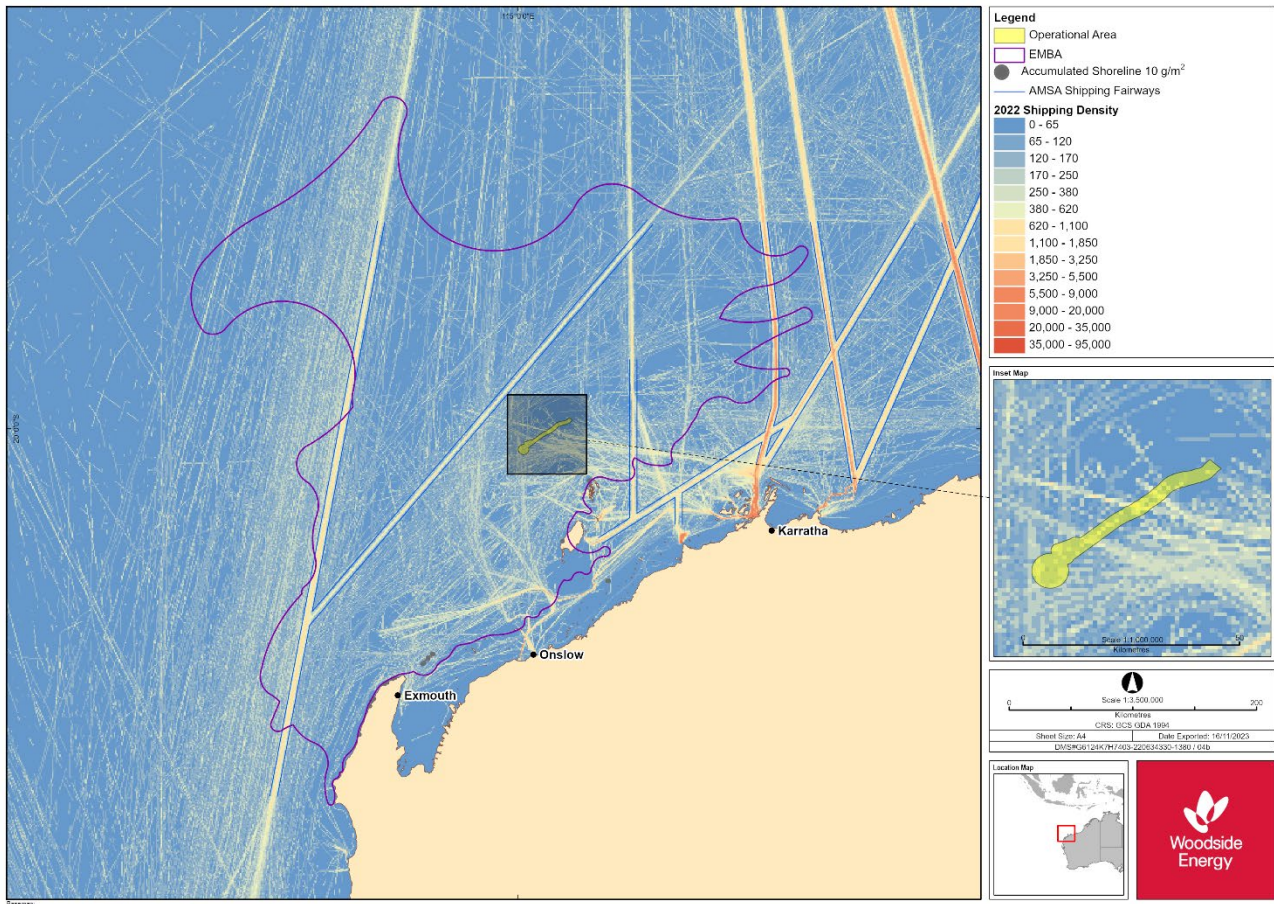
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Revision: 0

Page 248 of 370

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6.1.4 Vessel density map



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Revision: 0

Page 249 of 370

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6.1.5 Shipwrecks

EMBA and Accumulated Shoreline + Australia National Shipwrecks OVERLAP					
Vessel Name	Vessel Type	When Lost	Where Lost	Latitude	Longitude
Olive	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Pearl	Sailing vessel	1896	Exmouth Gulf, Meda Creek	-21.75	114.0833333
Vianen	Sailing vessel	1628	Barrow Island Area	-20	115.1666667
Wild Wave (China)	Sailing vessel	1873	Monte Bello Island	-20	115.1666667
Zvir	Twin screw steamer	1902	Point Cloates	-22.60916667	113.626
Shunsei Maru	Unknown	1931	Carbaddaman Passage, north of Point Cloates	-22.41666667	113.6833333
Smuggler	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Mabel	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Marietta	Unknown	1905	Barrow Island	-20	115.1666667
Lady Ann	Sailing vessel	1982	24 miles north of NW Cape	-21.4	114.2
Lamareaux	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Leave	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Agnes	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Beatrice	Sailing vessel	1899	Off North-West Cape	-21.61666667	113.9833333
Bell	Sailing vessel	1893	Exmouth	-21.75	114.0833333
Elizabeth	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Fin	Single screw steamer	1923	Point Cloates, Fraser Island	-22.6476	113.6282667
Florence	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Don Joseph	Sailing vessel	1899	6.5 Kilometres North of Point Cloates	-22.61666667	113.6
Occator	Sailing vessel	1856	Around 55 kilometres south of the Cape at Carbaddaman Passage	-22.41666667	113.6833333
Tanami	Sailing vessel		Trial Rocks	-20.28333	115.36666
Trial	Sailing vessel	1622	Trial Rocks	-20.28598333	115.3752333
Perth	Twin screw steamer	1887	Point Cloates	-22.69246667	113.6422667
Unidentified Lugger	Unknown	1893	Exmouth Gulf	-21.75	114.0833333
Veronica	Sailing vessel	1928	Sunday Island, Exmouth Gulf	-21.68333333	114.3833333
Lily Of The Lake	Sailing vessel	1875	Exmouth Gulf	-21.75	114.0833333
Ruby	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Sea Queen	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Wild Wave	Sailing vessel	1875	Exmouth Gulf	-21.75	114.0833333
Gem	Sailing vessel	1893	North West Cape	-21.61666667	113.9833333
Chofuku Maru	Twin screw steamer	1931	Point Cloates	-22.51755	113.6629833
Ellen	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Kapala	Unknown	1964	Exmouth Gulf	-21.75	114.0833333
Curlew	Sailing vessel	1911	At Onslow, Monte Bello Group	-20	115.1666667
Nellie	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
McCormack		1989	N.E. tip of Eaglehawk Island West of Dampier,	-20.13666667	115.9533333
McDermott Derrick Barge No 2	Barge	1989	N.E. tip of Eaglehawk Island, Dampier Archipelago	-20.13666667	115.9533333

EMBA and Accumulated Shoreline + State Historical Shipwrecks OVERLAP					
Vessel Name	Comments	When Lost	Where Lost	Latitude	Longitude
Chofuku Maru	Steamer screw	5/02/1931	Point Cloates	22°31.053	113°39.779
Don Joseph	Lugger	1899/04/30	5-7 NM south of Point Cloates	22°37	113°36
Perth	Steamship	1887/09/17	Point Cloates	22°41.548	113°38.536
Shunsei Maru		5/02/1931	Carbaddaman Passage, north of Point Cloates	22°25	113°41
Trial	Ship	1622/05/24	Trial Rocks	20°17.159	115°22.514
McCormack	Barge	1989/10/00	N.E. tip of Eaglehawk Island West of Dampier, Dampier Archipelago	20°08.200	115°57.200
Veronica	Lugger	1928/07	Sunday Island, Exmouth Gulf	21°41	114°23
Lady Ann	Ship (non-sail)	18/09/1982	24 miles north of NW Cape	21°24	114°12
Fin	Steamship	15/01/1923	Point Cloates, Fraser Island	22°38.856	113°37.696
Zvir	Steamship	27/11/1902	Point Cloates	22°36.55	113°37.56
Occator	Brigantine	1856/02/09	Around 55 kilometres south of the Cape at Carbaddaman Passage	22°25	113°41
McDermott Derrick Barge No 2	Barge	20/10/1989	N.E. tip of Eaglehawk Island, Dampier Archipelago	20°08.200	115°57.200

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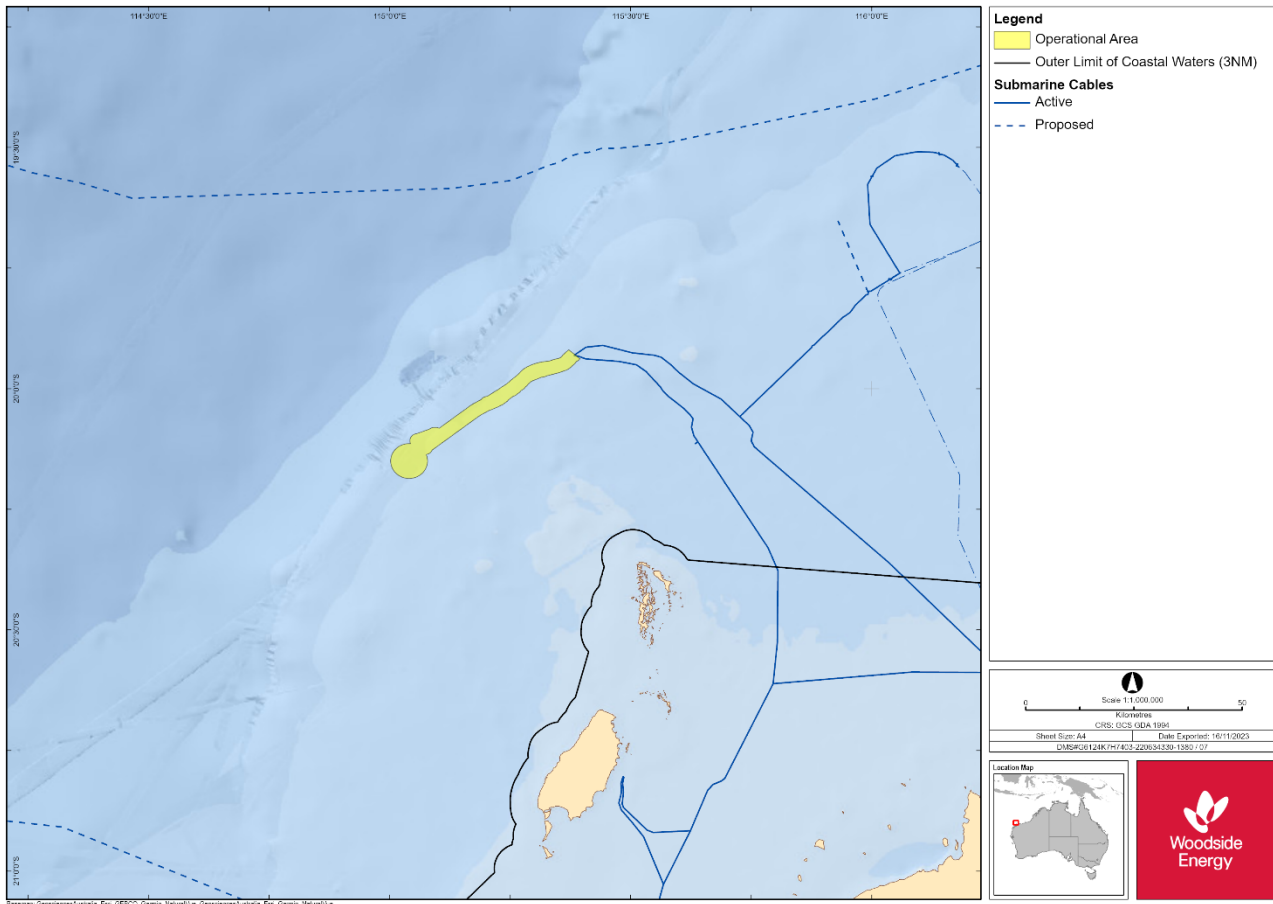
Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 250 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

6.1.6 Submarine communication cables map



6.1.7 Email sent to Australian Border Force (ABF), Pilbara Ports Authority (PPA_, 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), Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA) , Greenpeace Australia Pacific (GAP), 350 Australia (350A), Australasian Centre for Corporate Responsibility (ACCR), Doctors for the Environment Australia (DEA), Market Forces, Australian Energy Producers (AEP), Cape Conservation Group (CCG), Protect Ningaloo – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 251 of 370

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Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 252 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	<ul style="list-style-type: none"> 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published the brochure 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.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our [website](#).

6.1.8 Email sent to Australian Communications and Media Authority (ACMA)– 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities
 routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Please also find attached a map of the submarine communication cables in the vicinity of the Operational Area. We confirm we will provide consultation material to Telstra as its cables are in the Operational Area. We also acknowledge your previous update on the status of Vocus' Darwin-Jakarta-Singapore Cable System that it is active. It does not intersect with the Operational Area.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Infrastructure	Key infrastructure includes, but is not limited to: <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published the brochure 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.

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6.1.9 Email sent to Australian Fisheries Management Authority (AFMA), North West Slope Trawl Fishery, Western Deepwater Trawl Fishery, Commonwealth Fisheries Association (CFA) – 16 July 2023

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Operational area/ exclusion zones

- 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM.
- 4 km radius around Jul-A manifold.
- 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

- Please note that Woodside has provided consultation information directly to licence holders it has assessed as 'relevant persons' for this EP, as well as relevant fishery representative bodies.
-
- Please let us know if you require notification prior to and on completion of the proposed activities.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> • Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> • 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. • 4 km radius around Jul-A manifold. • 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 256 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Infrastructure	Key infrastructure includes, but is not limited to: <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.
Commonwealth Fisheries	Active in the Operational Area: none Active in the EMBA: <ul style="list-style-type: none"> North-West Slope Trawl Fishery Western Deepwater Trawl Fishery

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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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The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published the brochure 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.

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6.1.10 Email sent to Australian Hydrographic Office (AHO) – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities
routine and non-routine inspection monitoring, maintenance and repair (IMMR)

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 257 of 370

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commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our website [Here](#) you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Please also find attached a vessel density map and a GIS Shape Files.

Activity: Julimar Operations

Julimar Operations	
Summary	Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year. Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025. SCRM planned to be installed in mid-2026. Brunello and Julimar fields predicted to remain active for the life of the EP.
Operational area/ exclusion zones	1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	Key infrastructure includes, but is not limited to: Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 258 of 370

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Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.
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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 2023 (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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6.1.11 Email sent to Australian Maritime Safety Authority (AMSA) - Maritime Safety - 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

- routine operation and testing of the wells and subsea infrastructure and associated activities
- routine and non-routine inspection monitoring, maintenance and repair (IMMR)
- commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure
- installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and

unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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Please also find a vessel density map and GIS Shape Files.

Please note that Woodside will:

- Notify the AHO no less than 4 weeks before operations commence,
- Notify AMSA's JRCC at least 24-48 hours before operations commence,
- Notify AMSA's JRCC when operations end,
- Provide updates to both the AHO and AMSA on any material changes to planned activities,
- Ensure vessels exhibit appropriate lights and shapes to reflect the nature of operations and the obligation to comply with the International Rules for Preventing Collisions at Sea
- Evaluate and implement adequate anti-collision measures including but not limited to installation of Automatic Identification System (AIS) units, offshore guard vessel/s that can monitor traffic, and additional warnings and/or lights to attract attention.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Infrastructure	Key infrastructure includes, but is not limited to: <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.

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 2023 (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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6.1.12 Email sent to Australian Maritime Safety Authority (AMSA) - Marine Pollution – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

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The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

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Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Feedback

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 262 of 370

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If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published the brochure 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.

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6.1.13 Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries– 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Operational area/ exclusion zones

1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM.

4 km radius around Jul-A manifold.

250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Environment that May Be Affected (EMBA)

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 263 of 370

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The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>
Commonwealth Fisheries	<ul style="list-style-type: none"> Active in the Operational Area: none Active in the EMBA: North-West Slope Trawl Fishery Western Deepwater Trawl Fishery

Biosecurity

Environment description	
The Operational Area for the Julimar Operations EP is located in water depths of ~71 - 207 m within the North-West Marine Region.	
Potential IMS risk	IMS mitigation management
Accidental introduction and establishment of invasive marine species (IMS)	<p>All vessels will manage their ballast water in compliance with Australian Ballast Water Management Requirements under the Biosecurity Act 2015) to prevent the introduction of IMS.</p> <p>Woodside's IMS risk assessment process will be applied to activity vessels and immersible equipment.</p> <p>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.</p>

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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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6.1.14 Email sent to Department of Defence (DoD) – 16 July 2024

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 265 of 370

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Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

- routine operation and testing of the wells and subsea infrastructure and associated activities
- routine and non-routine inspection monitoring, maintenance and repair (IMMR)
- commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure
- installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities. Please also find attached a defence area map in the areas surrounding the Operational Area.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> • Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 266 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	<p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published the brochure 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.

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6.1.15 Email sent to Department of Primary Industries and Regional Development (DPIRD) – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 267 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Operational area/ exclusion zones

- 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM.
- 4 km radius around Jul-A manifold.
- 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 268 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	<ul style="list-style-type: none"> 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>
State Fisheries	<ul style="list-style-type: none"> Active in the Operational Area: Mackerel Managed Fishery (Area 2) Marine Aquarium Managed Fishery Onslow Prawn Managed Fishery Pilbara Trap Fishery Pilbara Line Fishery Active in the EMBA: West Australian Sea Cucumber Fishery Exmouth Gulf Prawn Managed Fishery Mackerel Managed Fishery (Area 2) Marine Aquarium Managed Fishery Nickol Bay Prawn Managed Fishery Onslow Prawn Managed Fishery Pilbara Crab Managed Fishery Pilbara Trawl Fishery Pilbara Trap Fishery Pilbara Line Fishery Specimen Shell Managed Fishery West Coast Deep Sea Crustacean Managed Fishery

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

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6.1.16 Email sent to Department of Transport (DoT) – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

- routine operation and testing of the wells and subsea infrastructure and associated activities
- routine and non-routine inspection monitoring, maintenance and repair (IMMR)
- commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure
- installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

If there is a risk of a spill impacting State waters, Woodside will further consult the Department of Transport as outlined in the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020).

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 270 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

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 2023 (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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6.1.17 Email sent to Department of Planning, Lands and Heritage (DPLH) - 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 271 of 370

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addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

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Please also find attached the details of WA shipwrecks that are relevant for this EP.

Given the proximity of the proposed activities to Marine Parks, Woodside is consulting with the Department of Biodiversity, Conservation and Attractions (DBCA) for this EP. Woodside is also consulting with the Western Australian Museum and provided it with relevant shipwreck information for this EP.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 272 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	<p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

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6.1.18 Email sent to Western Australian Museum (WAM) – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 273 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Please also find attached the details of WA shipwrecks that are relevant for this EP.

As per the Underwater Cultural Heritage Act 2018 (Cwth), Woodside will contact the Commonwealth regulator, the Department of Climate Change, Energy, the Environment and Water (DCCEEW), regarding this EP. Woodside also refers to the Commonwealth Government's Underwater Cultural Heritage (UCH) Guidance document regarding assessments and the draft Guidelines for Working in Near and Offshore Environment to Protect Underwater Cultural Heritage.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>

Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

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6.1.19 Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel) – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 275 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Operational area/ exclusion zones

1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM.

4 km radius around Jul-A manifold.

250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 276 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

	<ul style="list-style-type: none"> 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>
Commonwealth Fisheries	<ul style="list-style-type: none"> Active in the Operational Area: none Active in the EMBA: North-West Slope Trawl Fishery Western Deepwater Trawl Fishery

Biosecurity

Environment description	
The Operational Area for the Julimar Operations EP is located in water depths of ~71 - 207 m within the North-West Marine Region.	
Potential IMS risk	IMS mitigation management
Accidental introduction and establishment of invasive marine species (IMS)	<p>All vessels will manage their ballast water in compliance with Australian Ballast Water Management Requirements under the Biosecurity Act 2015) to prevent the introduction of IMS.</p> <p>Woodside's IMS risk assessment process will be applied to activity vessels and immersible equipment. 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.</p>

Feedback

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 277 of 370

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6.1.20 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEE) – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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Please also find attached the details of commonwealth shipwrecks that are relevant for this EP.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 279 of 370

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6.1.21 Email sent to Director of National Parks (DNP) – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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Activity: Julimar Operations

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 280 of 370

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Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Australian Marine Parks (AMPs)

We note Australian Government Guidance on consultation activities and confirm that:

- The Operational Area overlaps with a small portion of the Montebello AMP.
- We have assessed potential impacts to AMPs in the development of the revised EP and believe that impacts from planned activities are reduced to ALARP and Acceptable levels.
- Through review of hydrocarbon spill modelling, the following AMPs may be contacted in the event of a spill at either 50 ppb dissolved or 100 ppb entrained hydrocarbon thresholds:
 - Montebello AMP
 - Gascoyne AMP
 - Ningaloo AMP

A Commonwealth Government-approved oil spill response plan will be in place for the duration of the activities. This plan will include details on notification to relevant agencies and organisations as soon as practicable following an occurrence. The Director of National Parks will be advised if an environmental incident occurs that may impact the values of any Marine Park.

Woodside is aware of and will consider the 'Petroleum Activities and Australian Marine Parks' guidance note developed and published jointly by DNP and NOPSEMA, while preparing this EP to ensure that the EP:

- Identifies and manages all impacts and risks on AMP values (including ecosystem values) to an acceptable level and has considered all options to avoid or reduce them to as low as reasonably practicable (ALARP),

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 281 of 370

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- Clearly demonstrates that the activities will not be inconsistent with the North-west Marine Parks Network Management Plan 2018.

If there is a change in activities which results in an overlap or new impact to a marine park Woodside will notify DNP.

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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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6.1.22 Email sent to Telstra – 16 July 2024

Woodside is planning to submit a revision of the **Julimar Operations Environment Plan** for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

- routine operation and testing of the wells and subsea infrastructure and associated activities
- routine and non-routine inspection monitoring, maintenance and repair (IMMR)
- commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure
- installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

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Consultation information

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Please also find attached a map of the submarine communication cables in the vicinity of the Operational Area that belong to Telstra.

Activity: Julimar Operations

Julimar Operations	
Summary	Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<ul style="list-style-type: none"> Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year. Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025. SCRM planned to be installed in mid-2026. Brunello and Julimar fields predicted to remain active for the life of the EP.
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 283 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Infrastructure	Key infrastructure includes, but is not limited to: <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by **16 August 2024**.

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 2023* (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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6.1.23 Email sent to Gascoyne Recreational Marine Users , Pilbara/Kimberley Recreational Marine Users – 16 July 2024

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routine operation and testing of the wells and subsea infrastructure and associated activities
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commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Operational area/ exclusion zones

1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM.

4 km radius around Jul-A manifold.

250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

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Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Infrastructure	Key infrastructure includes, but is not limited to: <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

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6.1.24 Letter sent to Gascoyne Recreational Marine Users, Pilbara/Kimberley Recreational Marine Users – 15 July 2024

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com



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

15 July 2024

1

Dear Recreational Marine User,

Woodside is planning to submit a revision of the **Julimar Operations Environment Plan** for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

- routine operation and testing of the wells and subsea infrastructure and associated activities
- routine and non-routine inspection monitoring, maintenance and repair (IMMR)
- commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure
- installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Operational area/ exclusion zones

- 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM.
- 4 km radius around Jul-A manifold.
- 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure

loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#). Here you can also subscribe to our newsletter *Let's Talk – Our Plans, Your Say* and to receive updates on our consultation activities.

Activity: Julimar Operations

Julimar Operations	
Summary	Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licenses (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<ul style="list-style-type: none"> Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year. Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025. SCRM planned to be installed in mid-2026. Brunello and Julimar fields predicted to remain active for the life of the EP.
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	Key infrastructure includes, but is not limited to: <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **16 August 2024**.



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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 2023 (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 titled *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. You can access it online through the QR code below.



Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our website, www.woodside.com/what-we-do/consultation-activities.

Regards

Woodside Energy Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com
www.woodside.com
f t in v @

6.1.25 Email sent to Recfishwest, Marine Tourism WA, WA Game Fishing Association – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Operational area/ exclusion zones

1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM.

4 km radius around Jul-A manifold.

250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Environment that May Be Affected (EMBA)

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Activity: Julimar Operations

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 290 of 370

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Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
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Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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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6.1.26 Email sent to Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, bp Developments Australia, Carnarvon Energy, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, Finder Energy, KUFPEC Australia, Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG; Coastal Oil and Gas / Fox Resources, OMV Australia, KATO Energy

**/ KATO Corowa, INPEX Alpha, Longreach Capital Investment / Beagle No. 1,
Skye Napoleon, J Nippon O&G Exploration (Australia) - 16 July 2024**

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

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Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none">Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 292 of 370

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Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

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 2023 (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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6.1.27 Email sent to Shire of Exmouth, Exmouth Community Liaison, Exmouth Chamber of Commerce and Industry, City of Karratha, Karratha Community Liaison Group, Karratha and Districts Chamber of Commerce and Industry, Onslow Chamber of Commerce – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

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Revision: 0

Page 293 of 370

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The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

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The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

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commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

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Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>

Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	<p>Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation.</p> <p>Helicopters may be utilised.</p>

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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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6.1.28 Email sent to Shire of Ashburton – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 295 of 370

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commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

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The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Woodside is required to manage environmental impacts and risks to the 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 2023 (Environment Regulations), through the implementation of the EP. Woodside will submit the proposed EP to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Preparedness and Response

In the course of developing the EP, Woodside will develop the oil spill preparedness and response position tailored to this activity including the drafting of the Oil Pollution First Strike Plan which details the potential impacts, notifications and response mitigations that may be executed to manage an emergency event. Woodside consults with the relevant jurisdictional authorities and controlling agencies, including the Western Australian Department of Transport (DoT), the Australian Maritime Safety Agency (AMSA) and, in some circumstances, relevant port authorities, during the plan drafting process to inform mitigation management measures in place for the proposed activities. Woodside may also consult with other relevant external emergency management agencies, including LEMC, to ensure emergency management plans are aligned with effective outcomes.

In addition to the jurisdictional authorities and controlling agencies, the plan includes standard emergency notifications to agencies including NOPSEMA, the Department of Climate Change, Energy, the Environment and Water (DCCEEW), the Director of National Parks (DNP), and the WA Department of Biodiversity, Conservation and Attractions (DBCA). Where applicable, notification information for relevant Shires is also included in the Oil Pollution First Strike Plan.

Cultural heritage

Woodside routinely utilises the Department of Planning, Land and Heritage Aboriginal Cultural Heritage Inquiry System as part of the EP development process and includes the results of these inquiry system searches as an appendix to each EP.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
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Infrastructure	<p>Key infrastructure includes, but is not limited to:</p> <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
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As per Woodside's ongoing consultation approach, feedback and comments received from relevant persons continue to be assessed and responded to, as required, throughout the life of an EP, including during its assessment and once accepted, in accordance with the intended outcome of consultation.

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.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published the brochure 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.

Please let us know if the Shire would like to receive start- and end-of-activity notifications.

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6.1.29 Email sent to University of Western Australia (UWA), Curtin University, Murdoch University, Western Australian Marine Science Institution (WAMSI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Institute of Marine Science (AIMS) - 16 July 2024

Woodside is planning to submit a revision of the **Julimar Operations Environment Plan** for the Brunello and Julimar fields.

Overview

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- installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter *Let's Talk – Our Plans, Your Say* and to receive updates on our consultation activities.

Woodside is seeking your advice regarding any research activities that your institution may be undertaking that may overlap with our proposed activities.

Activity: Julimar Operations

Julimar Operations	
Summary	Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<ul style="list-style-type: none"> Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year. Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025. SCRM planned to be installed in mid-2026. Brunello and Julimar fields predicted to remain active for the life of the EP.
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.
Infrastructure	Key infrastructure includes, but is not limited to: <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by **16 August 2024**.

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 2023 (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.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published the brochure [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.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our [website](#).

6.1.30 Email to Buurabalyji Thalanyi Aboriginal Corporation (BTAC) – 16 July 2024

Hi [Individual 2]

I hope you are well.

Woodside is seeking feedback from Buurabalayji Thalanyji Aboriginal Corporation about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:

- inform you about Woodside's plans for Julimar Operations;
- invite you to submit feedback about the activity;
- provide an opportunity to discuss this activity with you and your members; and/or
- discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The Consultation Information Sheet provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about the following:

1. How could these activities impact your cultural values, interests, and activities?
2. Does protecting the environment do enough to protect your cultural values?
3. What are your concerns about the proposed activities and how can we resolve those issues?
4. What other elements should be considered in the EP?
5. Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.
Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsma.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled Consultation on offshore petroleum environment plans – Information for the community to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website (Document Hub | NOPSEMA) and listed below:

- Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsma.gov.au)
- Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsma.gov.au)
- Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsma.gov.au).
-

Please feel free to forward this email and the attached document to members of the Buurabalayji Thalanyji Aboriginal Corporation, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards,

[Individual 3]

6.1.31 Email to Kariyarra Aboriginal Corporation (KAC) – 15 July 2024

Hi [Individual 4],

There is another EP that may be of relevance to the KAC Community. I understand that you will respond to previous information we have provided relating to other EP's. If it makes it easier for you and the team feel free to include all the EP's in one response.

Woodside is seeking feedback from Kariyarra Aboriginal Corporation (KAC) about its revision of the Julimar Operations Environment Plan (EP).

The purpose of this email is to:
inform you about Woodside's plans for Julimar Operations;
invite you to submit feedback about the activity;
provide an opportunity to discuss this activity with you and your members; and/or
discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about 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 how can we resolve those issues?
What other elements should be considered in the EP?
Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity. We are also keen to build on our relationship with Kariyarra Aboriginal Corporation (KAC) to make it easier for you to contribute to other EPs.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsema.gov.au\)](#)

Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsema.gov.au\)](#)

Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsema.gov.au\)](#).

Please feel free to forward this email and the attached document to members of the Kariyarra Aboriginal Corporation (KAC) Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards

[Individual 5]

6.1.32 Email to Murujuga Aboriginal Corporation (MAC) – 16 July 2024

Hi [Individual 6]

I hope you are well.

Woodside is seeking feedback from Murujuga Aboriginal Corporation about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:

- inform you about Woodside's plans for Julimar Operations;
- invite you to submit feedback about the activity;
- provide an opportunity to discuss this activity with you and your members; and/or
- discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about the following:

1. How could these activities impact your cultural values, interests, and activities?
2. Does protecting the environment do enough to protect your cultural values?
3. What are your concerns about the proposed activities and how can we resolve those issues?
4. What other elements should be considered in the EP?
5. Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsma.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

- Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsma.gov.au\)](#)
- Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsma.gov.au\)](#)
- Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsma.gov.au\)](#).
-

Please feel free to forward this email and the attached document to members of the Murujuga Aboriginal Corporation, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards,
[Individual 3]

6.1.33 Email to Ngarluma Aboriginal Corporation (NAC) – 12 July 2024

Dear [Individual 7]

Woodside is seeking feedback from Ngarluma Aboriginal Corporation about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:

- inform you about Woodside's plans for Julimar Operations;
- invite you to submit feedback about the activity;
- provide an opportunity to discuss this activity with you and your members; and/or
- discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The Consultation Information Sheet provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures. I have also attached the Summary Information sheet for a high level explanation of the activity.

What Woodside is seeking

We are seeking your feedback about the following:

1. How could these activities impact Ngarluma peoples' cultural values, interests, and activities?
2. Does protecting the environment do enough to protect Ngarluma peoples' cultural values?
3. What are Ngarluma peoples' concerns about the proposed activities and how can we resolve those issues?
4. What other elements should be considered in the EP?
5. Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity.

We understand NAC was considering the establishment of a working group for EP consultations. Please let us know if this has been established or alternatively, let us know how you would like us to consult with you and if you require any specific support or information.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled Consultation on offshore petroleum environment plans – Information for the community to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website (Document Hub | NOPSEMA) and listed below:

- Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)
- Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
- Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au).

Please feel free to forward this email and the attached document to the NAC Board, it's members and any other people and organisations who may be interested.

I look forward to hearing from you.

Kind regards

[Individual 8]

6.1.34 Email to Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) via YMAC – 16 July 2024

Hi [Individual 9]

I hope you are well.

Woodside is seeking feedback from Nganhurra Thanardi Garrbu Aboriginal Corporation about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:

- inform you about Woodside's plans for Julimar Operations;
- invite you to submit feedback about the activity;
- provide an opportunity to discuss this activity with you and your members; and/or
- discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The Consultation Information Sheet provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about the following:

1. How could these activities impact your cultural values, interests, and activities?
2. Does protecting the environment do enough to protect your cultural values?
3. What are your concerns about the proposed activities and how can we resolve those issues?
4. What other elements should be considered in the EP?
5. Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled Consultation on offshore petroleum environment plans – Information for the community to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website (Document Hub | NOPSEMA) and listed below:

- Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)
- Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
- Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au).
-

Please feel free to forward this email and the attached document to members of the Nganhurra Thanardi Garrbu Aboriginal Corporation, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards,
[Individual 3]

6.1.35 Email to Robe River Kuruma Aboriginal Corporation (RRKAC) – 15 July 2024

Hi [Individual 10],

Happy Monday! Woodside have another EP that may be of relevance to RRKAC. This is a 5 year revision on activity that is already taking place.

I will let you know this week about the Sea Mapping Project.

Woodside is seeking feedback from Robe River Kuruma Aboriginal Corporation (RRKAC) about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:
inform you about Woodside's plans for Julimar Operations;
invite you to submit feedback about the activity;
provide an opportunity to discuss this activity with you and your members; and/or
discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about 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 how can we resolve those issues?

What other elements should be considered in the EP?

Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity. We are also keen to build on our relationship with Robe River Kurama Aboriginal Corporation (RRKAC) to make it easier for you to contribute to other EPs.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsema.gov.au\)](#)

Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsema.gov.au\)](#)

Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsema.gov.au\)](#).

Please feel free to forward this email and the attached document to members of the Robe River Kurama Aboriginal Corporation (RRKAC), Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards

[Individual 5]

6.1.36 Email to Wirrawandi Aboriginal Corporation (WAC) – 15 July 2024

Dear [Individual 11],

This another EP that may be of relevance to the WAC Members and relevant Traditional Owners. I will discuss this and the other Eps when we meet later today.

Woodside is seeking feedback from Wirrawandi Aboriginal Corporation (WAC) about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:

inform you about Woodside's plans for Julimar Operations;

invite you to submit feedback about the activity;

provide an opportunity to discuss this activity with you and your members; and/or

discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about 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 how can we resolve those issues?

What other elements should be considered in the EP?

Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity. We are also keen to build on our relationship with Wirrawandi Aboriginal Corporation (WAC) to make it easier for you to contribute to other EPs.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsma.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsma.gov.au\)](#)

Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsma.gov.au\)](#)

Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsma.gov.au\)](#).

Please feel free to forward this email and the attached document to members of the Wirrawandi Aboriginal Corporation (WAC), Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards

[Individual 5]

6.1.37 Email to Yindjibarndi Aboriginal Corporation – 15 July 2024

Dear [Individual 12] (& [Individual 13] noting the automatic reply from [Individual 12]),

As NYFL is the delegated representative, Woodside is seeking feedback from Yindjibarndi Aboriginal Corporation (YAC) about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:
inform you about Woodside's plans for Julimar Operations;
invite you to submit feedback about the activity;
provide an opportunity to discuss this activity with you and your members; and/or
discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about 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 how can we resolve those issues?
What other elements should be considered in the EP?
Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).
Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity. We are also keen to build on our relationship with Yindjibarndi Aboriginal Corporation (YAC) to make it easier for you to contribute to other EPs.
Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.
Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsema.gov.au\)](#)

Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsema.gov.au\)](#)

Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsema.gov.au\)](#).

Please feel free to forward this email and the attached document to members of the Yindjibarndi Aboriginal Corporation (YAC) Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards

[Individual 5]

6.1.38 Email to Yinggarda Aboriginal Corporation (YAC) – 15 July 2024

Dear [Individual 14] and [Individual 15]

Woodside is seeking feedback from Yinggarda Aboriginal Corporation (YAC) about its revision of the Julimar Operations Environment Plan (EP).

The purpose of this email is to:

- inform you about Woodside's plans for Julimar Operations;
- invite you to submit feedback about the activity;
- provide an opportunity to discuss this activity with you and your members; and/or
- discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207m deep.

The Consultation Information Sheet provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures. The Consultation Information Sheet can be found here: [julimar-operations-ep.pdf \(woodside.com\)](#)

What Woodside is seeking

We are keen to know, understand and gather your feedback about the following:

1. How could these activities impact your cultural values, interests, and activities?

2. Does protecting the environment do enough to protect your cultural values?
3. What are your concerns about the proposed activities and how can we resolve those issues?
4. What other elements should be considered in the EP?
5. Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity. We are also keen to build on our relationship with YAC to make it easier for you to contribute to other EPs.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled Consultation on offshore petroleum environment plans – Information for the community to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website (Document Hub | NOPSEMA) and listed below:

- Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)
- Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
- Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au).

Please feel free to forward this email and the attached Summary Information Sheet to YAC members, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards
[Individual 16]

6.1.39 Email to Kimberley Land Council (KLC) – 22 July 2024

Hi [Individual 17]

I hope you are well.

Woodside is seeking feedback from Kimberley Land Council about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:

- inform you about Woodside's plans for Julimar Operations;
- invite you to submit feedback about the activity;
- provide an opportunity to discuss this activity with you and your members; and/or
- discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about the following:

1. How could these activities impact your cultural values, interests, and activities?
2. Does protecting the environment do enough to protect your cultural values?
3. What are your concerns about the proposed activities and how can we resolve those issues?
4. What other elements should be considered in the EP?
5. Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

- Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsema.gov.au\)](#)
- Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsema.gov.au\)](#)
- Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsema.gov.au\)](#)
-

Please feel free to forward this email and the attached document to members of the Kimberley Lands Council, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards,
[Individual 3]

6.1.40 Email to Yamatji Marlpa Aboriginal Corporation (YMAC) – 15 July 2024

Dear [Individual 9],

Woodside is seeking feedback from Yamatji Marlpa Aboriginal Corporation (YMAC) about its revision of the Julimar Operations Environment Plan (EP)

The purpose of this email is to:

inform you about Woodside's plans for Julimar Operations;
invite you to submit feedback about the activity;
provide an opportunity to discuss this activity with you and your members; and/or
discuss further ways to consult and engage with your members.

What Woodside plans to do

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 316 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about 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 how can we resolve those issues?

What other elements should be considered in the EP?

Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity. We are also keen to build on our relationship with Yamatji Marlpa Aboriginal Corporation (YMAC) to make it easier for you to contribute to other EPs.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsema.gov.au\)](#)

Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsema.gov.au\)](#)

Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsema.gov.au\)](#).

Please feel free to forward this email and the attached document to members of the Yamatji Marlpa Aboriginal Corporation (YMAC) Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards

[Individual 5]

6.1.41 Email to Ngarluma Yindjibarndi Foundation Ltd (NYFL) – 15 July 2024

Dear [Individual 12],

Please see below another EP that may be of relevance to the Ngarluma and Yindjibarndi Traditional Owners. Hopefully we can work through the Consultation Agreement discussions soon. In the meantime, please let us know if the community would like more information or an opportunity to provide feedback on the Julimar Operations EP.

Woodside is seeking feedback from Ngarluma Yindjibarndi Foundation Ltd (NYFL) about its revision of the Julimar Operations Environment Plan (EP).

The purpose of this email is to:

inform you about Woodside's plans for Julimar Operations;

invite you to submit feedback about the activity;

provide an opportunity to discuss this activity with you and your members; and/or

discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to know, understand and gather your feedback about 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 how can we resolve those issues?

What other elements should be considered in the EP?

Are there any other individuals, groups, or organisations you think we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside would welcome the opportunity to speak with Elders, office holders and other interested parties about this activity. We are also keen to build on our relationship with Ngarluma Yindjibarndi Foundation Ltd (NYFL) to make it easier for you to contribute to other EPs.

Please let us know how you would like us to consult with you and if you require any specific support or information. This includes meeting with you face-to-face.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback from you for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

Feedback can also be submitted directly to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsema.gov.au\)](#)

Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsema.gov.au\)](#)

Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsema.gov.au\)](#).

Please feel free to forward this email and the attached document to members of the Ngarluma Yindjibarndi Foundation Ltd (NYFL) Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call and send through guidance on next steps.

Kind regards

[Individual 5]

6.1.42 Email to Save Our Songlines (SOS) – 15 July 2024

Dear [Individual 18],

Woodside understands all communication to [Individual 1] and Save Our Songlines should be directed to you. Please see below for [Individual 1]'s attention.

Dear [Individual 1]

Woodside is seeking feedback from you and Save Our Songlines about its revision of the Julimar Operations Environment Plan (EP).

The purpose of this email is to:

- inform you about Woodside's plans for Julimar Operations;
- invite you to submit feedback about the activity;
- provide an opportunity to discuss this activity with you and your members; and/or
- discuss further ways to consult and engage with your members.

What Woodside plans to do

Woodside plans to submit a revision of the Julimar Operations EP which covers production from the Brunello and Julimar fields and associated subsea infrastructure in the Carnarvon Basin, North-West Australia.

Production started in the fields in 2016 and operates 24 hours a day, 365 days a year. The infrastructure is located in Commonwealth waters around 160 kilometres north-west of Dampier in waters 71-207 m deep.

The [Consultation Information Sheet](#) provides further details about the activity including an assessment of the potential impacts and risks to the environment, as well as mitigation and management measures.

What Woodside is seeking

We are keen to receive your feedback about the following:

1. How could these activities impact Save Our Songlines and its members' cultural values, interests, and activities?
2. Does protecting the environment do enough to protect Save Our Songlines and its members' cultural values?
3. What are Save Our Songlines and its members' concerns about the proposed activities and how can we resolve those issues?
4. What other elements should be considered in the EP?
5. Are there any other individuals, groups, or organisations we should talk to?

Your feedback, opinions and comments will be reflected in the EP and considered by the Commonwealth regulator, NOPSEMA (see further information below).

Woodside welcomes the opportunity to speak with any interested parties about this activity. We note your previously stated preference for consultation to occur in written format (as set out in an email dated 10 April 2024). Please let us know if this has changed.

Feedback

If you have feedback specific to this EP, please email us at Feedback@woodside.com.au or call 1800 442 977 by Friday 16 August 2024.

It is important for you to know that we will continue to accept feedback for the life of the EP.

If you have information that you do not wish to be published, please let us know so we can inform NOPSEMA.

Further information about NOPSEMA

As you are aware, feedback can also be submitted directly to NOPSEMA via email communications@nopsema.gov.au or telephone (08) 6188 8700.

NOPSEMA has published a brochure titled [Consultation on offshore petroleum environment plans – Information for the community](#) to help peak bodies, communities and the public understand the requirements and participate in the consultation for Commonwealth EPs.

Additional sources of information are located on NOPSEMA's website ([Document Hub | NOPSEMA](#)) and listed below:

- Brochure: [Consultation on offshore petroleum environment plans brochure.pdf \(nopsema.gov.au\)](#)
- Guideline: [Guideline: Consultation in the course of preparing an environment plan \(nopsema.gov.au\)](#)
- Policy: [Draft policy for managing gender-restricted information PL2098.pdf \(nopsema.gov.au\)](#).

Please feel free to forward this email and the attached document to members of Save Our Songlines and people and organisations who may be interested.

We look forward to your response.

Kind regards

Woodside Feedback

Regards,

6.1.43 Email sent to Chevron Australia, Osaka Gas Gorgon, Tokyo Gas Gorgon, JERA Gorgon – 16 July 2024

Woodside is planning to submit a revision of the Julimar Operations Environment Plan for the Brunello and Julimar fields.

Overview

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Eight wells currently produce from the fields and under the revised EP, production from up to five additional wells is planned.

The proposed activities include:

routine operation and testing of the wells and subsea infrastructure and associated activities

routine and non-routine inspection monitoring, maintenance and repair (IMMR)

commissioning and start-up activities associated with the Julimar Phase 3 wells and subsea infrastructure

installation, commissioning, start-up and operation of a Subsea Contaminant Removal Module (SCRM).

Environment that May Be Affected (EMBA)

The EMBA is the largest area where activities could potentially have a direct or indirect impact on the environment. The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for these environment plans, is determined by modelling a release of hydrocarbons from a well loss of containment, subsea infrastructure loss of containment or vessel collision. A release of this kind is highly unlikely to occur.

The EMBA models the merged area of many possible paths that a hydrocarbon release could travel depending on factors including 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.

Consultation information

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. This is also available on our [website](#) Here you can also subscribe to our newsletter Let's Talk – Our Plans, Your Say and to receive updates on our consultation activities.

Please also find attached GIS Shape Files.

We would be grateful if you could please forward this consultation information to your Joint Venture participants Osaka Gas Gorgon, Tokyo Gas Gorgon and JERA Gorgon for feedback.

Activity: Julimar Operations

Julimar Operations	
Summary	<ul style="list-style-type: none"> Existing production from eight wells with planned production from up to five additional wells. Installation, commissioning, start up and operation of a Subsea Contaminant Removal Module (SCRM).
Permit area	WA-49-L, WA-26-PL, WA-29-PL, and three new Pipeline Licences (under application)
Location	160 km north-west of Dampier
Approx. water depth (m)	~71 - 207 m
Timing	<p>Brunello and Julimar fields commenced production in 2016 and operate 24 hours a day, 365 days a year.</p> <p>Start-up activities for Julimar Phase 3 wells and subsea infrastructure planned to commence mid to late-2025.</p> <p>SCRM planned to be installed in mid-2026.</p> <p>Brunello and Julimar fields predicted to remain active for the life of the EP.</p>
Operational area/ exclusion zones	<ul style="list-style-type: none"> 1.5 km around each side of Julimar Field Production System wells, manifolds, pipeline/flowline and subsea infrastructure, including SCRM. 4 km radius around Jul-A manifold. 250 m petroleum safety zone (PSZ) in place around each well and crossover manifold.

Infrastructure	Key infrastructure includes, but is not limited to: <ul style="list-style-type: none"> Wells, pipeline/flowlines, manifolds and other subsea infrastructure connected to the Brunello and Julimar fields.
Vessels	Support vessels for field work such as subsea IMMR, start-up activities and SCRM installation. Helicopters may be utilised.

Feedback

If you have feedback specific to the proposed activities described under the proposed EP, we welcome your feedback via email at Feedback@woodside.com, via phone call at 1800 442 977 or via the feedback form on our [website](#) by 16 August 2024.

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 2023 (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.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published the brochure 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.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our [website](#).

6.2 Follow-Up Consultation

6.2.1 Email sent to Australian Border Force (ABF), Australian Fisheries Management Authority (AFMA), Australian Hydrographic Office (AHO), Australian Maritime Safety Authority (AMSA) - Marine Pollution, Department of Agriculture Fisheries and Forestry (DAFF) - Fisheries, Department of Defence (DOD), Department of Planning, Lands and Heritage (DPLH), Western Australian Museum, Pilbara Ports Authority, , Department of Agriculture Fisheries and Forestry (DAFF) - Biosecurity, Department of Climate Change, Energy, the Environment and Water (DCCEEW), Director of National Parks (DNP), 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), North West Slope Trawl Fishery, Western Deepwater Trawl Fishery, Commonwealth Fisheries Association (CFA), Gascoyne Recreation Marine Users, Pilbara/Kimberley Recreation Marine Users, Marine Tourism WA, WA Game Fishing Association, Chevron Australia, Osaka Gas Gorgon, Tokyo Gas Gorgon, JERA Gorgon Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, KUFPEC Australia, Santos, Coastal Oil and Gas / Fox Resources,

OMV Australia, KATO Energy / KATO Corowa, INPEX Alpha, Longreach Capital Investment / Beagle No. 1, Skye Napoleon, J Nippon O&G Exploration (Australia), Shire of Exmouth, Shire of Ashburton, City of Karratha, Exmouth Community Liaison Group (CLG), Karratha Community Liaison Group (CLG), Karratha & Districts Chamber of Commerce and Industry, Exmouth Chamber of Commerce and Industry, Onslow Chamber of Commerce and Industry, Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Greenpeace Australia Pacific (GAP), 350 Australia (350A), Australasian Centre for Corporate Responsibility (ACCR), Doctors for the Environment Australia (DEA), Market Forces, Australian Energy Producers (AEP), Cape Conservation Group (CCG), Protect Ningaloo, University of Western Australia (UWA), Curtin University, Murdoch University, Western Australian Marine Science Institution (WAMSI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Institute of Marine Science (AIMS), Telstra - 31 July 2024.

Woodside previously consulted you on our plans to submit a revision of the Julimar Operations Environment Plan (EP) for the Brunello and Julimar fields.

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are located in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Additional information on the EP is provided in the email below and in the Consultation Information Sheet, which is available on Woodside's [website](#).

If you have feedback specific to the activities and the proposed EP, Woodside welcomes it at Feedback@woodside.com or 1800 442 977 by 16 August 2024.

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 2023 (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.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our [website](#).

6.2.2 Letter sent to Individual Gascoyne and Pilbara/Kimberley Recreational Marine Users – 26 July 2023

Please direct all responses/queries to:
Woodside Energy Feedback
T: 1800 442 977
E: feedback@woodside.com

26 July 2024

1



Woodside Energy (Australia)
Pty Ltd
ACN 006 923 879
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T +61 8 9348 4000
www.woodside.com

Dear Recreational Marine User

Woodside previously consulted you on its plans to submit a revision of the Julimar Operations Environment Plan (EP).

The EP covers the Brunello and Julimar fields and associated subsea infrastructure are connected to the Wheatstone platform and involves existing permit areas W-49-L, WA-26-PL and WA-29-PL, in addition to three new pipeline licences (under application). Operation of the Wheatstone platform is covered by a separate EP. The fields are in Commonwealth waters approximately 160 km north-west of Dampier, Western Australia.

Further information on the proposed activities is provided in the Consultation Information Sheet, which is available via the QR code below:



If you have feedback specific to the activities and the proposed EP, Woodside welcomes it at Feedback@woodside.com or 1800 442 977 by **16 August 2024**.

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 2023 (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.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our website.

Regards,

Woodside Energy Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com
www.woodside.com
f t in u o

6.3 Newspaper Advertisements

6.3.1 Summary Table

Newspaper	Coverage	Publication dates
The Australian	National	15 July 2024
The West Australian	Regional (WA)	15 July 2024
Pilbara News	Local (WA)	17 July 2024
Country Man	Local (WA)	17 July 2024
North West Telegraph	Local (WA)	17 July 2024
Koori Mail	National	17 July 2024
National Indigenous Times	National	30 July 2024

6.3.1.2 The West Australian – 15 July 2024

20 NEWS

The West Australian
Monday, July 15, 2024

Perth-Paris next step in WA gateway

Qantas boss, Vanessa Hudson says Perth is well on its way to becoming the national carrier's biggest airport hub after Sydney with the launch of its third direct flight to Europe.

With 2160 square metres and more than 100 staff, the terminal 4 departure area on Sunday is to launch the Perth to Paris flight.

"This adds to our network out of Perth, which is also off the back of great success with Perth-London and also Perth-Rome," Ms Hudson said.

"We're also investing in Perth as our western hub. Perth will become our second largest airport hub after Sydney."

While the first direct flight from Perth to the French capital left on Friday, the Sunday flight carrying Ms Hudson and other VIPs was the focus of celebration to mark Bastille Day, the national day of France.

Ms Hudson said demand was already high for the new service using the 787 Dreamliner, which would shave three hours off the travel time to France.

"This is going to enable us many customers to not just travel for the Olympics but on an ongoing basis ... and we are seeing really strong early leads for our service," she said.

Chair of Tourism WA Hil Rait and Perth MP Patrick Gorman, also joined Sunday's VIP flight.

Amy Wensley had finally agreed to make a claim against

A path to freedom

TIM CLARKE

Two days before Amy Wensley was found dead from a gunshot wound her friends and family believe was not self-inflicted, the team of two had found a path to freedom.

Initially ruled suicide by WA Police, Amy's death in 2021 inside the Serpentine home she shared with her partner David Simmons and their two daughters is being re-examined in Seven's powerful new podcast *The Truth About Amy*.

At an inquest into Amy's death in 2021, police admitted that, arguably, inexperience and ego had led to them ruling her death was suicide.

Amy's family and friends are now pushing for the truth.

The latest episode details a car crash Amy and Simmons were in in 2015, a year before she died.

Simmons was behind the wheel when they crashed, which left Amy with a fractured vertebrae, and in a coma for weeks.

Simmons claimed it was pure accident, while on a gravel road into a tree. He also claimed he was not intoxicated in any way.

Amy initially did not pursue

Pictured above left: The bruise on Amy's back from 2021. Above right: Natasha Calcutt, left, with Amy.

accident compensation, because authorities would have chased Simmons for the debt as he was driving.

But eventually, she told the inquest Commission of WA she would go ahead with the claim after all — two days before her death.

Close friends of Amy said the insurance claim was part of her plan to leave Simmons for good.

"She was excited ... and she was ready to get the girls out," her friend Erin Crow said.

"She'd started looking for rentals. She wanted to get a little place for her and the girls. She

wanted to go and work. She had everything planned out and she was ready to go."

Ms Gower does not believe Amy would have taken her own life.

"She had many reasons to live. She was happy. She had a goal and she was excited for that so

JULIMAR OPERATIONS ENVIRONMENT PLAN

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Woodside consults so that feedback from relevant persons is considered and used to inform the *Julimar Operations Environment Plan*.

Our activities

Woodside plans to continue the ongoing operation of the Juniper and Julimar fields and associated subsea infrastructure. We are submitting a revision of the *Julimar Operations Environment Plan*. The *Environment Plan* covers the operation and testing of the wells and subsea infrastructure, the start-up activities associated with the *Julimar Phase 2* well, and the routine inspection, monitoring, maintenance and repair activities on the production system and subsea infrastructure. It will also include the installation, commissioning, start-up and operation of a subsea containment remediation module.

The remediation is located 140 km north-west of Juniper and commenced production in 2016. It operates 24 hours a day, 365 days a year.

We are seeking input from relevant persons whose functions, interests or activities may be affected by the activities and 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 that, environmental risk, is determined by a highly unlikely release of hydrocarbons from well loss of containment, subsea loss of containment or vessel collision.

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We want to hear from you

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6.3.1.3 Pilbara News - 17 July 2024

Pilbara NEWS
Wednesday, July 17, 2024

NEWS 9

Positive about mine's future

MATASHA ELLEN

Imurabiyijl Thalyayji Aboriginal Corporation has finalised a significant land use agreement that promises enduring benefits alongside Mineral Resources Outlook Iron.

The Indigenous Land Use Agreement follows more than two years of collaboration between IMROC and Matasha, culminating in a pivotal Common Law elders meeting held on-country in October.

At the gathering, Matasha managing director Chris Elson and Thalyayji common law elders endorsed the landmark agreement.

Outlook Iron, a joint venture involving Matasha, BHP, AMEC and INSCO, was developed and is operated by IMROC, marking its inaugural iron ore shipment in May 2024.

IMROC, as the prescribed body corporate representing the Thalyayji People, holds native title over 13,000sq of land in the west Pilbara region.

The newly established land use agreement solidifies the partnership between IMROC and Matasha, heading a collaborative path forward over the next three decades to benefit the Thalyayji community of critical importance.

The agreement facilitates the utilisation of Outlook Iron's western haul road segment, crucial for linking the Karri-Bore mine site to the Port of Ashburton. IMROC confirmed cultural heritage surveys before the haul road was constructed and

continues to monitor and safeguard cultural heritagesites.

Beyond financial advantages, the ILUA includes a commitment by the Outlook Iron joint venture to establish apprenticeships and traineeships annually, ensuring employment opportunities for future generations of Thalyayji people. IMROC has already contracted seven Thalyayji-owned businesses for long-term projects at Outlook Iron, with two additional contracts in progress through IMROC's business enterprise. Support from IMROC includes start-up grants, finance guarantees and business administration aid.

chair of Imurabiyijl Thalyayji Aboriginal Corporation, Matasha Hayes, said she was optimistic about the agreement's potential impact.

"This marks the beginning of a positive relationship between the Thalyayji people and IMROC," she said.

"Through employment, training, and business opportunities, this agreement aims to foster prosperity for the Thalyayji community for generations to come."

"I extend our thanks to Matasha for their collaborative efforts with IMROC in shaping this vision for our people and their future."

Matasha managing director Chris Elson with IMROC chair Frances Hayes. Picture: Studio Russell Jones

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Our activities

Woodside plans to continue the ongoing operation of the Grunella and Julimar fields and associated subsurface infrastructure. We are submitting a revision of the Julimar Operations Environment Plan. The Environment Plan covers the operation and testing of the wells and subsurface infrastructure, the start-up activities associated with the Julimar Phase 2 wells and the routine inspection, monitoring, maintenance and repair activities of the production system and subsurface infrastructure. It will also include the installation, commissioning, start-up and operation of a subsea containment system module.

The infrastructure is located ~300 km north-west of Dampier and commenced production in 2016. It operates 24 hours a day, 365 days a year.

We are seeking input from relevant persons whose functions, interests or activities may be affected by the activities and operations.

The environment that may be affected (EMBA)

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We want to hear from you

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Want to know more or provide input?

A feedback form and more information can be found at:
www.woodside.com.au/Julimar-EMBA-consultation-activities

You can also subscribe via our website to receive future information on operating activities.

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 329 of 370

Uncontrolled when printed. Refer to electronic version for most up to date information.

6.3.1.4 Country Man - 17 July 2024

6 100 YEARS OF CWA

President looks to the future

OLIVIA FORD

Felicity Edwards is the new Country Women's Association of WA president, joining a long line of women leaders that now spans a century.

Ms Edwards succeeds immediate past president Anne Gething, who retired from her role at the organisation's recent annual conference, held at the Joondalup resort from July 9-11.

Ms Edwards has been a CWA member for seven years, and has also acted as the state treasurer. She said she was honoured to be the third state president.

"It's a fantastic opportunity and privilege to lead an organisation that's 100 years old... particularly in a time when we've got some change happening with the new constitution that's been adopted," she said.

Much of the month conference was spent reflecting on the CWA's rich history and achievements.

However, there was also a big focus on the organisation's future, and what can be done to grow the

tight-knit community of women.

"We really want to empower women by developing our existing membership," Ms Edwards said.

"The 'empower' word is the big thing. There's just so much talent within our own organisation... to do community service and change the world (and) change society."

Ms Edwards said she hoped to grow the membership through training, development, and mentoring opportunities, as well as by changing the perception that CWA is just about baked goods.

She said there were "countless opportunities" for personal growth by being a member, as well as supporting local communities.

"There's this myth of what CWA is, and we want to break that down and go 'no, it's not just tea and scones, it's so much more than that.' There's opportunities for women within the organisation and for what we can do outside of the organisation," she said.

"We want to attract other people to join us and become a part of a bigger voice so we can make change for everybody."

Felicity Edwards is the CWA's new WA State president.

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The infrastructure is located ~160 km north-west of Dampier and commenced production in 2016. It operates 24 hours a day, 365 days a year.

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woodside.com

6.3.1.5 North West Telegraph - 17 July 2024

4 NEWS

Northwest Telegraph



BHP nickel support is better than first hoped

ADRIAN RAUSO

Federal Resources Minister Madeleine King says BHP's decision to mothball its WA Nickel business is "disappointing" but is backing the big Australian's belief the nickel market can perform an about-turn.

Prime Minister Anthony Albanese has also weighed in, going a step further than Ms King to label BHP's move on Thursday to shutter WA Nickel until at least February 2027 as "very disappointing" and arguing not all of the blame can be put on Indonesia.

WA Nickel has 3000 employees, and BHP promised all its 1000 "frontline" Nickel West workers jobs within the broader company.

About 400 roles are expected to remain at the nickel division during the suspension.

BHP has also committed to invest about \$450 million a year in the nickel facilities to enable a potential restart, and is establishing a \$50m community fund "to support local communities" during the suspension.

It believes growing electric vehicle demand will help soak up a flood of cheap Indonesian nickel around 2027, despite previously saying the Indonesian supply onslaught had created a "structural" market shift.

On Friday, WA Premier Roger Cook said he took BHP "at their word" that the nickel price would "settle at a much more realistic level around 2027-28", citing other independent forecasts.

Ratings agency Fitch this month predicted the nickel price would improve from 2028.

Speaking to The West Australian on Friday, Ms King "agreed with BHP's price optimism", and said the support package BHP had cobbed together was better than the Federal Government had initially anticipated.

"It's certainly more than we expected a number of months ago," she said.

BHP will review switching WA Nickel back on by February 2027, just five months before Federal Labor's 10 per cent production tax credits – which Nickel West would probably be eligible for – kick in.

Ms King conceded the 2027 timing might not be a coincidence, but noted BHP had been looking to suspend WA Nickel before the tax credits were announced in May.

BHP first flagged a potential closure of WA Nickel, which Nickel West is the operational part of, in February. "The BHP announcement is a canary in the coal mine ... (it) shows how important these production tax credits are," Ms King said.

A decision five years ago by the Indonesian government to aggressively ramp up nickel output was a key factor behind BHP's predicament, Ms King said.

But Mr Albanese laid more of the blame on BHP for the WA Nickel pause.

"Well, certainly markets are, of course, a factor here, we are concerned about that, but this is a decision that BHP have made," he said.

"We, frankly, find the BHP decision very disappointing. "There has been some competition, of course, from Indonesia, but it's of a different quality as well to that produced at the Kwinana plant."

The Kwinana refinery lies in the heart of Ms King's electorate of Brand.

"It's sad, no doubt, the (Kwinana) refinery is a big part of the community," she said.

On Thursday The West Australian revealed BHP and Wyloo were putting plans for a huge battery metals manufacturing plant in the Kwinana industrial precinct on ice.



Madeleine King is backing BHP's belief the nickel market can perform an about-turn. Picture: Dave Whitten

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The infrastructure is located ~160 km north-west of Dampier and commenced production in 2016. It operates 24 hours a day, 365 days a year.

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6.3.1.6 Koori Mail - 17 July 2024

Notice of a non-claimant application for determination of native title in New South Wales

Notification day: 31 July 2024

A 'non-claimant' application has been made to the Federal Court of Australia (Federal Court) seeking a determination that native title does not exist in the area described below. The Applicant has a non-native title interest in the area, which is set out in their application and summarised below.

Under the Native Title Act 1993 (Cth), there can be only one determination of native title for an area. Unless there is a relevant native title claim, as defined in section 24FE, over the area described below on or before 30 October 2024, the area may be subject to protection under section 24FA and acts may be done which extinguish or otherwise affect native title.

A person who claims to hold native title rights and interests in this area may wish to file a native title claimant application or become a party to this non-claimant application. These may be the only opportunities to have those rights and interests taken into account in the Federal Court's determination. Any other person may also wish to become a party.

If you want to become a party to this application, you must file a Form 5 (Notice of Intention to become a Party) with the Federal Court, on or before 30 October 2024. Further information regarding how to file a Form 5 is available from www.federalcourt.gov.au. After 30 October 2024, you will need to seek leave from the Federal Court to become a party.



Applicant's name: Forster Marina Investments Pty Ltd
ACN: 642 151 648
Federal Court File No: NSD586/2024
Non-native title interest: The Applicant is the holder of Registered Term Lease AB6761960 over Crown land and waterway being the whole of Lot 437 on DP257511, Lot 465 on DP704867, Lot 468 on DP720816, Lot 471 on DP722563, Lot 1 on DP1076431 and Lot 2 on DP1076431 (Lease account number 327050); Licence 473939 over Crown land and waterway being the part of Lot 7103 on DP1100390 and Crown waterway (part reclaimed land); and Licence 835045 over Crown land and waterway being part of Lot 7103 on DP1100390 and Crown waterway (part reclaimed land).
Order sought by Applicant: The applicant seeks a determination that native title does not exist over Lot 437 on DP257511, Lot 465 on DP704867, Lot 468 on DP720816, Lot 471 on DP722563, Lot 1 on DP1076431, Lot 2 on DP1076431, Part Lot 7103 on DP1100390 (part reclaimed land) and Part Crown Waterway (part reclaimed land).

Description: The application area includes the whole and part lots described above covering a total approximate area of 4000 sq m located on the bank and waters of Wallis Lake, in the suburbs of Forster and Wallis Lake.

Relevant LGA: Mid-Coast Council.

For assistance and further information about this application, call Huia McGrath on 08 6317 5442 or visit www.nritf.gov.au.



North Macquarie Marsh Bypass Channel Recovery Project



Invitation for registration of Aboriginal interests

Dharawal Environment and Heritage (Dharawal EH) have been engaged by WaterNSW (The Proponent) to undertake the preparation of an Aboriginal Cultural Heritage Assessment (ACHA) for the North Macquarie Marsh Bypass Channel Flood Recovery Project (hence referred to as the 'The Project').

The Project is located in the Coonamble Local Government Area, NSW (Subject Area), (Lot 5,6,7/DP753484, Lot 7,8,9,12,13,14,15,16/DP75342, Lot 20/DP1202151, Lot 14,16/DP753441, Lot 3,11/DP751589).

North Macquarie Marsh Bypass channel is a man-made channel, constructed in 1972 which diverts water for customer and environmental needs around the North Macquarie Marshes in dry periods. The Channel has sustained extensive damage and is no longer functional. The Project is proposed by WaterNSW to restore the functionality of the North Macquarie Marsh Bypass Channel to its original condition.

The Project Scope is proposed to be undertaken in three stages:

- Stage 1 – Grading to reinstatement access track.
- Stage 2 – Detailed Investigations.
- Stage 3 – Desilting and Repair Works.

In accordance with the Aboriginal cultural heritage consultation requirements for proponents (DECCW, 2010), WaterNSW is seeking registrations of interest from Aboriginal people who hold cultural knowledge relevant to the Subject Area.

Community consultation with Aboriginal cultural knowledge holders will help establish the cultural significance of the place and allow participation in the consultation process as part of the preparation of an Aboriginal Cultural Heritage Assessment Report. Consultation will also assist Heritage NSW in their consideration and determination of any subsequent permit applications (if required). Any Aboriginal people or organisations with relevant cultural knowledge can register their interest in writing via email to:

Dharawal Environment and Heritage

dharawal@ecdhack@gmail.com

Please be advised that, as per Section 4.1.6 of the Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH, 2010) the names of Aboriginal persons and groups who register an interest will be forwarded to Heritage NSW and the Coonamble Local Aboriginal Land Council unless the person or group specifies that they do not want their details released.

Any enquiries concerning Cultural Heritage management at WaterNSW can be directed to: First Nations Engagement Officer, WaterNSW
fn.engagement@water.nsw.gov.au

Registrations will be received by close of business on Thursday 1st August, 2024.

water.nsw.gov.au

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The infrastructure is located ~160 km north-west of Dampier and commenced production in 2016. It operates 24 hours a day, 365 days a year.

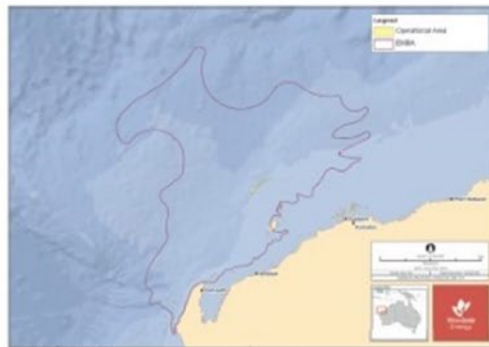
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6.3.1.7 National Indigenous Times - 30 July 2024

4 N T
NEWS
nit.com.au

GIORGIO TORRE

The 17th session of the United Nations Expert Mechanism on the Rights of Indigenous Peoples was held in Geneva this month, highlighting Aboriginal and Torres Strait Islander child removals.

On July 9, UN Permanent Forum for the Rights of Indigenous Issues member Associate Professor Hannah McGlade, SA Commissioner for Aboriginal Children and Young People April Lawrie, and Australian Human Rights Commissioner for Aboriginal and Torres Strait Islander Social Justice Katie Kiss spoke.

They amplified the rights of Aboriginal and Torres Strait Islander children under international law, and highlighted the ongoing crisis of their removals from their family, community and culture.

On the closing day, EMRIP made proposals to the UN Human Rights Council — among them that Australian State authorities should “support and meaningfully facilitate the right of self-determination for Indigenous peoples”, recognising self-determination is critical for Indigenous peoples in addressing child welfare matters.

In 2021, Dr McGlade and the Nonque Family Safety Well-being Council requested EMRIP’s country engagement visit Western Australia, where they met with Aboriginal

Kids’ removal in sharp focus

people to gain an insight into the over-representation of Indigenous children in out-of-home care.

Dr McGlade highlighted that in partnership with SNAICC, the national voice for Aboriginal and Torres Strait Islander children, WA developed a 10-year roadmap to reduce that over-representation.

However, she noted no progress had been made more than a year on.

Dr McGlade told National Indigenous Times putting the issue of Indigenous child removals on the world stage was “a historic moment”.

“The ongoing increasing removals of Aboriginal children ... violates UN law in several respects,” she said.

“The UN EMRIP endorsed our calls for genuine Aboriginal self-determination in child protection and we’ll continue to work to decolonise the system.”

Commissioner Kiss expressed her support and welcomed the report on EMRIP’s

WA visit. Aboriginal and Torres Strait Islander children are 16.5 times more likely than non-Aboriginal children to be in out-of-home care nationally, and recent reporting found 22,326 Aboriginal and Torres Strait Islander children were in such care in Australia.

Commissioner Kiss highlighted the issue as a significant human rights challenge, saying exposure to discriminatory systems was causing harm and fuelling a pipeline into negative life trajectories.

In South Australia, Commissioner Lawrie recently published the final report of her independent inquiry, *Holding On To Our Future*, focused on the implementation of the full Aboriginal and Torres Strait Islander Child Placement Principle with regard to Aboriginal and Torres Strait Islander child removals.

In her statement to EMRIP, she recommended that the principle be embedded in legislation and policy as a framework for preventing removals.

Commissioner Lawrie told National Indigenous Times while the establishment of the South Australian Voice to State Parliament was “a positive step forward to enable self-determination of Aboriginal people ... South Australia can go much further”.

“It must prioritise work that enables the exercise of Aboriginal people’s self-determination and must not hide behind the Closing The Gap targets which consecutive governments have failed to achieve,” she said.

She said in 2017, SA removed the primacy of best interests of the child from its child protection legislation.

Indigenous youth advocate Jerome Wana, who also attended the session, told National Indigenous Times: “It is imperative for Indigenous peoples to vocally oppose the colonial system, including the harmful policies that continue to devastate our communities and blatantly disregard our international rights”. “Black-

fullas must persist in addressing and holding the Australian Government accountable for the destructive impacts the colonial system inflicts on our peoples. However, this effort must extend beyond local and national levels to also include international spaces,” he said.

“At international forums such as the (EMRIP) ... and the United Nations Permanent Forum on Indigenous Issues, the Australian Government often presents a sanitised, misleading image that starkly contrasts the realities my people face. Therefore, Blackfullas with lived experiences who are directly impacted by the issues must be supported to engage in international spaces to counteract the Australian Government’s front and speak the truth.”

In 2009 Australia endorsed the UN Declaration on the Rights of Indigenous Peoples but it has not been enacted into domestic legislation or responded to the Senate Inquiry into UNDRIP.

Australia has also not ratified the Optional Protocol to the UN Convention on the Rights of the Child, denying children a right to review by the UN expert body.

EMRIP recommended that Australia take actions towards genuine self-determination for Aboriginal and Torres Strait Islander people in child protection. EMRIP’s report on the 17th session is expected to be published in September.

JULIMAR OPERATIONS ENVIRONMENT PLAN

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The infrastructure is located ~160 km north-west of Dampier and commenced production in 2006. It operates 24 hours a day, 365 days a year.

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We want to hear from you

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6.4 Ngaarda Radio Advertisements

6.4.1 Summary Table

Media	Coverage	Publication dates
Ngaarda Radio	Pilbara	26 August – 30 November 2024

6.4.1.1 Scripts

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

6.5 Social Media

6.5.1 Social Media EP targeted campaign: Tiles 1 and 2

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 Julimar Operations Environment Plan and to share your views with Woodside on your relevant functions, interests or activities contact us at:

Feedback@woodside.com or on 1800 442 977.

To stay updated, subscribe at:
woodside.com/consultation-activities



Would you like to know what Woodside has planned on land and sea?

We'd like to talk with you.

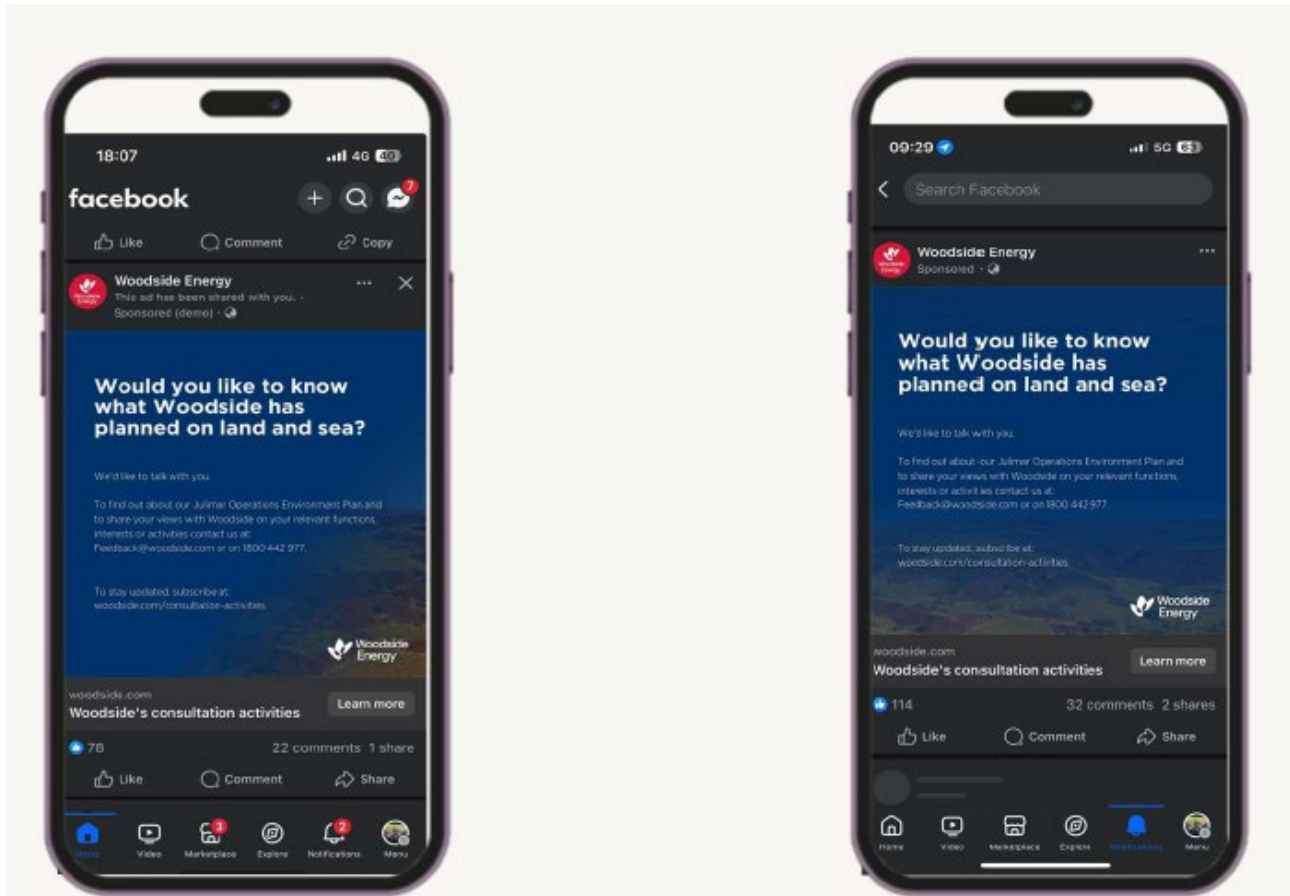
To find out about our Julimar Operations Environment Plan and to share your views with Woodside on your relevant functions, interests or activities contact us at:

Feedback@woodside.com or on 1800 442 977.

To stay updated, subscribe at:

woodside.com/consultation-activities





6.6 Community Information Sessions

The community information sessions that Woodside has conducted are captured below:

6.6.1 Pilbara Region

6.6.1.1 Community Pop-up – 26 July 2024

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. (Record of Consultation, reference 6.5.1.1). Members of Woodside's Corporate Affairs team actively engaged with the community to discuss proposed Environment Plan activities and general community engagement discussion.</p> <p>Woodside displayed a QR code on the stand, linked to the Let's Talk EP newsletter on the Woodside consultation page of the website. A pull-up banner was on display focusing on engagement on our 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 display: Julimar Operations EP</p>

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 337 of 370

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Advertising and invitations	<p>Woodside advertised this engagement on social media only.</p> <p>Social media post was advertised on Woodside North West Facebook page on 26 July 2024 (Appendix F, reference 6.5.1.1.1).</p> <p>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 current EP factsheets. (Appendix F, reference 6.5.1.1.3).</p>
Estimated number of individuals consulted	<p>Over 60 community members attended the event. Woodside spoke to many community members, recording 10 meaningful conversations.</p>
Summary of Feedback, Objection or Claim	
<p>Approximately 10 conversations occurred around employment opportunities and pathways, social investment, the Environment Plan process and approvals in general.</p> <p>No feedback was received regarding Woodside's Environment Plans.</p>	
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>	

6.6.1.1.1 Facebook post – 26 July 2024

On 26 July 2024, Woodside posted a story on its Woodside North West Facebook account, sharing details of its stand to celebrate Woodside's 70th and 40 years of safe operations in Karratha. Consultation Information Sheets regarding is planned and proposed activities were available, including the activities proposed under this EP.

Platform/channel: Woodside North West (Facebook)



Woodside North West is with Woodside Energy.

5 days ago · 🌐

🎉 It's our birthday 🥳

Today we're celebrating 70 years of Woodside, and this year, four decades of safe and reliable operations in Karratha.

To thank the community for their support over this time, we've been providing free morning coffees across the City of Karratha this past month.

Join us at just one of the participating local providers, [Lo's](#) this morning! Grab a coffee on us and let's talk about upcoming projects, ongoing operations and our role in the community we've proudly called home for forty years.

As we celebrate this significant milestone, we look forward to continuing to support the local community through our ongoing operations and growth projects. This includes the Scarborough Energy Project and Pluto Train 2, which has engaged more than 75 Karratha businesses since construction began.



👍❤️ 110

11 🗨️ 2 ➡️

👍 Like

🗨️ Comment

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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 339 of 370

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6.6.1.1.2 Woodside marquee



6.6.1.1.3 Woodside Information Sheets



6.6.1.2 FeNaCING Festival – 3-4 August 2024

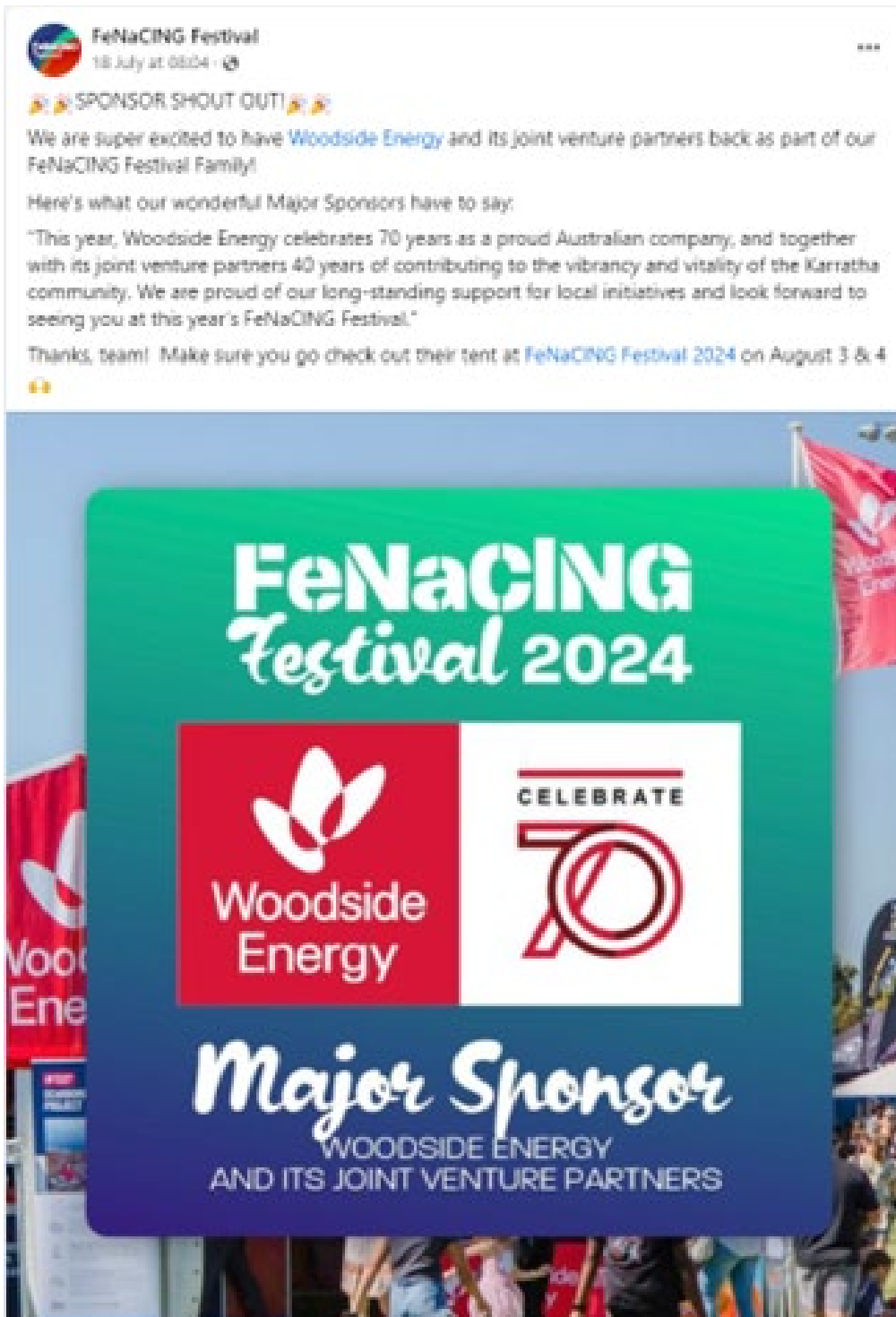
Location	Karratha
Activity	FeNaCING Festival
Date	3-4 August 2024
Description of the consultation	<p>Woodside hosted a stand at the FeNaCING Festival 2024 (Appendix F, reference 6.6.1.7). Members of Woodside's Corporate Affairs, Environment and Operations teams actively engaged with the community to discuss proposed Environment Plan activities.</p> <p>Woodside displayed a QR code on the stand, linked to the Let's Talk EP newsletter on the Woodside consultation page of the website. A pull-up banner was on display focusing on engagement on our 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 display: Julimar 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> <p>Social media post was advertised on the City of Karratha and FeNaCING Festival Facebook page on 18 July 2024 (Appendix F, reference 6.5.1.2.1).</p> <p>Social media post was advertised on the Woodside North West Facebook page (Appendix F, reference 6.5.1.2.3).</p> <p>FeNaCING Festival lift-out in the Pilbara News on 31 July 2024 (Appendix F, reference 6.5.1.2.2).</p> <p>An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website) was on display outside the Woodside Marquee, and EP factsheets were displayed, and provided in the Woodside Marquee. (Appendix F, reference 6.5.1.2.6).</p>
Estimated number of individuals consulted	<p>Over 10 000 community members (City of Karratha) attended the event.</p> <p>Woodside spoke to many community members, recording 30 meaningful conversations.</p>
Summary of Feedback, Objection or Claim	
<p>Approximately 10 conversations occurred around new energy opportunities and plans.</p> <p>Other conversations included; local content, social investment, EMBAs (relating to EPs), approvals in general (Browse and Scarborough), Karratha Gas Plant assets future, tax and royalties and general production process.</p> <p>No feedback was received regarding Woodside's Environment Plans.</p>	
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>	

6.6.1.2.1 Social media – 18 July 2024

On 18 July 2024, the FeNaCING festival Woodside posted about the upcoming festival and Woodside as the major sponsor.

Platform/channel: City of Karratha and FeNaCING Festival Facebook

Date: 18 July 2024



6.6.1.2.2 Newspaper advertisement – Pilbara News – FeNaCING Festival lift-out - 31 July 2024



RESPECTING CULTURE HERITAGE

With Indigenous... three decades... name for the... importance of engaging... to protect and manage... This includes protecting... values of Murujuga, such as... ries, meanings and ceremonies... rally significant. Woodside... World Heritage Listing of the... tural Landscape.

PROVIDE YOUR FEEDBACK AT FeNaCING FESTIVAL

Are you interested in Woodside's proposed activities and operations?

If so, let's talk about our Environment Plans at FeNaCING Festival. We'll be at the Woodside marquee from 10 am – 4 pm, Saturday 3 August and Sunday 4 August, 2024.

If you are an individual, organisation or community group whose functions, interests or activities may be affected by our proposed activities and operations, we want to talk to you.

 Find out more or provide feedback:
Phone: 1800 442 077
Email: consultation@feedback.woodside.com

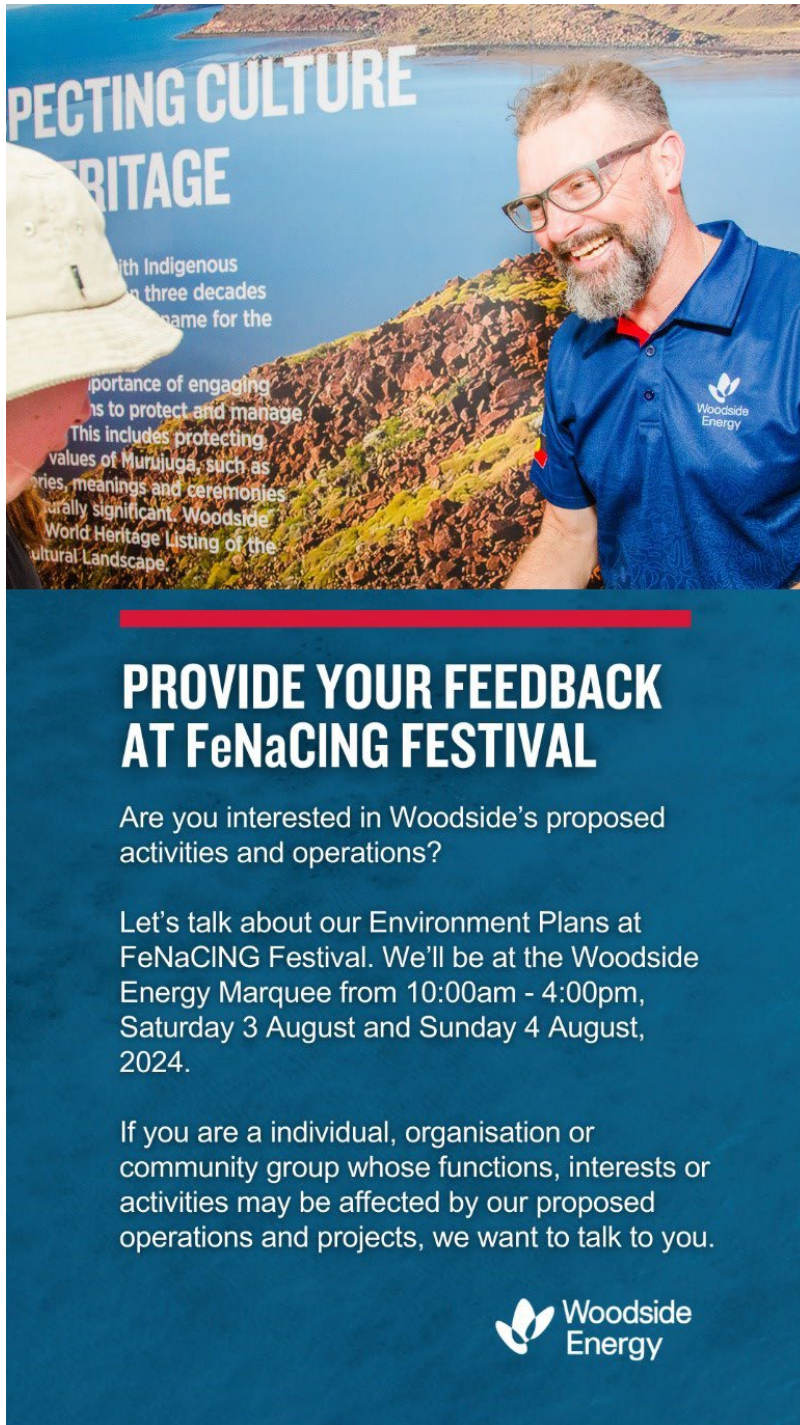

Woodside
Energy

6.6.1.2.3 Facebook post – 2 August 2024

On 2 August 2024, Woodside posted a story on its Woodside North West Facebook account, highlighting its upcoming marquee at the FeNaCING Festival where Consultation Information Sheets regarding its planned and proposed activities were available, including the activities proposed under this EP.

Platform/channel: Woodside North West (Facebook)

Date: 2 August 2024



6.6.1.2.4 Environment Plan banner



6.6.1.2.5 Woodside marquee



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Controlled Ref No: JU-00-RI-10006

Revision: 0

Page 345 of 370

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6.6.1.3 Mack10 Fishing Competition – 23-25 August 2024

Location	Onslow	
Activity	Mack10 Fishing Competition – organised by Ashburton Anglers fishing club	
Date	23 – 25 August 2024	
Description of the consultation	Woodside sponsorship of the Mack10 fishing competition enabled copies of the Let's Talk Newsletter included in all competitor briefing packs. An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website) was on display at the event.	
Advertising and invitations	Woodside advertised participation at the event to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on EP activities.	
Estimated number of individuals consulted	The competition had approximately 300 participants. Informal conversations were held with a number of competition participants and other attendees.	
	Summary of Feedback, Objection or Claim	
	Community members were able to engage with Woodside representatives and discuss the Griffin Gas Export Pipeline.	
	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
	Whilst feedback was received, there were no objections or claims. Participation at the event 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).	

6.6.1.4 Developing Northern Australia (DNA Conference) 26-28 August 2024

Location	Karratha
Activity	Developing Northern Australia (DNA) Conference
Date	26-28 August 2024
Description of the consultation	Woodside hosted an exhibition stand at the DNA Conference (Record of Consultation, reference 6.5.1.14). Members of Woodside's Corporate Affairs team actively engaged with 400+ individuals, policy makers and decision makers attending the conference to discuss, amongst other things, EP activities. Woodside displayed a QR code, linked to the Let's Talk EP newsletter on the Woodside consultation page of the website. An iPad was available encouraging audience to view and subscribe to the consultation page on the Woodside website. Woodside made available consultation information sheets on Julimar Operations EP.
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: Woodside advertised participation at the DNA Conference, the opportunity to consult and to enable individuals to self-identify, and enable individuals to provide feedback on proposed activities, through the following:

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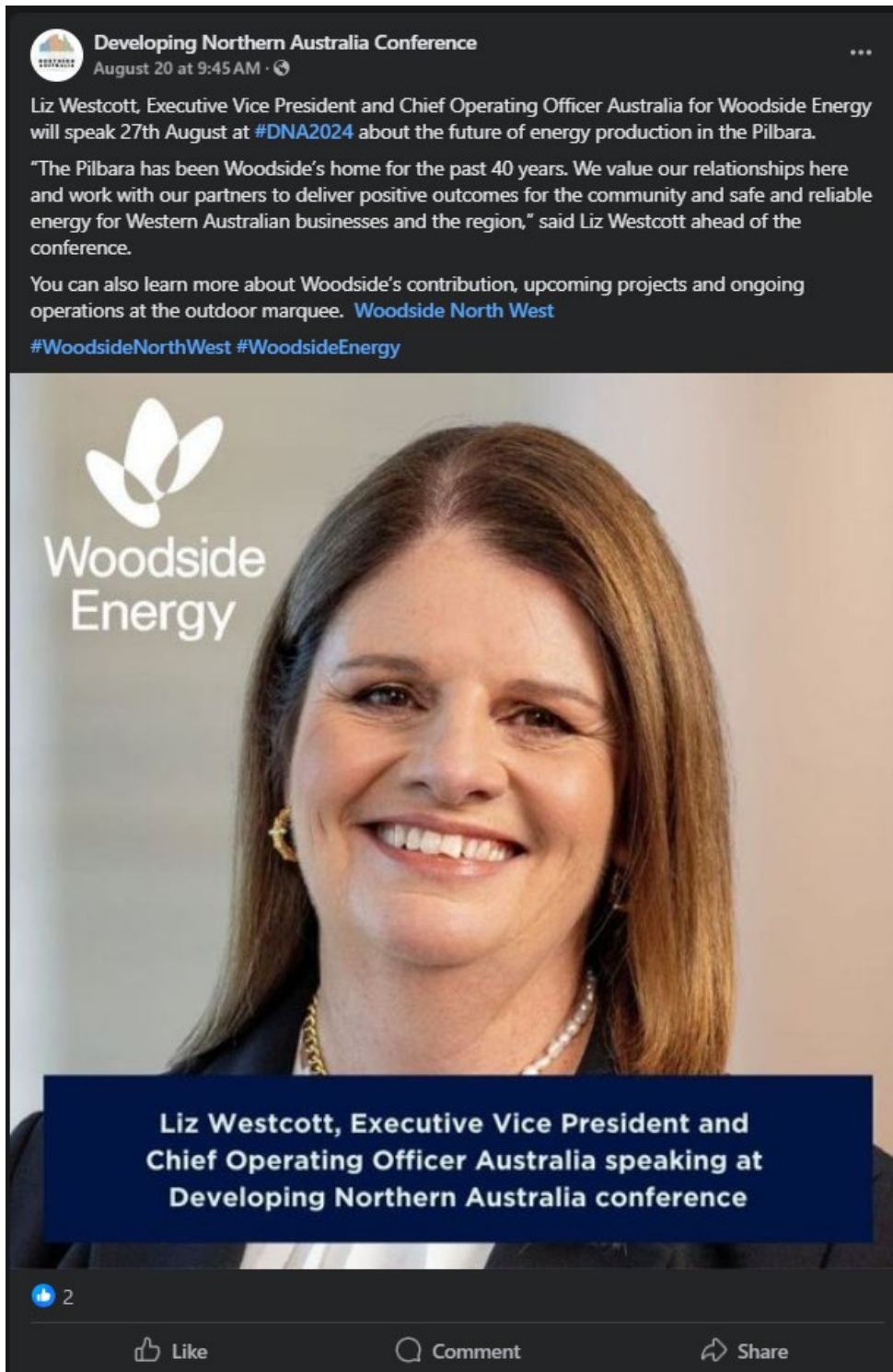
Revision: 0

Page 347 of 370

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	<ul style="list-style-type: none"> Social media post was advertised on the Developing Northern Australia Facebook page on 20 August 2024 (Appendix F, reference 6.1.1.13) <p>EP consultation information sheets and copies of Let's Talk with QR codes linking to Consultation Activities - Woodside Energy were displayed and provided (Appendix F, reference 6.5.1.14)</p>
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>	

6.6.1.4.1 Social Media – 20 August 2024



6.6.1.4.2 Woodside Stall at DNA Conference



6.6.1.5 Dampier Beachside Markets – 12 October 2024

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.</p> <p>The stand was staffed by members from Woodside's Corporate Affairs</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 consultation/feedback subscription prompt was made available.</p> <p>Woodside made available printed consultation information sheets on the Angel CCS Geophysical and Geotechnical Surveys Commonwealth and State EP</p>
Advertising and invitations	<p>Woodside advertised the 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> <p>Advertisement in the Pilbara News on 9 October 2024 (Appendix F, reference 6.5.1.5.2).</p> <p>Geotargeted Social media posts were published inviting public to attend on Woodside North West Facebook page (Appendix F, reference 6.5.1.5.1).</p> <p>Social media post from event host, Dampier Community Association was published on October 11, 2024, inviting public to attend on (Appendix F, reference 6.5.1.5.1).</p> <p>Advertisement was displayed on community noticeboard at Lo's Café, Karratha, and Roebourne Library (Appendix F, reference 6.5.1.5.3).</p> <p>An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website) displayed at Woodside's stand along with current EP factsheets. (Appendix F, reference 6.5.1.5.5).</p>

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Revision: 0

Page 350 of 370

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Estimated number of individuals / organisations consulted	Over 1000 community members attended the event. Woodside spoke to many community members, recording 6 meaningful conversations.
Summary of Feedback, Objection or Claim	
EP approval process discussed and why we want to talk to community. No concerns raised.	
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 raised about EPs.</p> <p>Woodside's participation at the market 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).</p>	

6.6.1.5.1 Social Media – 11 October 2024



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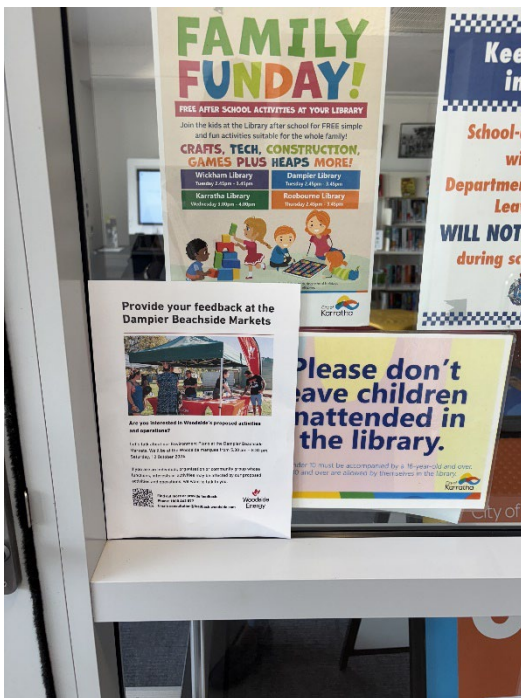
Page 352 of 370

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6.6.1.5.2 Newspaper Advertisement – Pilbara News – 9 October 2024

[illegible]

6.6.1.5.3 Community Noticeboards - Lo's Café, Karratha, and Roebourne Library



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Revision: 0

Page 354 of 370

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6.6.1.5.4 Woodside Stall at Dampier Beachside Markets



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Revision: 0

Page 355 of 370

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6.6.1.5.5 Woodside Information Sheets



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Revision: 0

Page 356 of 370

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6.7 Community Newsletters

6.7.1 Karratha Community Update

2024 – Q2



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Revision: 0

Page 357 of 370

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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.



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.



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 Ngarliyarndu 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](#).



GBSC Yurra team member working on one of the 20 new builds.

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.

6.7.2 Let's Talk – Our Plans, Your Say

6.7.2.1 Let's Talk July 2024 Q3

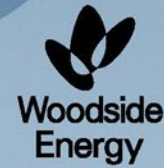
Hard copy distribution July 2024 – Q3

Date	Location	Event (if applicable)
18 July 2024	Karratha CLG email distribution	
25 July 2024	NWS Visitor Centre	
25 July 2024	City of Karratha office brochure stand	
26 July 2024	Karratha	Lo's Coffee Pop-up community event
2 August 2024	Dampier Community Association office	
6 August 2024	Karratha	FeNaCING
23 August 2024	Onslow	Mack10 Fishing Competition
26 August 2024	Karratha	DNA Conference

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 sources 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](https://www.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.

 You can also read our recent Karratha Community Update [here](#).



STAY UP TO DATE
ON OUR CONTINUED
CONTRIBUTION TO
THE COMMUNITY
WE CALL HOME.

SEARCH ON FACEBOOK



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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Revision: 0

Page 364 of 370

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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 Nghanurra 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)



6.7.2.2 Let's Talk November 2024 Q4

Hard copy distribution November 2024 – Q4

Date	Location	Event (if applicable)
Starting 5 November 2024	Karratha/Roebourne	Ongoing community engagement
Starting 15 November 2024	Karratha Visitor's Centre	
	Dampier Community Association Office	
	City of Karratha brochure stand	
	Exmouth	
	Roebourne office	
Starting 27 November 2024	Karratha & Districts Chamber of Commerce and Industry	
29 November 2024	Karratha	Karratha Community Liaison Group meeting



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 Mack10k 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 Rechfishwest's Fishing for Science program and supported by Woodside Energy.

Working with the Department of Primary Industries and Regional Development, the Rechfishwest 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: rechfishwest.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.

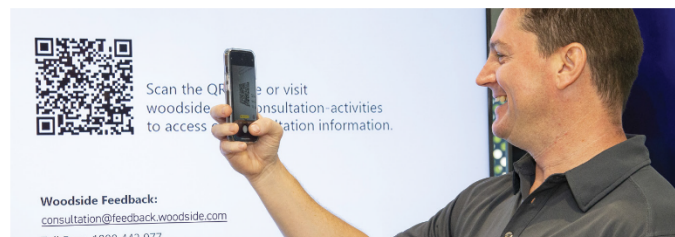


"We have been contracted to provide a range of the smaller cranes for the project. Mostly this consists of Franna pick and carry cranes, however we are also providing a 160 tonne all-terrain crane and a small three tonne Maeda spider crane, as well as the ongoing maintenance of these machines," said 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](#)

Woodside North West

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

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)



APPENDIX G Oil Pollution First Strike Plan

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Page 688 of 445

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**Woodside
Energy**

Julimar Operations – Oil Pollution First Strike Plan

Corporate HSE

Hydrocarbon Spill Preparedness

February 2025

Revision 8a

TABLE OF CONTENTS

CONTROL AGENCIES AND INCIDENT CONTROLLERS.....	6
SPILLS IN STATE/PORT WATERS	6
RESPONSE PROCESS OVERVIEW	7
1. NOTIFICATIONS.....	8
2. RESPONSE TECHNIQUES	10
3. RESPONSE PROTECTION AREAS.....	12
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.....	24

Transfer of Control Arrangements

For oil spill incidents from Julimar subsea infrastructure, Woodside is the Control Agency, however Chevron (CAPL) is Incident Controller (IC) in the first instance and undertakes initial actions until handover to Woodside. Initial actions to be undertaken by CAPL may include deployment of a tracker buoy and opportunistic visual observations.

As detailed in the Julimar Development Emergency Response Interface Plan (JU-00-RF-10036), if an emergency occurs, including the unplanned release of hydrocarbon, the Wheatstone Platform Operator (Chevron Australia Pty Ltd (CAPL)) shall promptly take such action as is necessary to remedy or alleviate such emergency.

With regards to an emergency that is determined to be attributable to the Julimar Brunello Pipeline System that will require a long-term response (i.e. > 12 hours); a decision may be taken for Woodside to take over the coordination of the emergency response and manage the long-term resolution. Such a decision must be agreed between the CAPL Perth Emergency Management Team (PEMT) and Woodside's Corporate Incident Management Team (CIMT) and communicated to the key stakeholders outlined in the Julimar Development Emergency Response Interface Plan (JU-00-RF-10036). To the extent required, the appropriate regulatory agencies must also approve the transfer of control of the response operations to Woodside as the Field Operator.

Chevron and Woodside well names

Production Manifold Well Slot Number (Chevron)	Borehole (Woodside)
BRU 1C	BruA-2
BRU 1E	BruA-3
BRU 1F	BruA-4
BRU 1B	BruA-5
BRU 1G	BruA-6
JUA1A	JULA-01
JUA1D	JULA-02
JUA1B	JULA-04

CONTROL AGENCIES AND INCIDENT CONTROLLERS

THE CHEVRON OIM IS INCIDENT CONTROLLER IN COMMONWEALTH WATERS UNTIL CONTROL IS FORMALLY HANDED TO WOODSIDE.

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	Chevron until handover to Woodside	Wheatstone Offshore Installation Manager (OIM) (initially), then Woodside Person In Charge (PIC) with support from Onshore Team Leader (OTL)
		2/3		Woodside	Corporate Incident Management Team Incident Commander (CIMT IC)
	State waters	1/2/3	Western Australian Department of Transport (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
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).

Initially Woodside will be required to make available an appropriate number of suitably qualified persons to work in the DoT IMT ([APPENDIX F](#) – Woodside Liaison Officer Resources to DoT). DoT/ PPA'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	Chevron to 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	SUBSEA INCIDENT Initially (CAPL is IC): Woodside to provide support to the IC. If Woodside becomes IC: coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan. Remember to download each Operational Plan.	VESSEL INCIDENT Upon agreement with AMSA: 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	SUBSEA INCIDENT If CAPL is IC: provide support through CIMT. If Woodside is IC: handover control to CIMT and notify DoT	VESSEL INCIDENT Handover control to AMSA and stand up CIMT to assist.
	If CAPL is IC: refer to Wheatstone Upstream Emergency Response Plan (ERP) (Chevron Doc WS2-0000-HES-PLN-CLM-000-00017-000). If Woodside is IC: in consultation with CAPL, commence quick revalidation of the recommended strategies in Table 2-1 taking into consideration seasonal sensitivities and current situational awareness. Commence validated strategies.	If requested by AMSA: Commence quick revalidation of the recommended strategies in Table 2-1 taking into consideration seasonal sensitivities and current situational awareness. Commence validated strategies.
	In consultation with CAPL (as necessary), create an Incident Action Plan (IAP) for all ongoing operational periods. <u>The content of the IAP should reflect CAPL handover of control and the selected response strategies based on current situational awareness.</u> For the full detailed pre-operational Net Environmental Benefit Analysis (NEBA) OSPRMA Appendix A.	If requested by AMSA: Create an IAP for all 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.

As per the Julimar Development Emergency Response Interface Plan (JU-00-RF-10036), Chevron will notify Woodside IMMEDIATELY (within 2 hours) upon detection of spills from, or suspected to be from, Brunello and/or Julimar fields and/or hydrocarbon system via the WCC, as per table below, and will notify of key incident details, including:

- **Time of incident**
- **Whether the release is controlled, or continuing to spill**
- **Weather, tide and current details**
- **Apparent trajectory of the spill.**

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	Chevron Australia Pty Ltd	Chevron Perth Security Operations Centre	[2]	Verbally notify Security Operations Centre of event and estimated volume and hydrocarbon lost	Verbal	
Immediately	OIM or Chevron Perth Security Operations Centre	Woodside Communication Centre (WCC)	Corporate Incident Management Team Incident Commander (CIMT IC)	[1]	Verbally notify WCC of event and estimated volume and hydrocarbon type.	Verbal	
Within 2 hours	Woodside Site Rep (WSR), CIMT IC or Delegate	National Offshore Petroleum Safety Environmental Management Authority (NOPSEMA ¹)	Incident notification office	[3]	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 IC 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 [3] NOPTA [4] DEMIRS [5]	[3]	
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	WA Department of Transport	DoT Maritime Environmental Emergency Response Unit (MEER) Duty Officer	[6]	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.	[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	

¹ Notification to NOPSEMA must be from a Woodside Representative.

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 Biodiversity, Conservation and Attractions	CIMT IC or Delegate	WA Department of Biodiversity, Conservation and Attractions (DBCA)	Duty Officer	[8]	Phone call notification	Verbal	
As soon as practicable	Public Information	Relevant persons/ organisations	To be determined	To be determined	Should it be identified that additional persons such as, but not limited to, commercial fishers or 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 Julimar Operations. 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 Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) for Julimar Operations. Relevant cultural authorities will be re-assessed throughout the response period.	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</i> (Cth) s 11(1)	Vessel Master	Australian Maritime Safety Authority (AMSA)	Rescue Coordination Centre (RCC)	[9]	Verbally notify AMSA RCC of the hydrocarbon spill. Follow up with a written Harmful Substances Report (POLREP) as soon as practicable following verbal notification.	[9]	
ADDITIONAL LEVEL 2/3 NOTIFICATIONS							
As soon as practicable	CIMT IC or Delegate	AMOSC	AMOSC Duty Manager	[10]	Notify AMOSC that a spill has occurred and follow-up with an email from the CIMT IC/ CIMT Deputy 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.	[10]	
As soon as practicable	CIMT IC or Delegate	Oil Spill Response Limited (OSRL)	OSRL Duty Manager	[11]	Notification for all services: Contact OSRL duty manager and request assistance from technical advisor in Perth. Send the completed notification form to OSRL as soon as practicable.	[11]	
					Mobilisation of response personnel/ equipment: For mobilisation of response personnel/ resources, send the Mobilisation Form to OSRL as soon as practicable. The mobilisation form must be signed by a nominated callout authority from Woodside e.g. CIMT IC/ CIMT Deputy IC/ CMT Leader . OSRL can advise the names on the call out authority list, if required.	[11]	
					Mobilisation of Operational and Scientific Monitoring service: For mobilisation of Operational and Scientific Monitoring (OSM) service, send the OSM Mobilisation Form to OSRL as soon as practicable. The mobilisation form must be signed by a nominated callout authority from Woodside e.g. CIMT IC/ CIMT Deputy IC/ CMT Leader . OSRL can advise the names on the call out authority list, if required.	[11]	
As soon as practicable if extra personnel are required for incident support	CIMT IC or Delegate	Marine Spill Response Corporation (MSRC)	MSRC Response Manager	[12]	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

Implement this section of the plan if:

- Chevron is Incident Controller and Woodside is requested to support the response acting under direction of the IC; or
- if Woodside is Incident Controller.

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	Cond.					
Monitor and evaluate – tracking buoy	Yes	Yes	ALL	Coordinate deployment of satellite tracking buoy immediately from Wheatstone Platform and/or a support vessel. 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	DAY 1: Tracking buoy deployed within 2 hours.	Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk in the Operational Monitoring Operational Plan. Deploy tracking buoy in accordance with Link .
Monitor and evaluate – predictive modelling	Yes	Yes	ALL	Undertake initial modelling using OceansMap and weathering fate analysis using Automated Data Inquiry for Oil Spills (ADIOS) or refer to the hydrocarbon information in Appendix A .	Situation or Environment	DAY 1: Initial modelling within 6 hours using the Rapid Assessment Tool.	Predictive Modelling of Hydrocarbons to Assess Resources at Risk in the Operational Monitoring Operational Plan. <i>Planning Section to download immediately and follow steps</i>
	Yes	Yes	ALL	Send Oil Spill Trajectory Modelling (OSTM) form (Appendix B, Form 7) to RPS Response ([13]).	Situation	DAY 1: Detailed modelling within 4 hours of RPS Response receiving information from Woodside.	
Monitor and evaluate – aerial surveillance	Yes	Yes	ALL	Instruct Aviation Unit Leader to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in Appendix B Form 8 .	Logistics – Aviation	DAY 1: 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 in the Operational Monitoring Operational Plan. <i>Planning Section to download immediately and follow steps</i>
Monitor and evaluate – satellite tracking	Yes	Yes	ALL	The Situation Unit Leader to action satellite imagery services. This may be obtained via: <ul style="list-style-type: none"> • AMOSC Duty Manager: [10] • OSRL Duty Manager: [11] • KSAT: [14] • Others identified by CIMT 	Situation	DAY 1: Service provider will confirm availability of an initial acquisition within 2 hours. Data received to be uploaded into Woodside Common Operating Picture.	
Monitor and evaluate – pre-emptive assessment of receptors at risk	Yes	Yes	ALL	Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk.	Planning or Environment	DAY 2: In agreement with WA DoT, deployment of 2 specialists for each of the Response Protection Areas (RPA) with predicted impacts.	Pre-emptive Assessment of Sensitive Receptors in the Operational Monitoring Operational Plan.
Operational monitoring – shoreline assessment	Yes	Yes	ALL	Consider the need to mobilise resources to undertake shoreline assessment surveys.	Planning or Environment	DAY 2: In agreement with WA DoT, deployment of 2 specialists trained in Shoreline Clean-up Assessment Technique (SCAT) for each of the RPAs with predicted impacts.	Mobilise OSM service via OSRL: [11] Refer to OSM Bridging Implementation Plan – Part B for additional implementation information: Link Refer to Joint Industry Operational And Scientific Monitoring Plan Framework for activation criteria and additional supporting information.
Operational and Scientific Monitoring	Yes	Yes	ALL	Consider the need to mobilise OSM resources via third party service provider.	Environment	DAY 1: Notify service provider of spill event and mobilise required programs depending upon nature of spill event	
Surface dispersant	No	No	N/A	This response strategy is not recommended - modelling for all scenarios predicts that floating oil will be prone to rapid spreading and evaporation and will not reach the required threshold (>50 g/m ²) for surface dispersant to be effective within any RPA.			
Containment and recovery	No	No	N/A	This response strategy is not recommended – modelling for all scenarios predicts that floating oil will be prone to rapid spreading and evaporation and will not reach the required threshold (>50 g/m ²) for feasible containment and recovery operations within any RPA.			

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	MDO	Cond.					
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	No	No	N/A	Modelling for all scenarios does not predict any shoreline contact at feasible response thresholds (>100 g/m ²).			
Shoreline clean-up	No	No	N/A	Modelling for all scenarios does not predict any shoreline contact at feasible response thresholds (>100 g/m ²).			
Oiled wildlife response	Yes	Yes	ALL	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		Oiled Wildlife Response Operational Plan
SOURCE CONTROL TECHNIQUES							
Source Control – Remote Intervention	N/A	Yes	L2/3	Only for CS-02 (hydrocarbon release caused by a flowline loss of containment (subsea)). Following notice of reduced flow at Wheatstone Platform, remotely shut in wells and isolate flowlines (Wheatstone Upstream Platform Operational Performance Standard Emergency Shutdown (WS2-0000-PRO-0027)).	Operations (Wheatstone Platform)		Wheatstone Upstream Platform Operational Performance Standard Emergency Shutdown (WS2-0000-PRO-0027)
Subsea First Response Toolkit	N/A	Yes	L2/3	As per Source Control Emergency Response Planning Guideline.	Source Control	WITHIN 48 HOURS: Remotely Operated Vehicle (ROV) on Mobile Offshore Drilling Unit (MODU) ready for deployment within 48 hours.	Source Control Emergency Response Planning Guideline
Subsea dispersant	N/A	No	N/A	This response strategy is not recommended – due to a lack of surface or shoreline contact predicted by modelling, the application of subsea dispersant would unnecessarily introduce additional chemical substances without resulting in a net environmental benefit			
Capping Stack	N/A	Yes	L2/3	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.	Source Control	DAY 16: Capping stack deployed by a chartered construction vessel.	
Relief Well	N/A	Yes	L2/3	As per Source Control Emergency Response Planning Guideline.	Source Control	WITHIN 24 HOURS: Identify source control vessel availability within 24 hours. WITHIN 48 HOURS: ROV on MODU ready for deployment within 48 hours.	

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 hydrocarbon spill modelling results, no sensitive receptors are predicted to be contacted above the response thresholds for the duration of a spill event.

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 Julimar Operations Operational Area.

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 Julimar Operations Operational Area.

Table 3-1: Assets in the vicinity of the Julimar Operations Operational Area

Asset	Distance and Direction from Operational Area	Operator
Pluto A Platform	~4 km ESE Pluto subsea infrastructure intersects lines	Woodside
Wheatstone Platform	Within Operational Area	Chevron
Goodwyn Alpha Platform	~65 km NE	Woodside
North Rankin Platforms	~88 km NE	Woodside

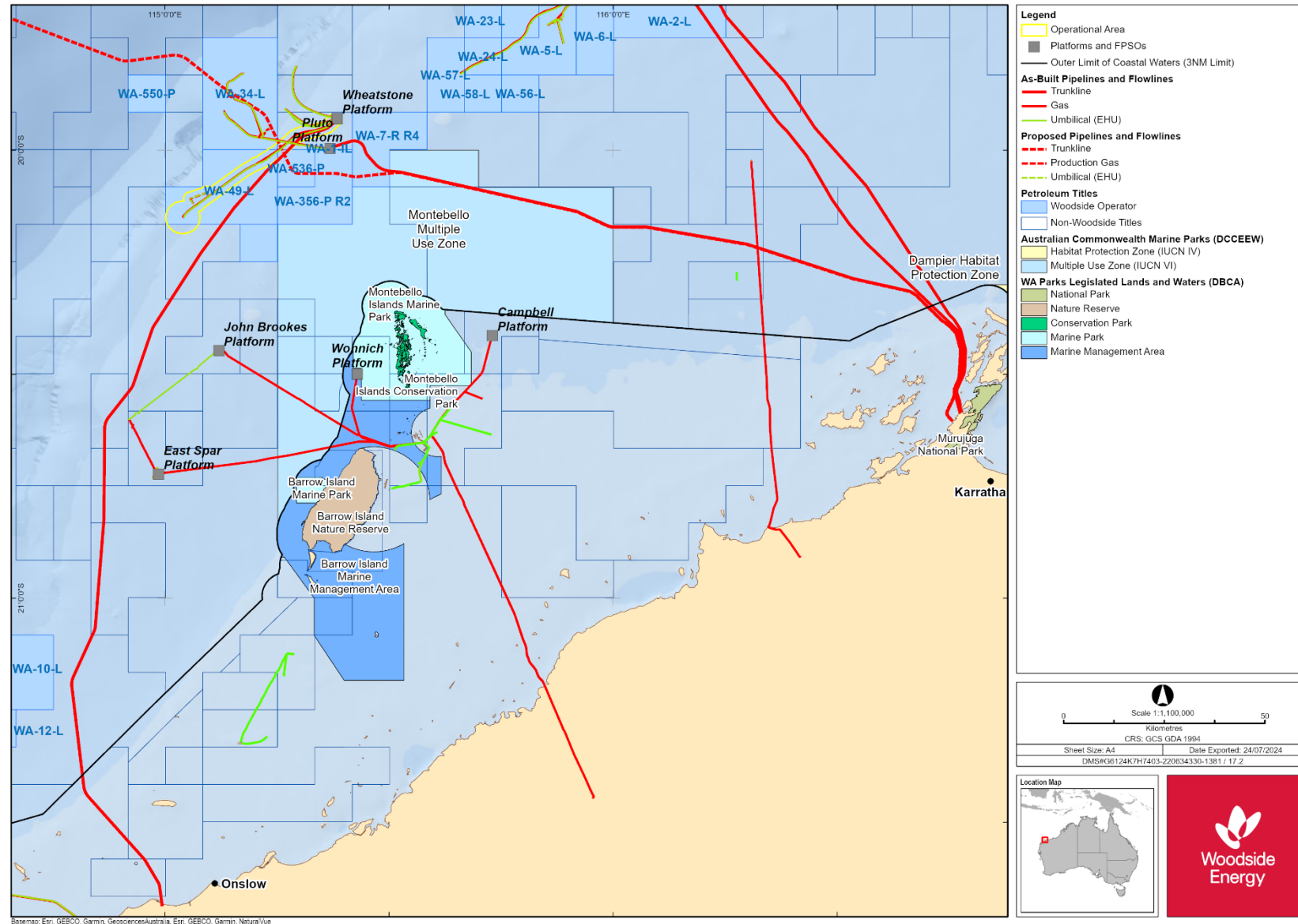


Figure 3-1: Operational area

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4. DISPERSANT APPLICATION

Dispersant is not considered an appropriate response strategy for this activity as described in the Julimar 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 (WCCS) Hydrocarbon release caused by a well loss of containment (subsea well)	Brunello Condensate	49.8°	55,647 m ³	6.9% of 3840 m ³	12 hours (BP < 180 °C)	45.5%	NWS Condensate API of 54.3
					24 hours (180 °C < BP < 265 °C)	37.3%	
					Several days (265 °C < BP < 380 °C)	10.3%	
CS-02 Hydrocarbon release caused by a flowline loss of containment (subsea)	Brunello Condensate	49.8°	1062 m ³	6.9% of 73 m ³	12 hours (BP < 180 °C)	45.5%	NWS Condensate API of 54.3
					24 hours (180 °C < BP < 265 °C)	37.3%	
					Several days (265 °C < BP < 380 °C)	10.3%	
CS-03 Hydrocarbon release due to a vessel collision (Instantaneous)	Marine Diesel Oil (MDO)	37.2°	250 m ³	5.0% of 13 m ³	12 hours (BP < 180 °C)	6.0%	Diesel Fuel Oil (Southern USA 1) API of 37.2
					24 hours (180 °C < BP < 265 °C)	34.6%	
					Several days (265 °C < BP < 380 °C)	54.4	

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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	[3]
3	Harmful Substances Report (POLREP – AMSA)	[9]
4	Marine Pollution Report (POLREP – DoT)	[6]
5	AMOSOC Service Contract	[10]
6a	OSRL Initial Notification Form	[11]
6b	OSRL Mobilisation Activation Form	[11]
6c	OSRL Operational and Scientific Monitoring Service Mobilisation Form	[11]
7	RPS Response Oil Spill Trajectory Modelling Request	[13]
8	Aerial Surveillance Observer Log	Link
9	Tracking buoy deployment instructions	Link

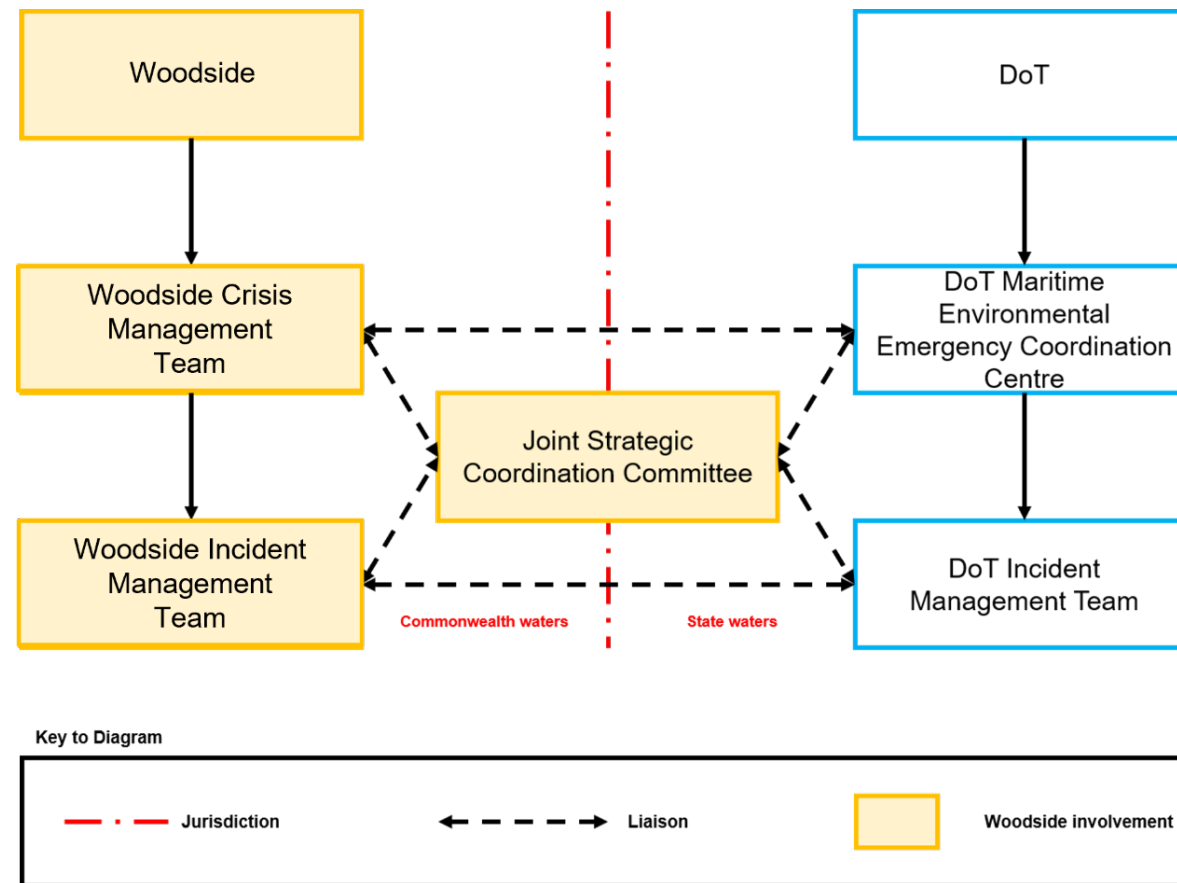
FORM 1 – RECORD OF INITIAL VERBAL NOTIFICATION TO NOPSEMA

NOPSEMA phone: [3]		
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	[3]	
NOPTA	[4]	
DEMIRS	[5]	

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		

APPENDIX D – COORDINATION STRUCTURE FOR A CONCURRENT HYDROCARBON SPILL IN BOTH COMMONWEALTH AND STATE WATERS/ SHORELINES²



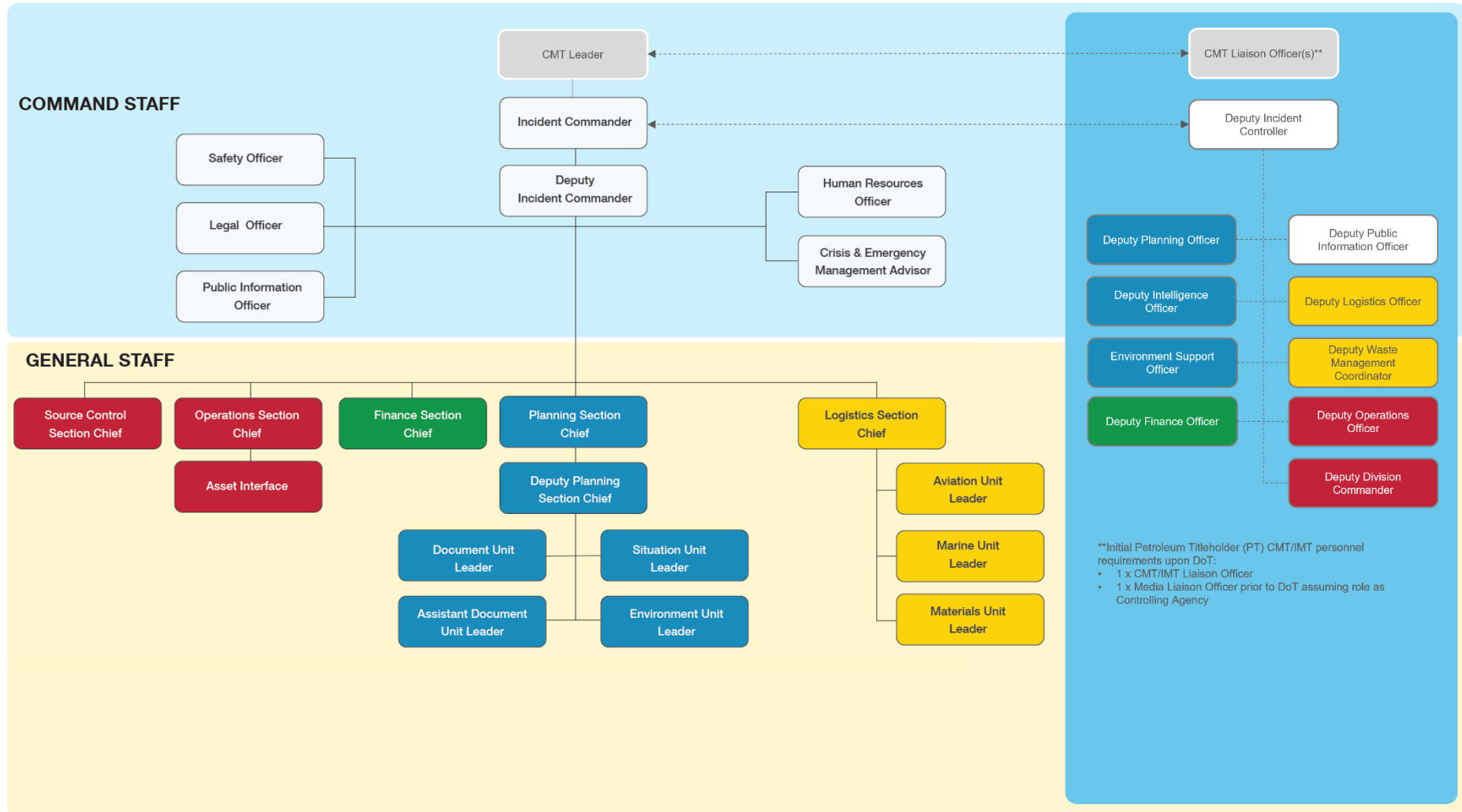
The Control Agency for a hydrocarbon spill in Commonwealth waters resulting from an offshore petroleum activity is Woodside (the Petroleum Titleholder).

The Control Agency/ Hazard Management Agency (HMA) for a hydrocarbon spill in State waters/shorelines resulting from an offshore petroleum activity is DoT. DoT will appoint an Incident Controller and form a separate IMT to only manage the spill within State waters/shorelines.

² Adapted from DoT Offshore Petroleum Industry Guidance Note, Marine Oil Pollution: Response and Consultation Arrangements July 2020. Note: For full structure up to Commonwealth Cabinet/Minister refer to Marine Oil Pollution: Response and Consultation Arrangements Section 6.5, Figure 4.

APPENDIX E – WOODSIDE INCIDENT MANAGEMENT STRUCTURE

Woodside Incident Management Structure for Hydrocarbon Spill (including Woodside Liaison Officers Command Structure within DoT IMT if required). Woodside's CIMT would operate from the Emergency Operations Centre (EOC) at the Woodside headquarters in Perth.



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APPENDIX F – WOODSIDE LIAISON OFFICER RESOURCES TO DOT

In the event that 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 State Marine Pollution Coordinator (SMPC), and that the remaining initial cohort will attend no later than 8 am on the day following the request being formally made to Woodside by the SMPC. 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 personnel ³	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 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
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. 	1

³ 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 [10].

Area	Role	Woodside personnel ³	Key Duties	#
			<ul style="list-style-type: none"> Facilitate the provision of relevant environmental information and advice originating from the DoT IMT to the PT IMT. 	
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
DoT IMT Logistics	Deputy Logistic 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

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Area	Role	Woodside personnel ³	Key Duties	#
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. 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. 	1
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 CIMT 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

APPENDIX H PMST search

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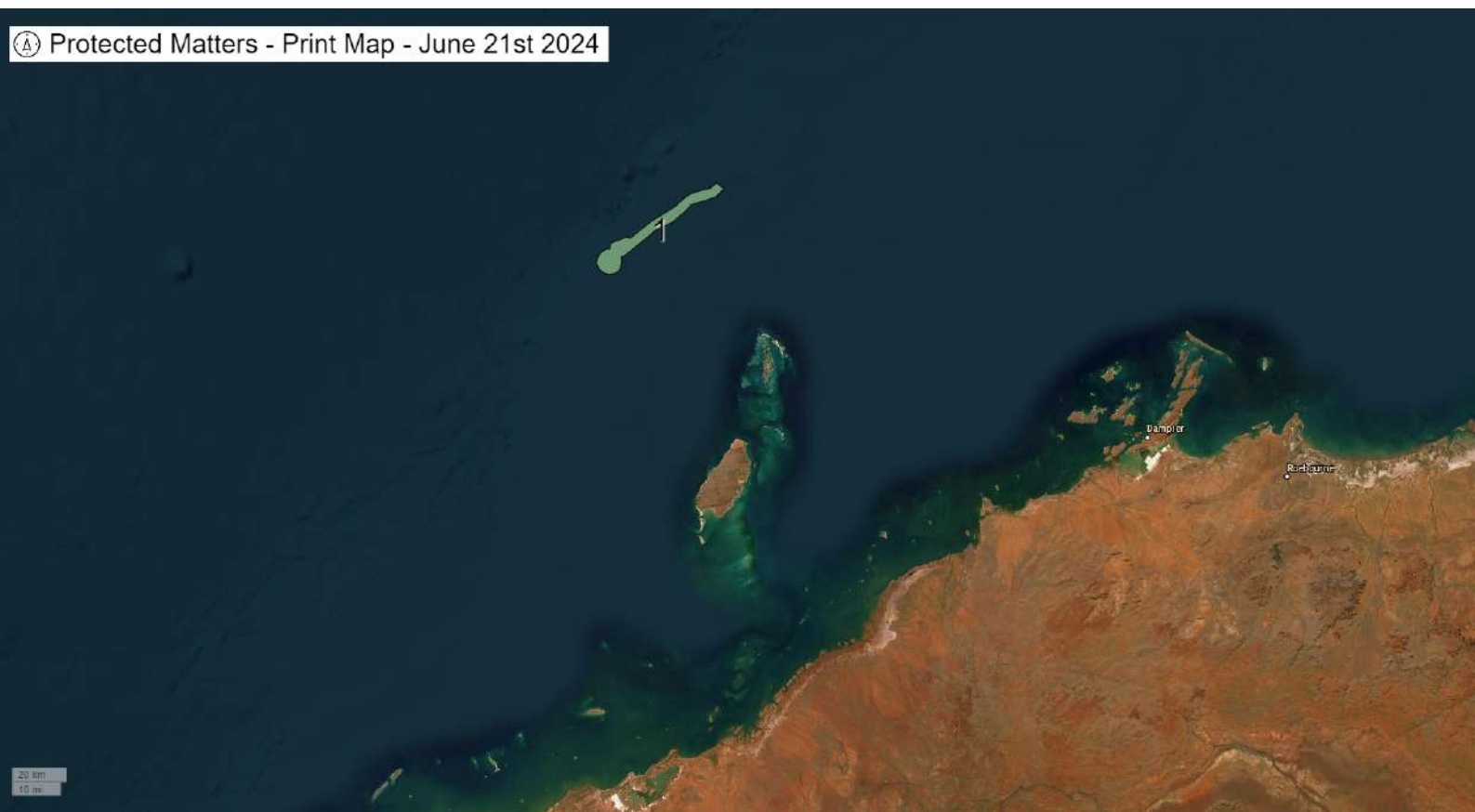
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Page 689 of 445

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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: 21-Jun-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:	25
Listed Migratory Species:	37

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:	65
Whales and Other Cetaceans:	28
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	1

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:	37
Key Ecological Features (Marine):	2
Biologically Important Areas:	7
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	Foraging, feeding or related behaviour 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	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 may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
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
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to 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
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat may 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
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	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat 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
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 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	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

Scientific Name	Threatened Category	Presence Text
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
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

Scientific Name	Threatened Category	Presence Text
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
Anous stolidus Common Noddy [825]		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 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

Scientific Name	Threatened Category	Presence Text
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to 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 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
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

Scientific Name	Threatened Category	Presence Text
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
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

Scientific Name	Threatened Category	Presence Text
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned 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

Scientific Name	Threatened Category	Presence Text
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
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
Reptile		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat may 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

Scientific Name	Threatened Category	Presence Text
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to 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	Species or species habitat known to 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 kingii as Disteira kingii Spectacled Sea Snake [93511]		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
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 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

Current Scientific Name	Status	Type of Presence
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]		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

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]		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
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 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
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

Extra Information

EPBC Act Referrals		[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status
Gorgon Gas Development	2003/1294		Post-Approval
Controlled action			
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
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
Not controlled action			
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
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
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 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
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 Northwest Shelf 2D Seismic Survey	2007/3260	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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Harmony 3D Marine Seismic Survey	2012/6699	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
Julimar Brunello Gas Development Project	2011/5936	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
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	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
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)		Manner)	
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

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

Biologically Important Areas		[Resource Information]
Scientific Name	Behaviour	Presence
Marine Turtles		
Chelonia mydas		
Green Turtle [1765]	Internesting buffer	Known to occur
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Natator depressus		
Flatback Turtle [59257]	Internesting buffer	Known to occur

Seabirds		
Ardenna pacifica		
Wedge-tailed Shearwater [84292]	Breeding	Known to occur

Sharks		
Rhincodon typus		
Whale Shark [66680]	Foraging	Known to occur

Whales		
Balaenoptera musculus brevicauda		
Pygmy Blue Whale [81317]	Migration	Known to occur

Scientific Name	Behaviour	Presence
<u>Megaptera novaeangliae</u> 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.

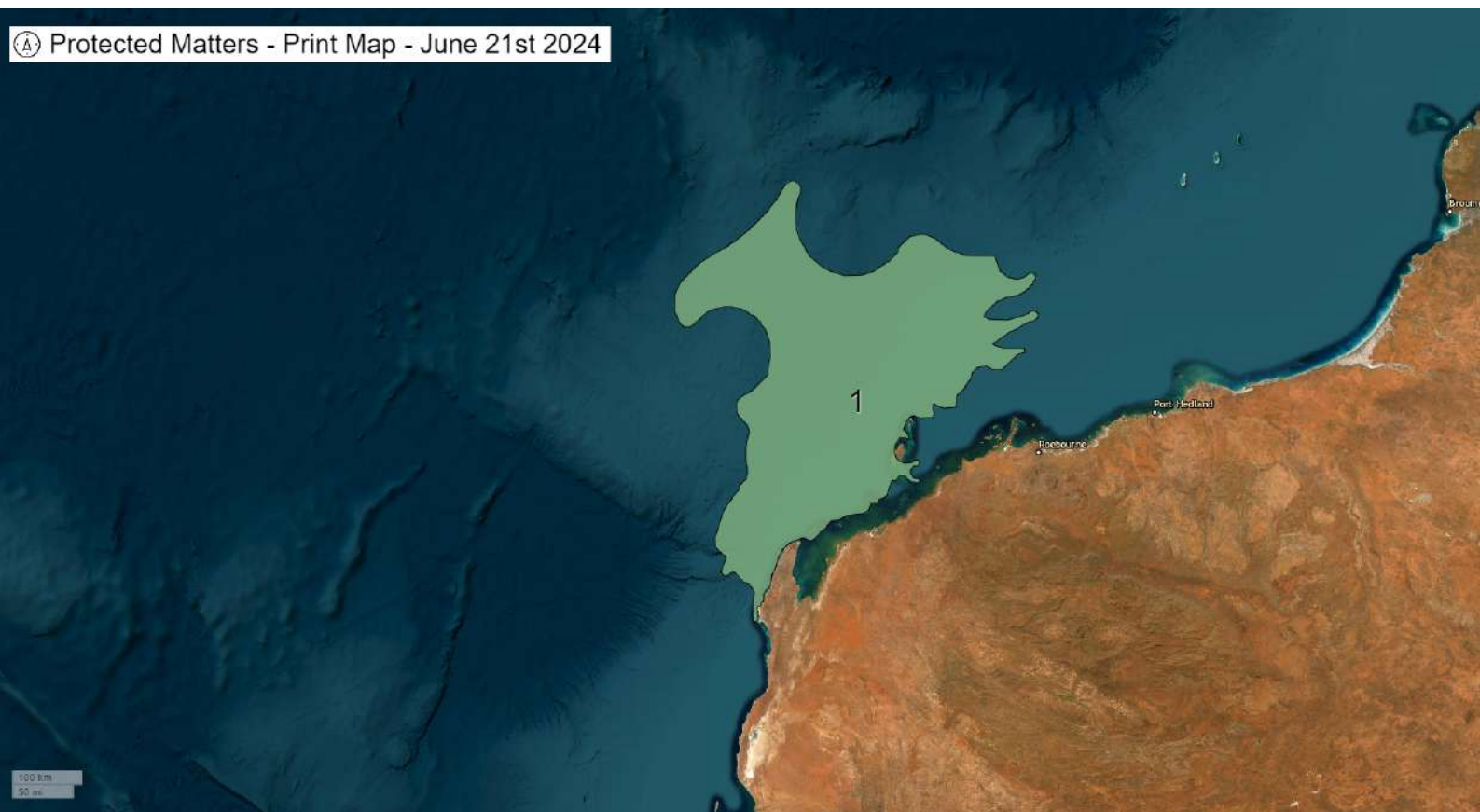
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EPBC Act Protected Matters Report

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: 21-Jun-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:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	53
Listed Migratory Species:	62

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:	4
Commonwealth Heritage Places:	2
Listed Marine Species:	103
Whales and Other Cetaceans:	30
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	5
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:	1
EPBC Act Referrals:	182
Key Ecological Features (Marine):	6
Biologically Important Areas:	34
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
Natural		
The Ningaloo Coast	WA	Listed place

Commonwealth Marine Area	[Resource Information]
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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]
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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
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
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 known 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
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
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	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
CRUSTACEAN		
Kumonga exleyi Cape Range Remipede [86875]	Vulnerable	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

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	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
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may 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

Scientific Name	Threatened Category	Presence Text
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	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 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
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	Congregation or aggregation known 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 known 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
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
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
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

Scientific Name	Threatened Category	Presence Text
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
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 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 likely 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	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
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may 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 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
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
Defence	
Defence - EXMOUTH VLF TRANSMITTER STATION [50123]	WA

Commonwealth Land Name	State
Defence - LEARMONTH - AIR WEAPONS RANGE [50193]	WA
Defence - LEARMONTH RADAR SITE - VLAMING HEAD EXMOUTH [50001]	WA
Unknown	
Commonwealth Land - [52236]	WA

Commonwealth Heritage Places [Resource Information]		
Name	State	Status
Natural		
Learmonth Air Weapons Range Facility	WA	Listed place
Ningaloo Marine Area - Commonwealth Waters	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
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

Scientific Name	Threatened Category	Presence Text
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
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 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]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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 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 known to 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

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
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]		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

Scientific Name	Threatened Category	Presence Text
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
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

Scientific Name	Threatened Category	Presence Text
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
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

Scientific Name	Threatened Category	Presence Text
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned 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

Scientific Name	Threatened Category	Presence Text
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
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

Scientific Name	Threatened Category	Presence Text
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
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding 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	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 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	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

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	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
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
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 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	
Gascoyne	Habitat Protection Zone (IUCN IV)	
Gascoyne	Multiple Use Zone (IUCN VI)	
Montebello	Multiple Use Zone (IUCN VI)	
Ningaloo	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
Aug - Sep		
Natator depressus		
Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		

Scientific Name	Behaviour	Presence
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
Airlie Island	Nature Reserve	WA
Barrow Island	Nature Reserve	WA
Barrow Island	Marine Management Area	WA
Barrow Island	Marine Park	WA
Bessieres Island	Nature Reserve	WA
Boodie, Double Middle Islands	Nature Reserve	WA
Cape Range	National Park	WA
Cape Range (South)	National 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

Protected Area Name	Reserve Type	State
Ningaloo	Marine Park	WA
North Sandy Island	Nature Reserve	WA
Thevenard Island	Nature Reserve	WA
Unnamed WA40322	5(1)(h) Reserve	WA
Unnamed WA41080	5(1)(h) Reserve	WA
Unnamed WA44667	5(1)(h) Reserve	WA

Nationally Important Wetlands		[Resource Information]
Wetland Name		State
Cape Range Subterranean Waterways		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	
Ningaloo Lighthouse Development, 17km north west Exmouth, Western Australia	2020/8693		Post-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
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 Angel gas and condensate field, North West Shelf	2004/1805	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			
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
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
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 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
Yardie Creek Road Realignment Project	2021/8967	Controlled Action	Assessment Approach
Not controlled action			

Title of referral	Reference	Referral Outcome	Assessment Status
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
Airlie Island soil and groundwater investigations, Exmouth Gulf, offshore Pilbara coast	2014/7250	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
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 Mutineer and Exeter petroleum fields for oil production, Permit	2003/1033	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
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
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
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
North Rankin B gas compression facility	2005/2500	Not Controlled Action	Completed
Pipeline System Modifications Project	2000/3	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	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
Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline	2005/2033	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
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
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
2D seismic survey within permit WA-291	2007/3265	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 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 Bsin on the North West Shelf	2002/778	Not Controlled Action (Particular Manner)	Post-Approval
3D sesmic survey	2006/2781	Not Controlled Action (Particular Manner)	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled Action (Particular	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
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
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
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092	Not Controlled Action (Particular Manner)	Post-Approval
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
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)		Manner)	
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
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
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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
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 Manner)	Post-Approval
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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)		Manner)	
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
Offshore Canning Multi Client 2D Marine Seismic Survey	2010/5393	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Drilling Campaign	2011/5830	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
Palta-1 exploration well in Petroleum Permit Area WA-384-P	2011/5871	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	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 reservior 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
Salsa 3D Marine Seismic Survey	2010/5629	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
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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)		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
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
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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 Marine Seismic Survey in the offshore northwest Carnarvon Basin	2011/6175	Referral Decision	Completed
3D Seismic Survey	2008/4219	Referral Decision	Completed
Bianchi 3D Marine Seismic Survey, Carnarvon 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-255-P, WA-32-L, WA-	2008/4165	Referral Decision	Completed
Two Dimensional Transition Zone Seismic Survey - TP/7 (R1)	2010/5507	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
Glomar Shoals	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
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

Scientific Name	Behaviour	Presence
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]	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]	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

Scientific Name	Behaviour	Presence
Natator depressus Flatback Turtle [59257]	Mating	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Seabirds		
Ardenna 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 prey)	Known to occur
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
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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APPENDIX I Program of ongoing engagement with Traditional Custodians

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Page 690 of 445

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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 to 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 to be guided by KAC in relation to its progress.

APPENDIX J Aboriginal Heritage Inquiry System

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Controlled Ref No: JU-00-RI-10006

Revision: 8.0

Native file DRIMS No: 10484514

Page 691 of 445

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Search Criteria

2 Aboriginal Cultural Heritage (ACH) Register in Shapefile - Julimar_Ops_AdvertEMBA. Warning: Search area complex so results may be inaccurate. Contact DPLH for assistance.

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Terminology

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 - 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:

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- 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.

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Coordinates

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Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

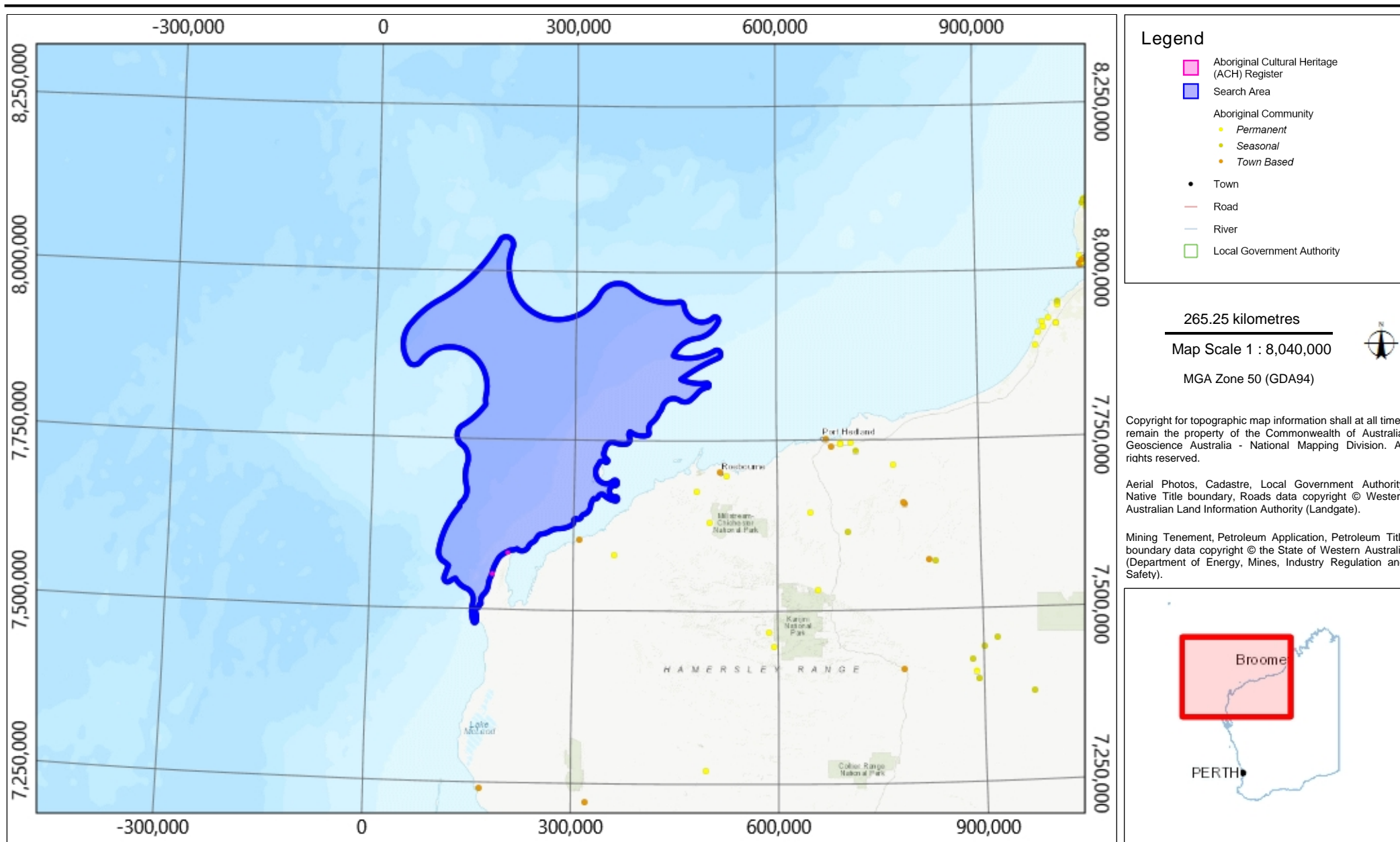
ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
7126	MESA CAMP	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden	*Registered Knowledge Holder names available from DPLH	P05792
10381	VLAMING HEAD	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Ritual / Ceremonial; Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P01799



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Map of Aboriginal Cultural Heritage (ACH) Register

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ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
884	I-24-S0001/S0002	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
885	BARROW ISLAND 03	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
886	C-21-S0001	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
890	D-20-S0001	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
891	Bandicoot Bay Settlement	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
892	BARROW ISLAND 10	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
893	D-20-S0002	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
894	D-16-S0001	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
31762	Site 1	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
31763	Site 2	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
36234	South End structures, Barrow Island.	No	No	No		Lodged	Historical; Traditional Structure	*Registered Knowledge Holder names available from DPLH	
36261	G-13-S0001	No	Yes	No		Lodged	Quarry	*Registered Knowledge Holder names available from DPLH	
36262	H-24-S0001	No	Yes	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
36263	H-24-S0002	No	Yes	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
36264	I-23-S0001	No	Yes	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
36265	I-23-S0002	No	Yes	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
36266	I-24-S0003	No	Yes	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	



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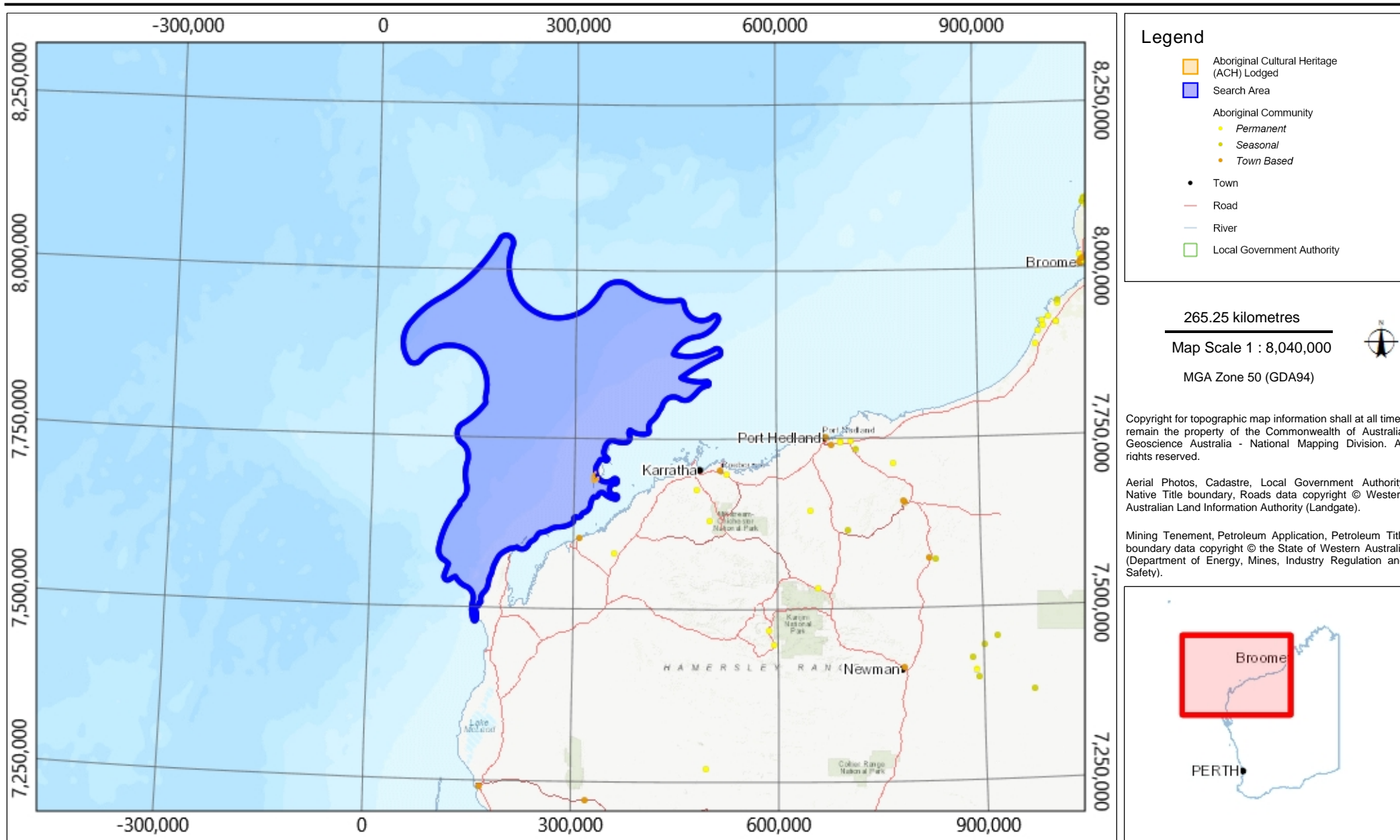
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36267	J-23-S0001	No	Yes	No		Lodged	Grinding areas / Grooves	*Registered Knowledge Holder names available from DPLH	
36268	J-23-S0002	No	Yes	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
36269	J-23-S0003	No	Yes	No		Lodged	Modified Tree	*Registered Knowledge Holder names available from DPLH	



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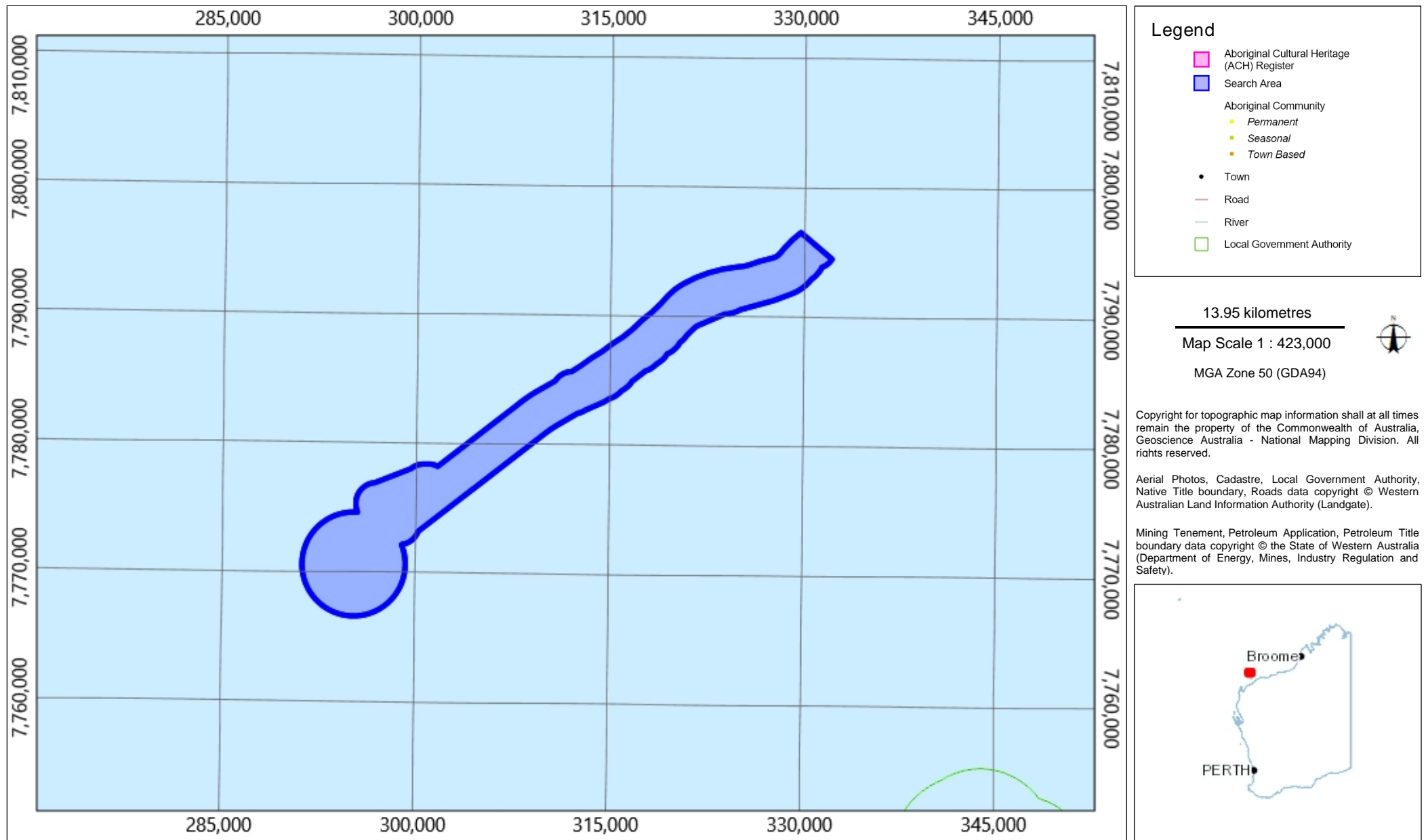
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